



Predicting Collective Efficacy Based on Commitment to Physical Activity and Social Dynamics in Students with Disabilities

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ABSTRACT

This study aimed to examine whether collective efficacy could be predicted by commitment to physical activity and social dynamics among students with disabilities. The study employed a descriptive–correlational design. The statistical population consisted of all students with disabilities enrolled in the second level of secondary schools in Kermanshah Province during the 2021–2022 academic year. Using multi-stage cluster sampling, 135 students were selected. Data were collected using the Collective Efficacy Questionnaire, the Commitment to Physical Activity Questionnaire, and the Social Dynamics Questionnaire. The findings revealed significant positive associations between social dynamics and collective efficacy ($r = 0.48$, $p < 0.01$) and between commitment to physical activity and collective efficacy ($r = 0.45$, $p < 0.01$). Multiple regression analysis further indicated that commitment to physical activity ($\beta = 0.38$, $p < 0.01$) and social dynamics ($\beta = 0.32$, $p < 0.01$) significantly predicted collective efficacy. The overall regression model was statistically significant ($F = 15.46$, $p < 0.01$), explaining 33% of the variance in collective efficacy ($R^2 = 0.33$; adjusted $R^2 = 0.32$). These findings suggest that both commitment to physical activity and social dynamics are significant correlates of collective efficacy in students with disabilities. Promoting team-based physical activities in educational settings may provide a practical pathway for strengthening social interaction, enhancing engagement in physical activity, and improving collective efficacy in this population.

Keywords: *collective efficacy; commitment to physical activity; social dynamics; students with disabilities; adapted physical activity; school-based sport*

1. Introduction

Studies show that individuals with disabilities are less physically active than the general population. This is a problem because people with disabilities experience more health problems, and physical activity may be an important avenue for reducing these health problems. However, current interventions to promote physical activity in this target group do not seem to be effective because they do not match their needs and preferences (1). Collective

efficacy is not the result of individual effort and is much more complex than interpersonal relationships. Sport psychology studies have pointed to the importance of collective efficacy. Collective efficacy is the individual's perception of the group's performance capability and the beliefs that have important consequences for team performance at times when group interaction is needed (2). It has been defined as an individual's shared belief in the group's ability to execute group activities in order to achieve group goals. Bandura believed that collective

efficacy and the beliefs derived from it influence individuals' selection as team members and provide the basis for the efforts of all team members to achieve group goals; and the better the team members' perception of collective efficacy, the more motivated they will be to fulfill their commitments in the group, they will appear stronger in the face of obstacles and challenges, and they will achieve more accomplishments (3, 4). Maenhout et al. reported that researchers often assume that students with disabilities do not have the ability to understand and discuss research-related topics (1). Their study described researchers' experiences in conducting co-creation research with adolescents and young adults with mild to moderate intellectual disabilities and formulated "lessons learned" so that future researchers could draw upon these findings when engaging in a co-creation process with this target group. The results showed that if co-creation methods are chosen according to the target group, such as using pictures, asking concrete rather than abstract questions, and providing clear but short instructions, co-creation with this target group is possible. In addition, to be better prepared for the great flexibility expected from a co-creation researcher, evaluating group dynamics before conducting co-creation can be useful. The presence and participation of the physical education teacher in these co-creation sessions was considered an added value for various reasons. By transparently and accurately describing the whole process, this may be the first step in turning co-creation into an evidence-based methodology, also for vulnerable populations (1).

Rakaa et al. showed that sports programs and group physical activities specifically designed for people with disabilities significantly improve the mental skills and sense of participation of students with motor disabilities (5). Ruggiero et al. found that students with special needs showed significant improvements in all three dimensions: communication competencies and personal factors showed the same progress (each +20.8%), while motor skills showed slightly less but still substantial progress (+16.6%) (6). These findings confirm that a structured educational approach can turn sport into a powerful tool for inclusion. Nolan et al. referred to the relationship between social dynamics and collective efficacy (2). Human beings are social creatures who live collectively and in groups from

birth to the end of life, and with increasing age and increasing complexity of activities, the need to create, maintain, and continue social relations becomes important. These social relations, or social dynamics, are important in all fields. Today, social dynamics play an important role in the process of improving individuals' presence in social activities, including sports (7). Social dynamics refer to social interactions among individuals and groups in an environment. In fact, social dynamics refer to conditions in which individuals interact with one another and seek greater cohesion, and people who are socially dynamic seek to increase the quantity and quality of communication using various tools. Although social dynamics have always been considered an important and key condition, they still require more research (8).

Zumeta et al. referred to the relationship between commitment to physical activity and collective efficacy (4). Physical activity has been defined as any bodily movement produced by skeletal muscles that results in energy expenditure (9), which is beneficial for the physical, psychological, and social aspects related to health in adolescents (10); therefore, commitment to physical activities requires attention. Commitment is a reflection of a mental decision that includes goal setting by oneself and/or a kind of feeling of dependence and attachment to a specific behavior, which can be generalized to various contexts (11). Commitment to physical activity is a psychological state that indicates the individual's tendency and decision to continue participation in sport, which leads to feelings such as pleasure, interest, and happiness, and increasing these pleasures leads to greater commitment to sport (12). Commitment to physical activity seeks to identify the conditions under which individuals express willingness to continue a program or physical activity. Scanlan et al. presented two eager and constrained sources for commitment to physical activity, according to which people continue physical activities either because they have to or because they want to continue their activity (13). Few studies have been conducted regarding the variables in question. Shi and Huang concluded by presenting policy recommendations and practical strategies for improving the physical health of adolescents, ultimately aiming to strengthen social stability and advance sustainable development (14). The resulting insights may inform

policymakers, educators, and community leaders about fostering a healthier and more resilient younger generation. Nolan et al., in a study entitled *Community Dynamics, Collective Efficacy, and Police Reform in the City of Kuala Lumpur*, referred to the relationship between social dynamics and collective efficacy (2). Today, according to a report published by the World Health Organization, the number of people with disabilities is increasing, and sport has been among the activities shown to be effective in their social adaptation. This is because sport helps them to have mobility and movement and to establish a relationship with their environment. One of the factors that affects the optimal performance of people with disabilities in team sports is collective efficacy, attention to which has increased in recent years, and identifying its influential factors has become important. Therefore, this study was designed with the aim of predicting collective efficacy based on commitment to physical activity and social dynamics in students with disabilities.

2. Methods and Materials

2.1. Study Design

This study was applied in terms of purpose and descriptive-correlational in terms of method. The research was designed to examine the relationships among the study variables, with social dynamics and commitment to physical activity considered as predictor variables and collective efficacy considered as the criterion variable.

2.2. Research Population and Sampling

The statistical population of the study consisted of all students with disabilities enrolled in the second level of secondary education in exceptional schools of Kermanshah Province during the 2021–2022 academic year. The total population was 210 students. Based on Morgan's table and with an error rate of 0.5 taken into account, the desirable sample size for the study was estimated to be 135 participants. To select the participants, a multi-stage cluster sampling method was used. In this process, one second-level secondary school was selected from each county. After the schools were selected, the online link to the questionnaires was uploaded in the class groups so that students could complete the survey instruments. In cases

where the participants were unable to complete the questionnaires online, printed versions of the questionnaires were provided to them. At the end of the data collection process, 135 complete questionnaires were returned and entered into the final analysis.

2.3. Data Collection Instruments

Data were collected using three standardized questionnaires assessing commitment to physical activity, collective efficacy, and social dynamics.

Commitment to Physical Activity Questionnaire

The Commitment to Physical Activity Questionnaire was developed by Robbins et al. (15). This instrument consists of 11 items and includes three components: commitment to physical activity (4 items), planning for exercise (4 items), and physical activity test (3 items). Responses are scored on a four-point Likert scale ranging from never (0) to often (3), with the response options including never (0), rarely (1), sometimes (2), and often (3). The minimum possible score is 11 and the maximum possible score is 55. The construct validity and content validity of the questionnaire were confirmed by Robbins et al., and its reliability was reported as 0.88 (15). In the present study, reliability was assessed using Cronbach's alpha, and the coefficient obtained was 0.89.

Collective Efficacy Questionnaire

The Collective Efficacy Questionnaire was developed by Short, Sullivan, and Feltz (16). It contains 17 items and measures the subscales of effort (items 8, 10, and 16), ability (items 1, 14, and 15), preparation (items 4, 12, 18, and 19), persistence (items 3, 9, 11, and 17), and unity (items 2, 6, and 20). Responses are recorded on a five-point Likert scale ranging from I do not believe at all (0) to I completely believe (5). The minimum score of the questionnaire is 17 and the maximum score is 85. The construct and content validity of this questionnaire were confirmed by Bahrami, Khajavi, and Kavousi (17), and its reliability was reported as 0.84. In the present study, Cronbach's alpha was used to examine internal consistency, and the reliability coefficient was 0.79.

Social Dynamics Questionnaire

The Social Dynamics Questionnaire was designed by Kazemi et al. (18) and consists of 20 items. The items are scored on a five-point Likert scale ranging from completely

disagree (1) to completely agree (5). The minimum obtainable score is 20 and the maximum obtainable score is 100. The content validity and construct validity of the questionnaire were confirmed, and Kazemi et al. reported a reliability coefficient of 0.87 (18). In the present study, the reliability of this instrument was assessed by Cronbach's alpha, yielding a coefficient of 0.90.

2.4. Data Analysis

Data analysis was performed using SPSS software, version 24. The analysis was conducted in two sections: descriptive statistics and inferential statistics. In the descriptive section, tables, means, and standard deviations were used to summarize the data. In the inferential section, skewness-kurtosis indices were used to examine the normality of the data distribution, Pearson correlation coefficient was used to assess the relationships among variables, and simultaneous regression analysis was employed to determine the predictive power of social

dynamics and commitment to physical activity for collective efficacy.

3. Results

The presentation of the research results should be clear and documented. (Font: B Mitra 12)

Please note that the explanations related to figures and tables must definitely be written below them in both Persian (Font: B Mitra 10 bold) and English (Times New Roman (Headings CS) 10 bold). In this study, 85 individuals, equivalent to 62.96%, were male students, and 50 individuals, equivalent to 37.03%, were female students. Also, 52 individuals, equivalent to 38.51%, were in the tenth grade, 44 individuals, equivalent to 32.59%, were in the eleventh grade, and 39 individuals, equivalent to 28.88%, were in the twelfth grade. The mean and standard deviation of students' age were 17.08 and 4.33, respectively.

Table 1

Descriptive statistics of the commitment to physical activity variable

Variable	Mean	Standard Deviation	Minimum Score	Maximum Score	Frequency
Commitment to physical activity	26.78	5.49	0	33	135
Social dynamics	76.83	12.39	0	100	135
Collective efficacy	123.05	15.85	0	170	135

As can be seen in the table above, the mean and standard deviation of commitment to physical activity are 26.78 and 5.49, the mean and standard deviation of the social dynamics variable are 76.83 and 12.39, and the mean and standard deviation of collective efficacy are 123.05 and

15.85. The results of the skewness-kurtosis test to examine the normality of the data showed that the skewness and kurtosis values of the variables are within the range of (-2 to +2), indicating the normality of the data.

Table 2

Pearson correlation between study variables

Variable	Collective Efficacy (r)	p-value
Social Dynamics	0.48	< 0.01
Commitment to Physical Activity	0.45	< 0.01

As shown in Table 2, there is a positive and significant relationship between social dynamics and collective efficacy ($r = 0.48$, $p < 0.01$) and between commitment to

physical activity and collective efficacy ($r = 0.45$, $p < 0.01$); therefore, the research hypothesis is confirmed and the null hypothesis is rejected.

Table 3*Multiple regression analysis predicting collective efficacy*

Predictor	B	SE	β	t	p
Constant	25.36	5.89	—	4.30	< .01
Commitment to Physical Activity	0.49	0.10	0.38	4.90	< .01
Social Dynamics	0.41	0.12	0.32	3.41	< .01

Model statistics: $R = 0.58$, $R^2 = 0.33$, Adjusted $R^2 = 0.32$, $F = 15.46$, $p < .01$, Durbin–Watson = 1.86

As shown in table 3, A multiple regression analysis was conducted to examine whether commitment to physical activity and social dynamics predict collective efficacy. The overall model was statistically significant ($F = 15.46$, $p < .01$) and explained 33% of the variance in collective efficacy ($R^2 = 0.33$). Both commitment to physical activity ($\beta = 0.38$, $p < .01$) and social dynamics ($\beta = 0.32$, $p < .01$) significantly predicted collective efficacy. The Durbin–Watson statistic (1.86) indicated that the assumption of independence of errors was satisfied.

4. Discussion

This study was conducted with the aim of predicting collective efficacy based on commitment to physical activity and social dynamics in students with disabilities. For this purpose, 135 participants were selected as the sample, and the data obtained from the study were analyzed using appropriate statistical methods. The results of data analysis showed that there is a significant relationship between social dynamics and commitment to physical activity with collective efficacy. This result is in line with the findings reported by Ruggiero et al., Maenhout et al., Baldi et al., Moradi and Sepahvand, Zamani Sani et al., and Nolan and Hinkle (1, 2, 6, 12, 19, 20).

In explaining this finding, it can be stated that collective efficacy is defined as the individual's perception of the group's ability and the important consequences that result from group performance. In fact, collective efficacy is the individual's shared belief in the group's ability to perform group activities in order to achieve group goals. This belief and perception are the result of group activity, and the ability of each group member affects it. Therefore, in group activities that require physical and bodily activity, the level of physical activity of group members is important for achieving goals and shared belief or collective efficacy, and

the level of commitment of group members to sports physical activities determines their individual performance. By observing the individual performance of each group member, the individual reaches a collective and shared belief about the group's ability.

Also, regarding the role of social dynamics and its significant relationship with collective efficacy, it can be said that social dynamics, which are social interactions among individuals and groups in an environment, refer to conditions in which people interact with one another and seek greater cohesion as members of a group. People who are socially dynamic seek to increase the quantity and quality of communication using various tools. This type of communication and interaction among group members can lead to better results and performance of members and the group and create in them a shared belief in the group's ability to achieve goals. Therefore, social dynamics and the interactions resulting from them may be effective and useful in increasing the group's shared belief in the group's ability, or collective efficacy. The results of data analysis showed that the status of social dynamics in students with disabilities is above average and that this difference from the mean is significant. This result is in line with the findings of Rakaa et al. (5). In explaining this result, it can be said that social dynamics, which are defined as social interactions among individuals, are necessary for the daily life of every person, and students with disabilities are no exception to this rule. Since they need help and interaction with others to carry out their daily affairs, they show a good level of social dynamics.

The results of data analysis showed that the status of commitment to physical activity in students with disabilities is below average and that this difference from the mean is significant. This result is in line with the findings of Moradi (12). In confirming this finding, it can

be said that since many students with disabilities have special conditions and limitations related to the type of their disability, their participation in physical activities is lower and they have less commitment to physical activities. The results of data analysis showed that the status of collective efficacy in students with disabilities is above average and that this difference from the mean is significant. In confirming this finding, it can be said that collective efficacy refers to the shared belief of group members in the group's ability to perform group activities in order to achieve group goals, and students with disabilities need each other's help and cooperation in order to achieve their individual and group goals. This need and necessity lead them toward the belief that alongside other people, their probability of success is greater. The results of data analysis showed that there is a significant relationship between social dynamics and commitment to physical activity. This result is in line with the findings of Baldi et al. and Zamani et al. (19, 20). In confirming this finding, it can be said that social dynamics improve the level of individuals' participation in sports activities. Kim et al. believed that social aspects, including social dynamics, play a major role in the process of increasing individuals' presence in social activities, including sports and physical activities (7). In fact, participation in sports activities and commitment to physical activities are the result of some individual and social issues that play a complementary role. In other words, social dynamics, by influencing the environment and creating a constructive and dynamic environment, play an important role in improving and increasing commitment to physical activities.

Results showed that there is a significant relationship between social dynamics and collective efficacy. This result is in line with the findings of Baldi et al. and Lecher et al. (19, 21). Collective efficacy is the individual's perception of the group's performance ability and the beliefs of group members that have consequences for group performance at times when the group needs group interaction. This shared belief is the result of group activities and the shared perception of all group members about the individual and group performance of group members, which requires interaction and communication among members. Social dynamics and the interactions and communications resulting from it help group members,

through recognition of one another's abilities and use of the various capacities of group members, to improve group performance and create a shared belief in all members about ability. Therefore, it can be said that social dynamics lead to increased collective efficacy. Data analysis showed that there is a significant relationship between commitment to physical activity and its components with collective efficacy. This result is in line with the findings of Moradi, Tammelin et al., and Kim et al. (7, 9, 12). In explaining this relationship, it can be said that collective efficacy is defined as group members' perception of the group's ability to achieve goals, which requires the activity and movement of each group member according to the role and activity assigned to him or her. Since physical activity is important for achieving group goals, the commitment of group members to these activities can lead to increased group performance. In fact, commitment to physical activity is a psychological state that indicates the individual's willingness and decision to continue participation in physical activities, which leads to feelings such as pleasure, interest, and happiness and outcomes such as increased performance and ultimately belief in one's own and the group's ability for better performance. In this regard, the components of commitment to physical activity should not be overlooked, and the components of effort, ability, preparation, persistence, and unity play an important role in increasing team performance and reaching a shared belief and perception of group performance, or collective efficacy. Following this shared belief, group members, with their preparation, effort, persistence, and unity, strive to achieve their group goals and improve group performance, and this two-way interaction and communication leads to increased collective efficacy.

5. Conclusion

Educational authorities, given the important role of social dynamics in increasing students' collective efficacy, should pay attention to teaching group dynamics and strengthening students' participation and interactions and encourage them. By increasing group activities and assignments, the ability and skill of teamwork can be enhanced for students so that they can appear more dynamically in the group and provide the basis for increasing the group's collective efficacy. Group

communications among members of the group or students with the school's executive staff should be encouraged and approved so that these individuals, while becoming aware of their strengths and weaknesses, do not feel any barrier to communication with others and social dynamics. School administrators should pay attention to explaining and justifying the goals, benefits, and advantages of group activities for students.

Authors' Contributions

Not applicable.

Declaration

Artificial intelligence (AI) tools were used solely for language editing, formatting, and improving clarity of expression. AI-assisted tools did not contribute to the study design, data collection, data analysis, interpretation of findings, or generation of results. All intellectual content, data analysis, and conclusions were developed independently by the author. The author takes full responsibility for the accuracy and integrity of the manuscript.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

All ethical principles related to research involving human participants were carefully observed in this study. Participation in the research was entirely voluntary, and the participants were informed about the objectives and procedures of the study before completing the questionnaires. Written informed consent was obtained from the students and their parents or legal guardians due to the participants being under the age of 18 and belonging to a vulnerable group (students with disabilities). Participants were assured that their responses would remain confidential and would be used solely for research purposes. No identifying information was collected, and all data were analyzed anonymously to protect participants' privacy. In addition, the participants were informed that they had the right to withdraw from the study at any stage without any consequences. The study procedures were conducted in accordance with the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki.

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