Revista de Psicología del Deporte/Journal of Sport Psychology Vol. 32. n.°3. 2023. pp. 1-19. ISSN 1132–239X ISSNe 1988–5636

The Impact of Regular Exercise, Competition Experience, and Physical Self-efficacy on Psychological Resilience

Dong Hwan Kim[1], Jeong Hu Kim[2*], Kyong-Jun Park[3]

Abstract
The concept of resilience has a crucial role in various aspects of individuals' lives, including physical exercise, self-efficacy, self-esteem, body image, and overall welfare. The importance of this factor in assisting athletes in effectively navigating the demands of sports performance should not be underestimated. The present study aims to investigate the effects of consistent physical exercise and participation in competitive activities on an individual's psychological resilience. A cross-sectional analysis was conducted on a sample of 329 participants, consisting of 229 individuals who engaged in regular exercise and 100 individuals who did not exercise. The participants were selected from athletics club members and college students. The Resilience Scale and Physical Self-Efficacy Questionnaire were administered to the participants using a survey conducted through Google Forms. Prior informed consent was obtained from all participants. The findings suggest that those in the regular exercise group had enhanced emotional impulse control, heightened positive emotions, improved communication skills, more empathy, and greater self-improvement in comparison to those in the non-exercise group. In a similar vein, individuals who took part in competitive activities had a significant improvement in their ability to regulate their emotional impulses, showed a greater understanding and management of positive emotions, exhibited improved communication abilities, displayed heightened empathetic capacities, and experienced enhanced personal growth compared to those who did not participate. The aforementioned results highlight the beneficial impact of consistent physical activity in strengthening one's psychological resilience, which is consistent with previous research that has demonstrated exercise's ability to reduce stress and enhance resilience. This study highlights the positive associations between consistent physical activity, engagement in competitive sports, and increased psychological resilience among athletes. Examining these connections offers practical knowledge for athletes and sports professionals aiming to enhance their psychological well-being and performance in demanding environments.
Keywords: Regular Exercise; Competition Experience; Physical Self-efficacy; Psychological Resilience

1. Introduction

Engaging in regular physical activity has been found to have positive effects on several physical conditions, including obesity, cancer, cardiovascular disease, and sexual dysfunction. Additionally, it has been observed to yield favorable outcomes in terms of mental health, specifically in relation to depression, anxiety, and other mood states (Penedo & Dahn, 2005). Insufficient levels of physical activity have been identified as a significant contributing factor to the elevated rates of sickness, disability, and early mortality both in the United States and on a global scale (Kakarougkas & Papageorgakis, 2023; Lin et al., 2022). An et al. (2016) stated that despite a modest decrease in physical inactivity over the past three decades, a significant segment of the adult population in the United States continues to exhibit a lack of physical exercise. In order to sustain regular physical exercise, it is imperative to implement lifestyle adjustments, particularly in terms of health behavior alterations. Albert Bandura's Social Cognitive Theory (SCT) has been extensively employed as a theoretical framework in interventions aimed at modifying behaviors, specifically in the context of promoting regular physical activity (Bandura, 1997). Social Cognitive Theory (SCT) proposes the idea of "reciprocal determinism" as a core tenet, wherein it is postulated that the environment, the individual, and behavior engage in continuous interaction and exert mutual impact on each other (Bandura, 1997). Self-efficacy has been acknowledged as a pivotal element in facilitating behavioral modification within the confines of this theoretical framework, as evidenced by several research studies (Bandura, 1997; Park & Jee, 2019).

The theory of self-efficacy, a sub-theory within the broader framework of Social Cognitive Theory (SCT), exhibits a strong association with diverse health contexts. Specifically, individuals with higher levels of self-efficacy tend to engage in healthier behaviors and demonstrate more participation in physical activity. This reciprocal relationship between self-efficacy and health behaviors forms a cyclical structure that reflects the enhancement of self-efficacy through time. The investigation of the correlation between resilience and stress factors through the utilization of self-efficacy variables holds significant academic value. In a broad sense, self-efficacy pertains to the beliefs individuals hold about their capacity to do tasks using the available resources in various contexts. It is important to note that self-efficacy is not

[1] Division of Smart Healthcare, Pukyong National University, 48513, Busan, Republic of Korea
[2] Department of Physical Education, Catholic Kwandong University, 25601, Gangneung-si, Gangwon-do, Republic of Korea
[3] Department of Physical Education Baewha Women's University, 03039, Seoul, Republic of Korea
*Corresponding Author: Jeong Hu Kim (drksm@cku.ac.kr)

contingent upon the quantity of abilities or resources one possesses (Mehdi & Ali, 2023). Self-efficacy is established by a combination of mastery experiences, surrogate modelling, verbal persuasion, and physiological and emotional results (Zulkosky, 2009).

The most crucial determinant of an individual's self-efficacy is their mastery experience. More precisely, the attainment of goals and positive outcomes contributes to the enhancement of self-efficacy, while the experience of setbacks and unfavorable results diminishes self-efficacy. One illustrative instance is that of vicarious experience, wherein an individual may assert, " If they can do it, I can do it as well". The act of observing the triumphs of others has the potential to enhance our self-efficacy, whereas the experience of witnessing failures has the potential to diminish it. Verbal persuasion frequently presents itself in the form of explicit support or discouragement conveyed by another person.

The adverse consequences of discouragement on an individual's belief in their own abilities (self-efficacy) are frequently more significant than the positive effects of encouragement. The ability to identify and comprehend one's physiological and emotional reactions, together with employing independent methods to alleviate feelings of pain, exhaustion, and anxiety, can significantly impact and improve an individual's self-efficacy. The impact of beliefs concerning personal efficacy on health behaviors is direct, as well as indirect through their influence on objectives, expectations of outcomes, and perceptions of facilitators and barriers (Bandura, 2004). Through self-efficacy, these connected characteristics interact to promote learning and skill development. Individuals with higher levels of self-efficacy are more likely to predict favorable outcomes, overcome challenges, and show drive and dedication to reaching their goals (Bandura, 1998, 2004). A favorable association between self-efficacy and physical activity can be seen by looking at the relationship between the two (McAuley & Blissmer, 2000). Additionally, there is a strong link between exercise and self-efficacy, and an increase in self-efficacy causes an increase in physical activity (Anderson-Bill, Winett, & Wojcik, 2011; Ashford, Edmunds, & French, 2010; Phillips & McAuley, 2013; Rovniak et al., 2002; White, Wójcicki, & McAuley, 2012). Exercise experiences are also a source of self-efficacy (Ma & Jee, 2019; McAuley, Courneya, & Lettunich, 1991). Because Self-efficacy is more crucial when coping with challenging events like adversity since it is difficult to perform at your best in uncertain and stressful circumstances (Bandura, 1997).

Due to the complex interaction of several factors, including competition with other athletes, stress from group activities, financial issues related to competing in sports, and investment of personal time, participation in competitions for athletes may be accompanied by personal stressors (Fletcher, Hanton, & Mellalieu, 2008; Stephen D Mellalieu et al., 2009). However, the anxiety that comes with playing sports is unavoidable, and it is a difficult obstacle that must be conquered to reach a high level of performance (Collins & MacNamara, 2012; Sarkar, Fletcher, & Brown, 2015). For instance, accepting a match as a danger modifies physiological reactions (fear, muscle tone), and these modifications can result in impairment. High self-efficacy people tend to put more effort into their work and show greater endurance, especially in the face of pressure (Bandura, 1990). Furthermore, even in highly stressful circumstances like adversity, self-efficacy has a favorable impact on resilience. Resistance to or recovery from adversity is resilience (Bonanno et al., 2010; Tedeschi & Calhoun, 1995). Resilience is the ability to quickly return to normal functioning following a traumatic event. This indicates that in the absence of stressors, healing may be challenging. Self-efficacy, however, may still exist even if the stressor has not yet materialized or has not done so, for example, when a person thinks and plans for the future without specifically confronting their anxieties (Berry & West, 1993). Self-efficacy is a factor that can influence how resilient a person is in the face of hardship. By triggering emotional, motivational, and behavioral mechanisms in trying situations, self-efficacy beliefs foster resilience. As a result, some people consider self-efficacy to be a vital component of resilience (Rutter, 1987; Werner & Smith, 1982).

There exists a strong positive correlation between self-efficacy and resilience (Hinz et al., 2006). Therefore, it can be observed that while resilience and self-efficacy are empirically interconnected, self-efficacy has the potential to manifest even in the absence of stress (Diehl, Semegon, & Schwarzer, 2006). Conversely, previous research has indicated that those who have encountered hardship throughout their lives have more favorable outcomes in terms of mental health and overall well-being compared to those who have not experienced such adversity (Neff & Broady, 2011; Seery, 2011). This phenomenon can be attributed to individuals who, when exposed to an optimal level of stress, are capable of harnessing untapped reserves to effectively confront and surmount the challenges they face. Moreover, they may actively seek out social networks for assistance and cultivate a sense of competence, so enhancing their ability to cope with future adversities (Meichenbaum, 1985). Collectively, self-efficacy emerges as a highly influential determinant of psychological outcomes. In competitive sports, the enhancement of self-efficacy is commonly acknowledged as a precursor factor that has a substantial impact on the attainment of goals. The impact of stress on performance outcomes is well-documented, with stress being seen as a significant hindrance to success. Conversely, self-efficacy has been recognized as an effective intervention technique for mitigating stress, particularly in relation to traumatic experiences.

Similarly, life sports seek to optimize the attainment of

success by emphasizing factors such as direct and indirect experiences of success, verbal encouragement for achievement, and the preservation of optimal emotional and physiological states to enhance self-efficacy. In the context of lifelong sports, it is worth noting that individuals may encounter a range of stressors that can potentially result in traumatic experiences. These experiences, in turn, may prompt individuals to discontinue their engagement in physical exercise and thus lower their overall levels of physical activity.

In the context of competitive sports, individuals may experience stress, prompting them to employ various coping mechanisms and strategies in order to manage or alleviate the resulting psychological and physiological effects. The objective of these endeavors is to stimulate emotional, motivational, and behavioral processes in a challenging circumstance, with the intention of demonstrating self-efficacy and bolstering resilience in order to aid the process of recuperation from stress. Subsequently, let us consider the scenario wherein individuals who are not professional athletes but engage in regular sporting activities encounter stress, particularly when partaking in competitive events. In this scenario, one may pose a study inquiry on the potential impact of frequent exercise engagement on the enhancement of resilience. Drawing on prior studies on the stress encountered by athletes, it is evident that when individuals engage in everyday sports activities and experience stress as a result of competitive engagement, inquiries arise regarding the potential augmentation of resilience. Thus, there is a pressing demand for further investigation in this domain.

The current investigation examined the correlation between regular exercise, experience in participating in competitions, physical self-efficacy, and resilience in individuals engaged in sports activities. The current study aimed to examine whether individuals who regularly participate in Sports for Life engage in strategies to restore their stress levels to baseline following exposure to competitive sports, by utilizing various metacognitive processes to cope with stressors. Additionally, within the scope of this study, we conducted a statistical analysis to ascertain the potential for enhancing self-efficacy and establishing a noteworthy correlation among individuals exhibiting resilience.

In order to achieve the aim of this study, the researchers formulated the following research questions: Is there a discernible distinction in the levels of physical self-efficacy and recovery resilience based on individuals' engagement in regular exercise and their experience in competitive settings? Second, is there a discernible association between consistent engagement in physical exercise and the constructs of physical self-efficacy, competitive experience, and recovery resilience? Thirdly, it is important to explore the potential impact of regular exercise on physical self-efficacy, as well as the potential influence of physical self-efficacy on competitive experience and recovery resilience. Fourth, what kind of effect does a competitive experience have on both physical self-efficacy and recovery resilience?

2. Literature Review

Psychological resilience, the ability to bounce back from challenging circumstances, has been a subject of enduring interest among researchers and healthcare professionals (Richardson, 2002). The significance of consistent physical activity, participation in competitive events, and belief in one's own physical abilities are identified as key factors in the development of resilience (Martin, 2012). Regular exercise has been found to be strongly associated with a multitude of physiological and psychological benefits (Richardson, 2002). The findings of a longitudinal study conducted by Bonetti and Johnston (2008) indicate that those who engage in regular exercise demonstrate improved mood regulation and a lower incidence of depression compared to those who lead sedentary lifestyles. Exercise has been found to stimulate the release of endorphins, which are neurochemicals that possess analgesic properties and contribute to enhanced feelings of well-being. This phenomenon elicits an instantaneous sensation of a positive emotional state. In their study, Fletcher and Sarkar (2016) undertook an explicit investigation into the concept of resilience. Their findings revealed a positive association between regular exercise and enhanced stress management abilities, as well as a greater ability to recover swiftly from difficult situations.

Competition, whether it be in the realm of sports or other domains, provides individuals with an opportunity to challenge their limits, overcome hurdles, and acquire novel skills (Goddard et al., 2019). The development of resilience is a characteristic that occurs through time as individuals are exposed to adversity and are required to adapt to difficult circumstances (Fletcher & Sarkar, 2016). It is a common occurrence for individuals to encounter failure or setbacks in the context of competitive endeavours. Such experiences serve as valuable opportunities for individuals to develop effective coping mechanisms in the face of adversity and cultivate their psychological resilience (Niitsu et al., 2019; Ullah et al., 2023). According to a study conducted by Liu et al. (2023), it was shown that athletes exhibited greater levels of resilience over a period of time in comparison to individuals who did not engage in athletic activities. This disparity in resilience may primarily be attributed to the athletes' consistent exposure to demanding circumstances, which facilitated the development and refinement of their adaptive capacities. There exists a robust correlation between exercise and competition and the

development of physical self-efficacy. Based on Bandura's seminal research on self-efficacy in 1994, the concept refers to an individual's level of confidence in their own physical abilities. There is a significant association between elevated levels of physical self-efficacy, enhanced athletic performance, and increased physical resilience (Darazi, Khoso, & Mahesar, 2022). This perspective has a substantial impact on tasks beyond the realm of physicality. The development of psychological resilience is contingent upon the presence of physical self-efficacy, as it has the potential to influence an individual's confidence and ability to effectively navigate challenges. The expansion of individuals' perceptions of their capacity to surmount challenges in various domains of life often occurs when they have success in overcoming physical barriers (Latif et al., 2021).

The interaction between exercise, competition, and self-efficacy in relation to resilience is evident, highlighting the interconnectedness of these factors. Engaging in consistent physical activity has been shown to enhance an individual's physical self-efficacy, hence enhancing their performance and resilience in competitive contexts (Darazi, Khoso, & Mahesar, 2023). The complex interaction is subject to the influence of multiple elements, encompassing the environment, peer pressure, and individual personalities (Majeed et al., 2022). The presence of a supportive environment has the potential to amplify the positive effects of competition on resilience (Ruddell & Shinew, 2006). A considerable body of research has demonstrated that engaging in consistent physical activity, possessing experience in competitive settings, and having a strong belief in one's own physical capabilities all play a substantial role in enhancing an individual's psychological resilience. In order to enhance resilience among individuals and groups in the face of various challenges, it is crucial to acknowledge and actively support certain resilience factors (Ruddell & Shinew, 2006). The interaction of these elements is not limited to a linear relationship, but rather extends to multiple dimensions, resulting in a cumulative impact on resilience (Xia, Ma, & Hu, 2020). One potential means of optimizing the benefits of regular physical exercise is by integrating it within a competitive framework. By engaging in activities that involve both physical exertion and mental challenges, individuals are motivated to strive toward their highest level of performance (Xia et al., 2020).

The consideration of timing in the establishment of resilience is an additional issue that warrants attention. The benefits of exercise and competition are readily obvious in the short term; nevertheless, sustained engagement in these activities fosters resilience, enhancing one's ability to cope with the evolving obstacles of life (Taku & Arai, 2020). Based on a longitudinal study, individuals who participate in competitive activities or maintain a consistent physical training regimen throughout their lifespan exhibit greater resilience, even when challenged with significant hardship (Graupensperger et al., 2020). Moreover, the assessment of these traditional factors within a modern framework is of utmost importance, given the dynamic nature of society and the emergence of novel exercise modalities and competitive platforms facilitated by technological advancements. The use of digital platforms and participation in e-sports have the potential to impact psychological resilience due to their unique combination of competitive elements and physical requirements, however dissimilar from those found in traditional physical activities. The aforementioned shifts in paradigms highlight the necessity for ongoing research in order to fully grasp the dynamic characteristics of resilience within contemporary settings.

Moreover, it is important to adopt a comprehensive perspective that encompasses regular physical activity, a competitive mindset, and a strong belief in one's own abilities in order to enhance resilience (Doherty, Millar, & Misener, 2022; Timpka, 2020). For example, comprehensive courses that incorporate elements such as competitive events, physical exercise, and strategies to enhance self-confidence can offer a holistic strategy for enhancing resilience (Doherty et al., 2022; Timpka, 2020). Integrated techniques have been shown to be particularly advantageous for younger populations as they navigate their formative years, which are marked by concurrent physical and psychological development (Polizzi, Lynn, & Perry, 2020). The enduring impact of practicing regular exercise, participating in competitive activities, and possessing a strong belief in one's physical capabilities on the development of psychological resilience remains apparent. However, recent scholarly investigations underscore the need for a more comprehensive, interconnected, and flexible framework for comprehending and promoting resilience. In light of shifting societal and technological dynamics, it is imperative for research to adapt in order to ensure that treatments and recommendations remain up-to-date, feasible, and grounded in empirical evidence (Venter et al., 2020).

An expanding corpus of literature underscores the significance of socio-environmental elements in shaping the broader understanding of resilience, particularly in relation to exercise, competition, and self-efficacy. Taku and Arai (2020) posit that the resilience-building implications of engaging in activities are influenced by the social settings in which individuals partake in these activities. Factors such as a supportive gym environment, a cohesive sports team, or a competition facilitated by a mentor can either enhance or diminish the effects of resilience development. For example, numerous studies have consistently demonstrated that social support serves as a protective factor, enhancing the resilience acquired via physically hard and competitive endeavors (Polizzi et al., 2020). The rationale for this

assertion is straightforward: individuals experience enhanced well-being in social contexts, and when they receive positive reinforcement, they perceive challenges, be it in a competitive game or a physically demanding workout, as more manageable (Freeston et al., 2020).

Also, there is an increasing focus on the significance of integrating mental and physical training alongside exercise and competition. The study conducted by Gómez (2021) revealed that athletes who incorporated mindfulness and visualization exercises into their routine training regimens demonstrated higher scores on resilience assessments compared to their counterparts who did not engage in such practices. This suggests that the integration of mental well-being strategies with physical activity can yield amplified benefits. Assessing resilience poses challenges due to the numerous contributing components involved and the need to recognize potential impediments. Cultural attitudes may exert a substantial impact. Individuals could experience a sense of obligation to exceed their personal limits among societies that excessively prioritize physical abilities, potentially leading to exhaustion or bodily harm (Freeston et al., 2020). On the other hand, individuals who are raised in societies that place importance on achieving equilibrium may integrate physical activity, competitive pursuits, and self-confidence in a more cohesive manner, so enhancing their psychological fortitude without experiencing excessive strain (Smith, 2010). The investigation of resilience involves examining the interconnectedness of regular exercise, competition experience, and physical self-efficacy, which are considered crucial factors in this complex framework. However, the factors influencing resilience and their interplay become increasingly intricate as societal structures grow more intricate as a result of technological progress and evolving cultural standards. In order to ensure the reliability, comprehensiveness, and adaptability of strategies aimed at enhancing resilience, future research should adopt a holistic approach that integrates traditional knowledge with the latest discoveries (Carless & Douglas, 2013).

3. Materials and Methods

3.1 Research Design

The underlying research paradigm employed in this work is positivism. The positivist assumptions have historically embodied the conventional approach to research, commonly referred to as the worldview, the scientific method, or the practice of conducting scientific research. This research approach is alternatively referred to as positivist research, empirical science, and positivism (Cohen, Manion, & Morrison, 2018). The study paradigm in question was first forth by the renowned French philosopher Auguste Comte (Davies & Fisher, 2018). The utilization of the positivist research theory is prevalent within the field of social sciences, as noted by Newman and Houchins (2018). The researcher employed a quantitative research methodology, using a survey design as the primary data collection method in the study. The study employs the explanatory research method as a primary approach. Creswell (2014) posits that study design encompasses the process of data collection, analysis, interpretation, and the subsequent reporting of the final iteration of the data. The concept of research design can be described as a set of blueprints that facilitate the achievement of research objectives and the resolution of research questions in a coherent manner (Blumberg, Cooper, & Schindler, 2014). Additionally, using the method of research design enables the researcher to effectively navigate toward the intended aims and research inquiries by employing a systematic approach to data collection and analysis (Zikmund et al., 2010).

3.2 Research Approach

The research methodology employed in this study is based on deductive reasoning. The quantitative technique is utilized to empirically test objective theories by analyzing the interrelationships among variables. The aforementioned factors can be assessed through the use of equipment, hence enabling the acquisition of numerical data that can then be subjected to statistical analysis (Cohen et al., 2018). Deductive reasoning is employed within the framework of quantitative research (Newman & Houchins, 2018). The deductive research approach encompasses the use of a questionnaire as a means of collecting data (Cohen et al., 2018).

3.3 Participants

The participants in this study were selected from a Korean athletic club specializing in judo, jiu-jitsu, and boxing, as well as college students enrolled in health and exercise programs at a university located in Wonju. Every participant in the study was a physically fit adult who had no previous experience participating in competitive sports. The individuals recognized the significance of consistent physical activity and engaged in physical education primarily with the objective of promoting their overall well-being. Prior to the commencement of the investigation, the sports club representative was contacted by telephone in order to elucidate the objectives of the study and obtain informed consent. The potential participants were provided with information on their right to withdraw from the survey at any point and were given reassurances regarding the confidentiality of their data and the safeguarding of their identities. The participants were provided with online Uniform Resource Locators (URLs) that facilitated their access to a Google questionnaire, which they could conveniently complete using their smartphones or personal computers, thereby enhancing their ability to provide responses. The data collection period spanned from July 15 to August 15, 2022, during which a total of

342 individuals participated in the survey administered through Google Forms.

Table 1

Characteristics of participants

Exercise	Experience Of Competition Participation	Gender		Total
		Male	Female	
regular exercise	regular exercise group with combined competition	131	37	168
	regular exercising without competition participation	38	30	68
non-exercise	non-exercise	44	62	106
sports club member (judo, ju-jitsu, boxing, etc.)		106	42	148
College students taking health exercises at university		63	25	88
	Total	213	129	342

As indicated in Table 1, the groups were allocated based on the classification of participants into two categories: regular exercise groups and non-exercise groups. This categorization was determined by considering the objectives of the study and the participants' prior experience with engaging in physical activity. The cohort consisting of 168 individuals who engaged in regular exercise and participated in the competition was referred to as the regular exercise group with integrated competition. The cohort consisting of 68 individuals who engaged in regular exercise but did not partake in the competition was labeled as the regular exercise group without competition participation. The cohort consisting of 106 individuals who refrained from engaging in physical exercise and abstained from participating in competitive activities was classified as the non-exercise group.

3.4 Data Collection Methods

The data was collected through the use of Google questionnaire forms, which were accessible on both desktop computers and mobile devices. The researcher initiated the data-gathering procedure by providing an initial description of the research topic to a sports club with whom they had a pre-existing familiarity through a telephone conversation. Following the attainment of their consent, we proceeded to physically visit the club. The study's objectives were communicated to the club members, who were provided with the assurance that the data collected through the questionnaire would be treated confidentially and solely utilized for the purposes of the study, under the supervision of the club's president. Following the provision of their free consent, participants were provided with a hyperlink to an online questionnaire hosted by Google. This questionnaire encompassed a consent form pertaining to their involvement in the research study. After submitting their replies, the participants were given the opportunity to visually observe their contributions. Following a data-gathering process that spanned around one month, the gathered data was extracted and subsequently uploaded to an Excel spreadsheet.

3.5 Measurements

3.5.1 Psychological Resilience

The Resilience scale created by Reivich and Shatte for adult individuals was employed by Measure Resilience to assess the resilience of Korean adolescents. This Korean youth version of the measure was validated by Shin, Kim, and Kim (2009) in Korea. Resilience is comprised of a set of nine basic and secondary components. The secondary component encompasses each of the three primary elements. In particular, the construct of self-regulation ability encompasses three dimensions: emotional control (three items), cause analysis (three items), and impulse control (three items). Similarly, the construct of positivity comprises three dimensions: self-optimism (three items), life satisfaction (three items), and gratitude (three items). Lastly, the construct of interpersonal ability encompasses three dimensions: communication ability (three items), empathy (three items), and self-expansion (three items). The survey questionnaire comprises a total of 27 items and employs a 5-point Likert Scale.

Table 2

Factor analysis of psychological resilience

Variable	Positivity	Self-Expansion	Emotional Impulse Control	Empathy	Communication Skills	Cause Analysis Ability	Commonality
pr11	.82	.18	.02	-.04	.08	.26	.79
pr12	.81	.19	-.10	.00	.10	.31	.80
pr10	.78	.10	-.11	-.05	.05	.29	.72
pr13	.73	.08	.26	.24	.02	-.12	.67
pr14	.71	-.04	.30	.23	.18	-.09	.69

pr16	.68	.11	.19	.04	.08	-.07	.52
pr15	.67	-.02	.34	.14	.04	-.13	.60
pr26	.25	.81	.12	.20	.10	.05	.80
pr27	.21	.80	.19	.18	.03	.02	.76
pr25	.23	.76	.15	.16	.23	.12	.75
pr7	.25	-.01	.72	.08	.02	.23	.64
pr4	.18	.18	.64	.01	.14	.21	.54
pr6	.21	.15	.61	.12	.11	-.07	.47
pr8	.35	.30	.54	.04	.07	.27	.59
pr24	.25	.25	.15	.76	.17	.20	.79
pr23	.24	.23	.23	.76	.05	.14	.76
pr22	.22	.23	-.02	.70	.34	.05	.71
pr20	.28	.15	.16	.18	.82	.02	.84
pr21	.32	.12	.18	.18	.79	.02	.81
pr19	.26	.37	.13	.18	.55	.32	.65
pr2	.23	.07	.23	.19	.06	.78	.76
pr1	.22	.13	.31	.15	.07	.75	.76
pr1	.28	.12	.28	.15	.06	.75	.76
eigenvalues	4.83	2.49	2.29	2.06	1.93	1.82	
dispersion	21.95	11.30	10.42	9.34	8.76	8.28	
cumulative variance	21.95	33.24	43.66	53.00	61.76	70.05	
reliability	.83	.88	.86	.73	.82	.83	

Kaiser-Meyer-Olkin, (KMO)=.896, Bartlett sphericity assay x2=4252.235, df=231, p=.000, Psychological Resilience(pr)

Table 2 presents the results of the principal component analysis conducted to determine the factor structure of the Measure Resilience for Korean Adolescents (Hong, 1996). Furthermore, the results of the factor analysis, which utilized principal component analysis with varimax rotation, indicated that item 15 from the positive factor displayed cross-loading on other factors. As a result, this item was subsequently excluded from subsequent study. Items 3, 4, and 9 pertaining to self-regulation ability were excluded from the analysis due to their factor loadings falling below the threshold of .4. The study revealed that the constructs of emotional control and impulsive control were discovered to be identical components. Consequently, the aforementioned sub-factors were consolidated and afterward rebranded as Emotional Impulse Controlling Power. In order to address this issue, the study employed the Measure Resilience for Korean Adolescents (Hong, 1996) as the primary instrument for analysis. After careful consideration, a total of 23 questions were chosen for further examination, after the exclusion of four items from the original set of 27 items. After conducting principal component analysis on the 23 selected items, the cumulative variance was found to be 69.16, accounting for 69% of the data. The Kaiser-Meyer-Olkin (KMO) measure yielded a value of .902, indicating a high degree of sampling adequacy. Additionally, the Bartlett sphericity test value was X2(253) = 4351.732, with a significance level of $p < .05$, suggesting that the tool used for measuring resilience is appropriate. The internal consistency reliability scores, as measured by Cronbach's alpha (α), ranged from .73 to .99.

3.5.2 Physical self-efficacy

The researchers employed the Physical Self-Efficacy Questionnaire for Koreans, which was first designed by Ryckman et al. (1982) and subsequently validated by Hong (1996) within the Korean context. The construct of physical self-efficacy has two sub-factors, namely perceived physical ability and confidence in physical self-expression. The concept of "perceived physical ability" refers to an individual's subjective assessment of their own physical capabilities. The construct of "physical self-expression confidence" refers to an individual's subjective assessment of their level of confidence when engaging in various bodily actions. There are a total of 20 assessment items, each of which is assessed using a 5-point Likert scale. The scale ranges from one, representing "strongly disagree," to five, representing "strongly agree.".

The outcome of doing principal component analysis using varimax orthogonal rotation is presented in <Table 3>. The re-analysis involved the exclusion of double-loading items, items with loadings of .4 or less, and items that loaded onto other factors. Consequently, a total of 10 items were selected for the analysis, comprising seven items related to perceived physical ability and three items pertaining to self-expression confidence. The cumulative variance of the revised physical self-efficacy scale was found to be 61.06%. Additionally, the Kaiser-Meyer-Olkin (KMO) measure yielded a value of 0.85. Bartlett's sphericity test, denoted as X2(45), yielded a test statistic of 1666.993 with a p-value of .001. The Cronbach's alpha coefficient, a measure of internal consistency, yielded values of .90

for perceived physical ability and .58 for confidence in self-expression.

Table 3

Factor analysis of physical self-efficacy

Source	Perceived Physical Ability	Physical Self-Expression Confidence	Commonality	Reliability
pse20	.79	.13	.65	
pse8 (r)	.80	.12	.65	
pse6 (r)	.80	.02	.64	
pse1	.81	.15	.67	.91
pse2 (r)	.78	.08	.62	
pse13 (r)	.70	.08	.50	
pse18	.81	.24	.72	
pse9	.20	.63	.44	
pse11	.08	.81	.66	.57
pse3	.03	.74	.54	
eigenvalues	4.37	1.71		
dispersion	43.69	17.14		
cumulative variance	43.69	60.84		

KMO=.852, Bartlett=X2(45) =1666.993, p=.000, physical self-efficacy(pse)

3.6 Data Analysis

The present study employed SPSS WIN 21.0 and AMOS 21.0 software programs to examine the association of regular exercise and competition experience with resilience. The researchers performed multiple analyses to evaluate the reliability and validity of the Measure Resilience for Korean Adolescents (Shin et al., 2009) and the Physical Self-Efficacy Questionnaire for Koreans (Hong, 1996). The internal consistency coefficient, Cronbach's alpha, was computed, and principal component analysis was conducted with varimax rotation. The mean and standard deviation were computed for each group. Pearson's moment correlation analysis was conducted to examine the association between resilience and physical self-efficacy. Pearson's product-moment correlation coefficient was utilized to examine the association between resilience and physical self-efficacy.

In order to assess the disparity in resilience levels among various groups, a one-way Multivariate Analysis of Variance (MANOVA) was conducted. The statistical method known as MANOVA, or Multivariate Analysis of Variance, is employed to conduct a simultaneous comparison of means across many variables. This statistical method is utilized in situations where there are multiple dependent variables, and it is commonly followed by doing independent significance tests for each of these dependent variables. The hypotheses were evaluated using MANOVA. The statistical significance levels for all analyses were established to be below the threshold of .05. In the context of route analysis, the adequacy of the model fit was assessed using several statistical measures, including X2, RMSEA (root mean square error of approximation), CFI (comparative fit index), NFI (normed fit index), GFI (goodness-of-fit index), and TLI (Tucker-Lewis index). A root mean square error of approximation (RMSEA) value of .08 is considered to indicate an acceptable fit for the model. A model is considered to be of good quality if its NFI, GFI, TLI, and CFI values are equal to or greater than 0.9. The RMSEA acceptance fit index is considered acceptable within the range of 0.05 to 0.1.

4. Empirical Analysis

The objective of this study was to examine the correlation between regular exercise engagement, participation in competitive activities, physical self-efficacy, and psychological resilience. Results indicate that there is a disparity in the average scores of physical self-efficacy and psychological resilience based on individuals' engagement in regular exercise and participation in competitive activities. Additionally, the study presents the correlation coefficient between resilience and physical self-efficacy, as well as the results of path analysis.

4.1 Difference in resilience and physical self-efficacy with or without regular exercise

The analysis focused on determining the mean (M) and standard deviation (SD) of physical self-efficacy and psychological resilience, taking into account individuals' regular exercise and competition participation experiences. According to the findings presented in Table 4, individuals who engaged in regular exercise demonstrated higher levels of resilience across all sub-factors. Specifically, these individuals exhibited greater abilities in causal analysis, emotional impulse control, positivity, communication, empathy, and self-extension, compared to those who did not partake in regular exercise.

Table 4

Degree of physical self-efficacy and resilience according to regular exercise

	Source	Regular Exercise	M	SD	F
physical self-efficacy	physical ability	A	2.86	.89	45.24***
		B	3.53	.87	
	self-expression	A	3.30	.72	12.60***
		B	3.61	.77	
psychological resilience	cause analysis ability	A	3.95	.70	1.13
		B	4.04	.77	
	emotional impulse control	A	3.27	.71	7.21**
		B	3.49	.70	
	positivity	A	3.62	.73	6.59*
		B	3.84	.72	
	communication skills	A	3.41	.77	6.70**
		B	3.65	.85	
	empathy	A	3.53	.72	6.81**
		B	3.77	.83	
	self-expansion	A	3.70	.64	4.66*
		B	3.87	.72	

A= non-exercise, B=regular exercise *p<.05, **p<.01, ***p<.001

A multivariate analysis was conducted to examine the variations in physical self-efficacy and resilience based on engagement in regular exercise. There exists a notable disparity in both physical ability (F=45.24, p<.001) and self-expression (F=12.60, p<.01) among individuals with varying levels of physical self-efficacy resulting from their engagement in regular exercise. Within the sub-factors of resilience, the cause analysis power exhibited a value of F=1.13 with a corresponding p-value of .289, indicating a lack of statistical significance. However, there were significant differences observed in emotional impulse control (F=7.21, p<.01), optimism (F=6.59, p<.05), communication skill (F=6.70, p<.01), empathy (F=6.81, p<.01), and self-expanding capacity (F=4.66, p<.05).

4.2 Difference in resilience and physical self-efficacy with or without competition

A multivariate analysis was performed to analyze the difference in physical self-efficacy and resilience according to the experience of participating in competitions. As shown in <Table 5>, the group with regular competition participation experience was compared with the group without competition participation experience, and all sub-factors of resilience (cause analysis ability, emotional impulse control, positivity, communication ability, empathy, and self-expanding ability) had a high mean. Therefore, multivariate analysis was performed to test whether the difference between these means was statistically significant.

Table 5

Degree of physical self-efficacy and resilience according to competition experience

	Source	Competitions Experience	M	SD	F
physical self-efficacy	physical ability	A	3.02	.93	42.71***
		B	3.64	.81	
	self-expression	A	3.39	.75	9.37**
		B	3.64	.77	
psychological resilience	cause analysis ability	A	3.94	.72	3.28
		B	4.08	.78	
	emotional impulse control	A	3.21	.75	8.93**
		B	3.46	.78	
	positivity	A	3.67	.68	7.26*
		B	3.88	.74	
	communication skills	A	3.45	.82	7.47**
		B	3.70	.84	
	empathy	A	3.57	.80	8.23**
		B	3.82	.80	
	self-expansion	A	3.71	.66	7.95**
		B	3.92	.72	

A; no competition experience, B; competition experience *p<.05, **p<.01, ***p<.001

A multivariate analysis was conducted to examine the variations in physical self-efficacy and resilience based on the level of participation in the competition. According to the findings presented in Table 5, there is a notable disparity in physical ability (F=42.71, p<.001) and self-expression confidence (F=9.37, p<.01) among individuals with varying levels of experience in competitive participation. In the sub-factors of resilience, the cause analysis ability was found to have a mean score of 3.28, with a p-value of .071. However, this difference was not statistically significant. However, there were significant differences observed in emotional impulse control (F=8.93, p<.01), optimism (F=7.26, p<.05), communication skill (F=7.47, p<.05), empathy (F=8.23, p<.01), and self-expansion capacity (F=7.95, p<.01).

4.3 Correlational analysis

The study utilised Pearson's product-moment correlation coefficient to examine the relationship between regular exercise, experience in contests, physical self-efficacy, and psychological resilience. According to the findings shown in Table 6, a statistically significant positive connection (p<.05) was seen between regular exercise, experience in participating in contests, physical self-efficacy, and psychological resilience. Nevertheless, the data revealed that there were no significant connections between the experience of participating in competitions and regular exercise, and the capacity to conduct cause analysis (r=.09, p>.05, r=.06, p>.05). It is important to note that cause analysis ability is considered a sub-variable of psychological resilience.

Table 6

Correlations between regular exercise, competition experience, physical self-efficacy, and resilience

Source	1	2	3	4	5	6	7	8	9
1. competition participation experience	-								
2. regular exercise	.67**	1							
3. physical ability	.34**	.34**	1						
4. self-expression	.16**	.19**	.28**	1					
5. cause analysis ability	.09	.06	.20**	.31**	1				
6. emotional impulse control	.15**	.14**	.23**	.35**	.47**	1			
7. positivity	.12*	.14*	.21**	.34**	.40**	.51**	1		
8. communication skills	.13*	.14*	.20**	.42**	.39**	.43**	.44**	1	
9. empathy	.16**	.14**	.27**	.46**	.36**	.44**	.50**	.56**	1
10. self-expansion ability	.14**	.11*	.21**	.33**	.36**	.43**	.43**	.54**	.50**

* p<.05, ** p<.01, *** p<.001

4.4 Path analysis

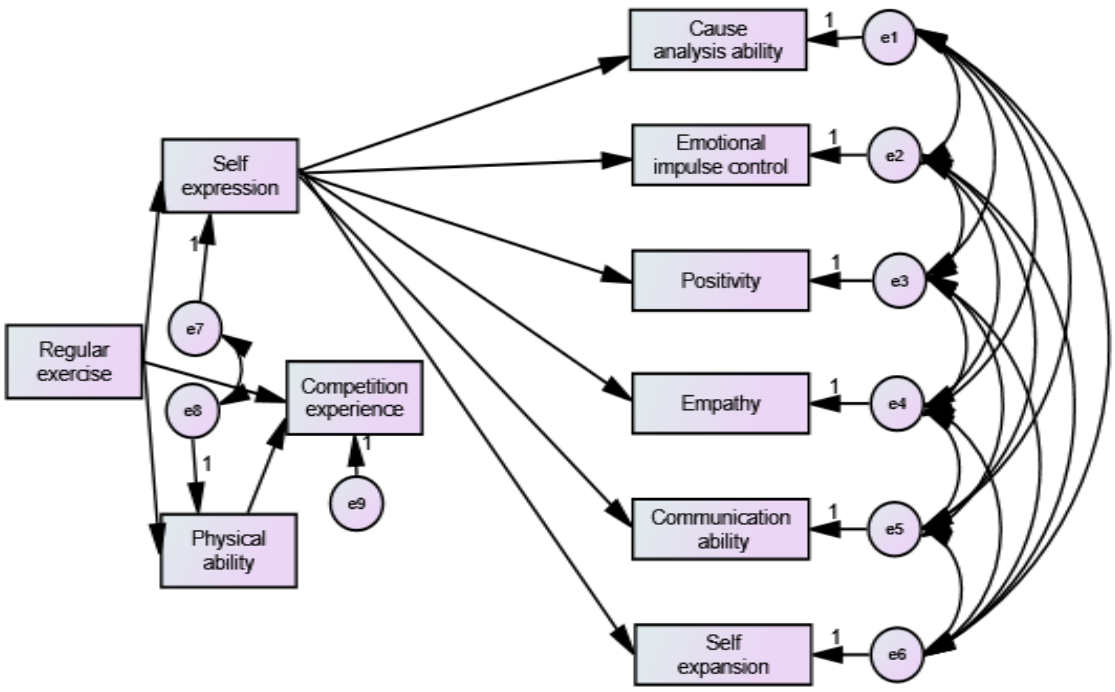

Figure 1. Finally Modified Path Analysis

A path analysis was performed to examine the association between regular exercise, experience in participating in competitions, physical self-efficacy, and psychological resilience (see Figure 1). A path analysis was performed to examine the correlation between regular exercise, participation in contests, physical self-efficacy, and psychological resilience. The model was modified by eliminating the correction index and inconsequential pathways (p > .05). The objective of incorporating the correction index into the initial research model is to enhance the model's goodness of fit by reducing the chi-square statistic. As shown in <Table 7>, the good results of the final modified path model with X2=21.10, df=19, p=331, RMSEA=.018, CFI=.421, GFI=.998, NFI=.995, TLI=.995, indicated that the model was suitable for indices except CFI.

Table 7

Goodness of Fit of the Last Modified Path Model

CMIN	DF	P	RMSEA	CFI	GFI	NFI	TLI	RMR
20.20	19	.382	.014	.422	.967	.981	.997	.186

The individual path coefficients of the final modified model are presented in <Table 8>. As a result of the confirmation of the standard path coefficient, experience in participating in competitions (β=.62, C.R.=14.42, p<.001), self-expression (β=.19, C.R.=3.56, p<.001), physical ability (β=.34, C.R.=6.57, p<.001) showed a significant influence relationship. Self-expression was found to significantly affect causal analysis ability (β=.32, CR=6.15, p<.001), emotional conflict control (β=.30, CR=5.82, p<.001), positivity (β=.36, CR= 7.16, p<.001) empathy (β=.46, CR=9.52, p<.001), communication ability (β=.43, CR=8.68, p<.001), self-expansion ability (β=.34), CR=6.72, p<.001). The results of this study indicate a positive relationship between self-expression confidence and the sub-factors of resilience, specifically in relation to the sub-factors of self-efficacy. The findings of the study indicate that engaging in the competition had a notable impact on physical ability (β=.34, C.R.=6.60, p<.001). The findings of this study demonstrated a positive correlation between the level of experience in competitive events and the subsequent enhancement of physical capabilities.

Table 8

The effect of regular exercise, self-efficacy, competition experience on resilience.

Independent Variable	Dependent Variable	Standard Path Coefficient (B)	Error	C.R.
regular exercise	physical ability	.34	.71	6.571***
regular exercise	self-expression	.19	.27	3.557***
self expression	Cause analysis ability	.32	.02	6.152***
self expression	emotional impulse control	.30	.02	5.817***
self expression	positivity	.36	.02	7.159***
self expression	empathy	.46	.02	9.521***
self expression	communication skills	.43	.02	8.684***
self expression	self-expansion ability	.34	.02	6.716***
physical ability	match participation experience	.13	.00	2.989**
regular exercise	match participation experience	.62	.05	14.42***

** p<.01, ***p<.001

The relevance of the indirect effect of regular exercise on physical ability and psychological resilience in the final revised path model was assessed using bootstrap methodology. As shown in <Table 9>, the total effect of regular exercise on physical ability was β=.34 (p<.01), the direct effect was β=.22 (p<.01), and the indirect effect was β=.12 (p<.01). Since there was no direct effect of regular exercise on psychological resilience, only the indirect effect was analyzed. Indirect effect of regular exercise on self-expansion ability was β=.07 (p<.01), on communication ability, β=.08 (p<.01), on empathy β=.09 (p<.01) and on positivity β=.07 (p<.01), on emotional impulse control β=.06 (p<.01), and on cause analysis ability β=.06 (p<.01), all of which were significant.

Table 9

Total, direct, and indirect effects of regular exercise

Source	Total Effect	Direct Effect	Indirect Effect
competition participation experience	.66**	.62**	.04**
self-expansion	.07**	-	.07**
communication skills	.08**	-	.08**
empathy	.09**	-	.09**
positivity	.07**	-	.07**

emotional impulse control	.06**	-	.06**
cause analysis ability	.06**	-	.06**

** p<.01

5. Discussion

The current study examined the impact of consistent physical activity on an individual's resilience. Regarding the hypothesis, it was determined that engaging in regular exercise yielded favorable outcomes in terms of emotional impulse control, optimism, communication ability, empathy capacity, and self-expansion ability. However, it should be noted that cause analysis ability did not exhibit a significant improvement among the sub-factors of resilience. The analysis revealed that the experience of participating in competitions had a notable impact on all sub-factors. This discussion will commence with examining the impact of consistent physical exercise on an individual's resilience, followed by an exploration of the influence of engaging in competitive activities on psychological resilience.

A considerable share of individuals encounters at least one potentially stressful event over the course of their lifetime (Slaven & Lee, 1997). The results of this study demonstrated that engaging in regular physical activity was associated with an enhancement in resilience. Regular physical exercise has been found to enhance an individual's capacity to mitigate potential adversities and foster good adaptability. Numerous prior investigations have consistently documented that engaging in regular physical activity is correlated with enhancements in general well-being, a reduction in the prevalence of mood and anxiety disorders, along with an elongation of a lifetime and a decrease in death rates (Dua & Hargreaves, 1992; Goodwin, 2003; Kujala et al., 1998; Samitz, Egger, & Zwahlen, 2011; Slaven & Lee, 1997). The results of this study are consistent with the outcomes reported in other research.

The applicability of Richardson's model (2002) to the findings of this study is significant due to its capability for analysing a wide range of stresses, adversity, and life events. This stands in contrast to theories that predominantly concentrate on extreme adversity experienced by individuals. The aforementioned attribute renders Richardson's model a beneficial framework for comprehending the dynamics of diverse situations. Richardson (2002) posits that the foundation of resilience lies in achieving a condition of equilibrium including bodily, mental, and spiritual well-being. The disturbance of this condition of homeostasis is purported to transpire when there is an insufficiency of adequate resources, sometimes referred to as protective factors, to safeguard an individual from stressors, adversities, or life events.

Individuals that encounter confusion embark on a journey of reconciling this state through four distinct types of reintegration: resilient reintegration, homeostatic reintegration, loss reintegration, and dysfunctional reintegration. Resilience reintegration refers to the attainment of homeostasis at new levels and the acquisition of supplementary protective elements following the interruption of reintegration. It refers to efforts to convince those who have homeostatic reintegration confusion to remain in their familiar surroundings and "just let the confusion pass."

Loss reintegration is a phenomenon characterized by the disturbance that occurs when protective factors are compromised, leading to a decrease in the overall level of homeostasis. Disorder reintegration pertains to a state of cognitive disarray that leads individuals to resort to detrimental patterns of conduct, exemplified by substance misuse. In line with Richardson's (2002) linear model of resilience, those who engage in regular exercise can have greater reintegration processes compared to those who lead a sedentary lifestyle, even while facing similar levels of adversity. The results of the study demonstrate that engaging in regular exercise has a substantial and favorable effect on the physical self-efficacy and psychological resilience of the participants. The results additionally indicate that physical self-efficacy has a significant impact on the competitive experiences of athletes.

How is this possible? The study conducted by Childs and De Wit (2014) examines the comparison of cardiovascular, Cortisol, and emotional responses to acute stress in those who are regularly exercised and those who are not. Childs and De Wit (2014) discovered that there was no discernible distinction in cardiovascular and cortisol reactions between the group that engaged in regular exercise and the sedentary group. However, they did see a notable disparity in emotional response. In other words, the cohort that engaged in regular physical activity exhibited a similar detrimental impact on social evaluation stress as the sedentary group, albeit with considerably diminished pleasant emotional responses. In particular, consistent physical activity had a significant impact on the sub-components of physical self-efficacy and psychological resilience. The findings of this research align with the outcomes of prior investigations.

The model proposed by Richardson (2002) posits that the experience of confusion can give rise to many unpleasant emotions, including fear, wrath, and sadness. These negative emotions, in turn, have an impact on meta-cognitive processes such as decision-making and judgment. Still, engaging in regular physical activity aids in the maintenance of a positive emotional state, regardless of the presence of adverse emotions. Furthermore, the significance of modern ideas in understanding the impact of good emotions on stress, regardless of negative impacts, has been emphasized by Folkman (2008). Furthermore, the absence of negative emotions in conjunction with happy emotions has been

linked to a reduction in death rates (Choi & Park, 2019; Davis, 2009; Moskowitz, Epel, & Acree, 2008). Previous research has demonstrated that both good and negative emotions have an impact on an individual's resilience. It is hypothesized that regular exercise contributes to resilience by fostering positive emotions, hence promoting the maintenance and enhancement of resilience. Therefore, the findings of our study demonstrate that engaging in consistent physical activity is crucial for improving an individual's sense of personal competence in physical tasks and their ability to adapt and recover from psychological challenges within their daily routine.

The results of our study indicate that participating in competitive activities contributes to the development of resilience. The involvement of athletes in competitive events is often accompanied by other sources of personal stress, including the pressures of competition, the dynamics of group interactions, financial concerns, the management of leisure time, and the balancing of roles and duties within their families (Fletcher et al., 2008; Mellalieu, Hanton, & Fletcher, 2009). These results indicate that participation in the competition confers beneficial and adaptive protective effects against stress, as opposed to individuals who do not engage in competitive activities. The aforementioned viewpoint is substantiated by the findings of a research study that involved conducting interviews with athletes who were recipients of Olympic gold medals.

In their study, Fletcher and Sarkar (2012) held interviews with a sample of 12 Olympic champions in order to get insights into their strategies for managing and surmounting pressure in competitive settings. In spite of encountering notable levels of stress, the athletes who were awarded Olympic gold medals had favorable meta-cognitive processes and self-assessment, potentially attributable to protective variables such as optimistic disposition, intrinsic drive, self-assurance, focus, and interpersonal backing. These factors exerted a beneficial influence on their overall perspective.

There exists a correlation between the positive evaluation and meta-cognition of athletes and their pursuit of the achievement objective of winning a gold medal in the Olympic Games. In a research study conducted by Nezhad and Besharat (2010), an examination of the association between resilience and sports accomplishment was carried out among a sample of 139 athletes. The findings of the study revealed a significant positive link between these two variables. Hosseini and Besharat (2010) conducted a study including a sample of 139 athletes. The analysis of the association between resilience and athletic achievement yielded indications of a favorable correlation.

Through the integration of prior research findings with the present study, it is evident that resilience plays a significant role in enabling athletes to reframe a range of adverse emotions associated with competitive environments. This, in turn, leads to the enhancement of their meta-cognitive capacities and facilitates the attainment of their desired objectives. When this procedure is iterated, it may be construed as a progressive transformation in optimistic cognition (Galli & Vealey, 2008), so serving as a theoretical underpinning for building a framework that ultimately enhances resilience.

In simple terms, consistent physical activity has a beneficial impact on an individual's self-efficacy and psychological resilience in several aspects of life. Additionally, it is our contention that there exist two distinct methods via which athletes might enhance their resilience. One approach to fostering resilience involves cultivating a good mindset through physical activity, while another approach entails leveraging metacognitive processes in a constructive manner to attain ambitious objectives. The findings of the study indicate that individuals who are not athletes apply their regular exercise and involvement in competitions in a manner similar to how athletes enhance their resilience.

6. Conclusion and Policy Recommendations

6.1 Conclusion

The study elucidates that the interplay among regular physical activity, participation in competitive activities, and psychological resilience yields significant implications for human welfare. Research has consistently demonstrated that engaging in regular physical exercise serves as a facilitator for enhancing emotional impulse control, fostering positivity, and cultivating many essential attributes associated with resilience. Furthermore, exercise has been recognized as a valuable instrument for promoting physical well-being. In a similar vein, participation in competitive activities significantly augments an individual's ability to adapt to novel and challenging circumstances. The present study elucidates the many benefits of engaging in physical exercise and puts forth a holistic approach to enhancing its societal promotion. The incorporation of regular physical activity and the promotion of competitive experiences are of paramount importance in the endeavor to cultivate a resilient and mentally robust community. The insights derived from this study hold relevance for athletes and possess wide-ranging applicability, hence emphasizing their significance.

The objective of this study was to investigate the influence of consistent physical activity and engagement in competitive sports on levels of resilience. In order to achieve the intended objective, a total of 342 individuals were enlisted as research subjects to complete the resilience test index (29) via a Google questionnaire. The study included multivariate and path analytic techniques to examine the effects of regular exercise and competition experience on the group. Participants were divided into subgroups based

on their exercise habits and competition history. The conclusions were derived from the findings obtained. In contrast to the non-exercise group, the group that engaged in regular exercise demonstrated elevated levels of emotional impulse control, positivity, communication proficiency, empathy capacity, and self-expansion aptitude. Nevertheless, there was no discernible disparity in the capacity for causal analysis. The assessment of resilience in relation to participation revealed that individuals who engaged in the competition demonstrated greater aptitude in cause analysis, emotional impulse regulation, positivity, communication, empathy, and self-expansion compared to those who did not partake in the competition. Based on the findings presented in this study, it is recommended that future research be conducted in the following areas. Initially, it is hypothesized that engaging in regular physical activity can potentially bolster an individual's resilience through the maintenance of happy emotions. Consequently, there is a need for a comprehensive investigation to explore the interplay between exercise, positive mood, and resilience. The enhancement of self-resilience in the context of high school competition participation experience can be attributed to the transformation of achievement goal meta-cognition. Therefore, it is important to conduct further investigations on the dynamics of ego resilience, achievement goals, and meta-cognition in subsequent research endeavors. Further investigation is warranted to examine the impact of consistent physical exercise on many psychological attributes from a longitudinal standpoint.

6.2 Policy Recommendations

First and foremost, it is evident that governments and community organizations should allocate resources and provide assistance to community fitness initiatives, considering the significant impact of regular physical activity on psychological resilience and emotional regulation. Examples of such support include public exercise facilities, organized fitness classes, and the establishment and maintenance of local sports groups within communities. Furthermore, it is imperative to make concerted efforts to promote educators' recognition and incorporation of the manifold benefits associated with consistent physical activity. Educational institutions, such as schools and universities, have the potential to significantly contribute to the integration of regular exercise regimens within their academic curricula, thereby assuming a pivotal position as primary establishments for learning and personal growth. In addition to acquiring academic knowledge, students also experience enhanced positivity, communication skills, empathy, and personal growth. Consequently, ensuring a more comprehensive approach to schooling.

Based on the findings of the research, it has been observed that involvement in competitive activities enhances the positive effects of regular physical exercise on the development of resilience. Therefore, it is imperative to enhance support and financial backing for community-based sporting events. The increased accessibility of such competitive encounters has the potential to significantly enhance individuals' resilience and mental fortitude on a broader societal level. It is imperative to acknowledge and effectively incorporate the therapeutic benefits of consistent physical activity into mental health policies. According to the findings of the study, exercise programs have the potential to serve as effective allies in mental health initiatives due to their proven ability to regulate emotional responses and promote positive emotional states.

Athletes naturally derive advantages from the inherent resilience embedded within their routines due to their consistent engagement in exercise and participation in competitive events. The provision of specialised mental health care addressing concerns like as competition-related stress, financial limitations, and the attainment of a harmonious work-life equilibrium is imperative due to the recognition that individuals in these domains also encounter distinct stressors. A well-informed individual further enhances the societal benefits of engaging in regular physical activity. To facilitate the simultaneous benefits of exercise on physical well-being and psychological resilience, it is recommended to initiate organised public campaigns. This would enhance the dissemination of information to the general public regarding the advantages of engaging in regular physical activity and participating in competitive events, particularly in terms of their protective and adaptive effects.

In accordance with the findings of the research, it can be observed that elite athletes demonstrate enhanced performance as a result of possessing a range of advantageous attributes, which encompass a positive mindset, internal drive, unwavering self-assurance, heightened concentration, robust social backing, and exceptional physical abilities. Based on this analysis, it is recommended that governmental programs prioritize the enhancement of social support networks for athletes, with a particular focus on those who are in the early stages of their development at the grassroots level. Continual promotion of further investigation into the correlation of physical activity, competitive engagement, and the capacity for resilience is imperative in light of the dynamic landscape of scientific advancements and societal demands. These programs have the potential to provide more comprehensive data, thereby improving and tailoring policies for certain groups or populations. By incorporating these recommendations, we lay the groundwork for a future in which regular physical activity extends beyond its conventional scope of promoting physical health and instead serves as a means to cultivate psychological strength and resilience among individuals and communities.

References

An, R., Xiang, X., Yang, Y., & Yan, H. (2016). Mapping the prevalence of physical inactivity in US states, 1984-2015. *PloS one, 11*(12), e0168175. https://doi.org/10.1371/journal.pone.0168175

Anderson-Bill, E. S., Winett, R. A., & Wojcik, J. R. (2011). Social cognitive determinants of nutrition and physical activity among web-health users enrolling in an online intervention: the influence of social support, self-efficacy, outcome expectations, and self-regulation. *Journal of medical Internet research, 13*(1), e1551. https://doi.org/10.2196/jmir.1551

Ashford, S., Edmunds, J., & French, D. P. (2010). What is the best way to change self-efficacy to promote lifestyle and recreational physical activity? A systematic review with meta-analysis. *British journal of health psychology, 15*(2), 265-288. https://doi.org/10.1348/135910709X461752

Bandura, A. (1990). Perceived self-efficacy in the exercise of personal agency. *Journal of applied sport psychology, 2*(2), 128-163. https://doi.org/10.1080/10413209008406426

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W H Freeman/Times Books/ Henry Holt & Co.

Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology & Health, 13*(4), 623-649. https://doi.org/10.1080/08870449808407422

Bandura, A. (2004). Health promotion by social cognitive means. *Health education & behavior, 31*(2), 143-164. https://doi.org/10.1177/1090198104263660

Berry, J. M., & West, R. L. (1993). Cognitive self-efficacy in relation to personal mastery and goal setting across the life span. *International journal of behavioral development, 16*(2), 351-379. https://doi.org/10.1177/016502549301600213

Blumberg, B., Cooper, D., & Schindler, P. (2014). *EBOOK: Business research methods*. McGraw Hill.

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & Greca, A. M. L. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological science in the public interest, 11*(1), 1-49. https://doi.org/10.1177/1529100610387086

Bonetti, D., & Johnston, M. (2008). Perceived control predicting the recovery of individual-specific walking behaviours following stroke: Testing psychological models and constructs. *British journal of health psychology, 13*(3), 463-478. https://doi.org/10.1348/135910707X216648

Carless, D., & Douglas, K. (2013). "In the boat" but "selling myself short": Stories, narratives, and identity development in elite sport. *The sport psychologist, 27*(1), 27-39. https://doi.org/10.1123/tsp.27.1.27

Childs, E., & De Wit, H. (2014). Regular exercise is associated with emotional resilience to acute stress in healthy adults. *Frontiers in physiology, 5*, 161. https://doi.org/10.3389/fphys.2014.00161

Choi, S., & Park, H. (2019). Effects of combined program of laughter and exercise vs exercise-only program in pneumoconiosis patients. *IJANER, 4*, 19-24. http://dx.doi.org/10.21742/ijaner.2019.4.1.03

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education*. Routledge. https://doi.org/10.4324/9781315456539

Collins, D., & MacNamara, Á. (2012). The rocky road to the top: why talent needs trauma. *Sports medicine, 42*, 907-914. https://doi.org/10.1007/BF03262302

Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications. https://us.sagepub.com/en-us/nam/a-concise-introduction-to-mixed-methods-research/book266037

Darazi, M. A., Khoso, A. K., & Mahesar, K. A. (2022). Impact of EFL Teachers Teaching Style on Students Academic Performance and Satisfaction: An Evidence From Public Sector Universities of Karachi. *Benazir Research Journal of Humanities and Social Sciences, 1*(1). http://brjhss.com/index.php/brjhss/article/view/10

Darazi, M. A., Khoso, A. K., & Mahesar, K. A. (2023). Investigating the Effects of ESL Teachers' Feedback on Esl Undergraduate Students'level of Motivation, Academic Performance, and Satisfaction: Mediating Role of Students'motivation. *Pakistan Journal of Educational Research, 6*(2). https://doi.org/10.52337/pjer.v6i2.807

Davies, C., & Fisher, M. (2018). Understanding research paradigms. *Journal of the Australasian Rehabilitation Nurses Association, 21*(3), 21-25. https://search.informit.org/doi/abs/10.3316/INFORMIT.160174725752074

Davis, M. C. (2009). Building emotional resilience to promote health. *American Journal of Lifestyle Medicine, 3*(1_suppl), 60S-63S. https://doi.org/10.1177/1559827609335152

Diehl, M., Semegon, A. B., & Schwarzer, R. (2006). Assessing attention control in goal pursuit: A component of dispositional self-regulation. *Journal of personality assessment, 86*(3), 306-317. https://doi.org/10.1207/s15327752jpa8603_06

Doherty, A., Millar, P., & Misener, K. (2022). Return to community sport: Leaning on evidence in turbulent times. *Managing sport and leisure, 27*(1-2), 7-13. https://doi.org/10.1080/23750472.2020.1794940

Dua, J., & Hargreaves, L. (1992). Effect of aerobic exercise on negative affect, positive affect, stress, and depression. *Perceptual and Motor Skills, 75*(2), 355-361. https://doi.org/10.2466/pms.1992.75.2.355

Fletcher, D., Hanton, S., & Mellalieu, S. D. (2008). An organizational stress review: Conceptual and theoretical issues

in competitive sport. In *Literature Reviews in Sport Psychology* (pp. 1-53). Nova Science Publishers, Inc. https://www.port.ac.uk/sites/default/files/2023-02/Chap10_OrgStress-PC.pdf

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of sport and exercise, 13*(5), 669-678. https://doi.org/10.1016/j.psychsport.2012.04.007

Fletcher, D., & Sarkar, M. (2016). Mental fortitude training: An evidence-based approach to developing psychological resilience for sustained success. *Journal of Sport Psychology in Action, 7*(3), 135-157. https://doi.org/10.1080/21520704.2016.1255496

Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety, stress, and coping, 21*(1), 3-14. https://doi.org/10.1080/10615800701740457

Freeston, M., Tiplady, A., Mawn, L., Bottesi, G., & Thwaites, S. (2020). Towards a model of uncertainty distress in the context of Coronavirus (COVID-19). *The cognitive behaviour therapist, 13*, e31. https://doi.org/10.1017/S1754470X2000029X

Galli, N., & Vealey, R. S. (2008). "Bouncing back" from adversity: Athletes' experiences of resilience. *The sport psychologist, 22*(3), 316-335. https://doi.org/10.1123/tsp.22.3.316

Goddard, K., Roberts, C.-M., Anderson, L., Woodford, L., & Byron-Daniel, J. (2019). Mental toughness and associated personality characteristics of Marathon des Sables athletes. *Frontiers in psychology, 10*, 2259. https://doi.org/10.3389/fpsyg.2019.02259

Gómez, A. (2021). Associations between family resilience and health outcomes among kinship caregivers and their children. *Children and Youth Services Review, 127*, 106103. https://doi.org/10.1016/j.childyouth.2021.106103

Goodwin, R. D. (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive medicine, 36*(6), 698-703. https://doi.org/10.1016/S0091-7435(03)00042-2

Graupensperger, S., Panza, M. J., Budziszewski, R., & Evans, M. B. (2020). Growing into "Us": Trajectories of social identification with college sport teams predict subjective well-being. *Applied Psychology: Health and Well-Being, 12*(3), 787-807. https://doi.org/10.1111/aphw.12207

Hinz, A., Schumacher, J., Albani, C., Schmid, G., & Brähler, E. (2006). Bevölkerungsrepräsentative normierung der skala zur allgemeinen selbstwirksamkeitserwartung. *Diagnostica, 52*(1), 26-32. https://doi.org/10.1026/0012-1924.52.1.26

Hong, S. O. (1996). *The effect of exercise participant on the development of physical self-efficacy and the change of gender-role types* (Doctoral dissertation, Busan University).

Hosseini, S. A., & Besharat, M. A. (2010). Relation of resilience whit sport achievement and mental health in a sample of athletes. *Procedia-Social and Behavioral Sciences, 5*, 633-638. https://doi.org/10.1016/j.sbspro.2010.07.156

Kakarougkas, C., & Papageorgakis, E. (2023). Evaluating the Effectiveness of Training Methods on the Performance of Human Resources in Greek Hotel Businesses. *Journal of Advances in Humanities Research, 2*(1), 62-82. https://doi.org/10.56868/jadhur.v2i1.102

Kujala, U. M., Kaprio, J., Sarna, S., & Koskenvuo, M. (1998). Relationship of leisure-time physical activity and mortality: the Finnish twin cohort. *Jama, 279*(6), 440-444. https://doi.org/10.1001/jama.279.6.440

Latif, W., Khoso, A. K., Memon, M. A., Chnadio, R. A., & Naqvi, S. (2021). The Relationship Between Motivation To Read And Reading Comprehension Among Pakistani ESL Undergraduate Engineering Students: An Empirical Study. *Webology, 18*(6), 3985-4005. https://www.webology.org/abstract.php?id=2534

Lin, C. T., Wang, L. Y., Yang, C. C., Anggara, A. A., & Chen, K. W. (2022). Personality traits and purchase motivation, purchase intention among fitness club members in taiwan: moderating role of emotional sensitivity. *Pakistan Journal of Life and Social Sciences, 20*(1), 80-95. https://doi.org/10.57239/PJLSS-2022-20.1.0010

Liu, H., Zhu, Q., Khoso, W. M., & Khoso, A. K. (2023). Spatial pattern and the development of green finance trends in China. *Renewable Energy, 211*, 370-378. https://doi.org/10.1016/j.renene.2023.05.014

Ma, R., & Jee, Y.-J. (2019). Effects of combined exercise on exercise adherences and health self-efficacy in middle-aged women. *International Journal of Advanced Nursing Education and Research, 4*(2), 45-50. http://dx.doi.org/10.21742/ijaner.2019.4.2.08

Majeed, A., Khoso, A. K., Darazi, M. A., & Fatima, S. (2022). The Impact of Writing Anxiety, Writing Achievement Motivation, Writing Self-Efficacy and Reading Habits on Pakistani Undergraduate English Major Students' Writing Performance. *International Journal of Early Childhood Special Education, 14*(4), 997-1018. https://doi.org/10.9756/INT-JECSE/V14I4.132

Martin, R. (2012). Regional economic resilience, hysteresis and recessionary shocks. *Journal of economic geography, 12*(1), 1-32. https://doi.org/10.1093/jeg/lbr019

McAuley, E., & Blissmer, B. (2000). Self-efficacy determinants and consequences of physical activity. *Exercise and sport sciences reviews, 28*(2), 85-88. https://europepmc.org/article/med/10902091

McAuley, E., Courneya, K. S., & Lettunich, J. (1991). Effects of acute and long-term exercise on self-efficacy responses in sedentary, middle-aged males and females. *The gerontologist, 31*(4), 534-542.

https://doi.org/10.1093/geront/31.4.534
Mehdi, A. A., & Ali, S. (2023). Interactional Justice and Destructive Deviant Workplace Behavior: The Mediating Role of Perceived Supervisor Support in Developmental Project. *International Journal of Management Thinking, 1*(2), 21-39. https://doi.org/10.56868/ijmt.v1i2.18
Meichenbaum, D. (1985). Stress Inoculation Training. In *Cognitive Behavior Therapy: Applying Empirically Supported Techniques in Your Practice* (pp. 407-410). John Wiley & Sons, Inc. https://melissainstitute.org/wp-content/uploads/2015/10/Stress_Inoculation_052806.pdf
Mellalieu, S. D., Hanton, S., & Fletcher, D. (2009). A competitive anxiety review: Recent directions in sport psychology research. In *Literature Reviews in Sport Psychology* (pp. 1-45). Nova Science Publishers, Inc. http://dx.doi.org/10.4324/9781315813059
Mellalieu, S. D., Neil, R., Hanton, S., & Fletcher, D. (2009). Competition stress in sport performers: Stressors experienced in the competition environment. *Journal of sports sciences, 27*(7), 729-744. https://doi.org/10.1080/02640410902889834
Moskowitz, J. T., Epel, E. S., & Acree, M. (2008). Positive affect uniquely predicts lower risk of mortality in people with diabetes. *Health Psychology, 27*(1S), S73–S82. https://doi.org/10.1037/0278-6133.27.1.S73
Neff, L. A., & Broady, E. F. (2011). Stress resilience in early marriage: Can practice make perfect? *Journal of personality and social psychology, 101*(5), 1050–1067. https://doi.org/10.1037/a0023809
Newman, I., & Houchins, D. E. (2018). Conceptualizing mixed methods questions in special education research. *Research in the Schools, 25*(2), 23-33. https://www.proquest.com/openview/892df47be0f6aae8ee7c535f55cc4007
Nezhad, M. A. S., & Besharat, M. A. (2010). Relations of resilience and hardiness with sport achievement and mental health in a sample of athletes. *Procedia-Social and Behavioral Sciences, 5*, 757-763. https://doi.org/10.1016/j.sbspro.2010.07.180
Niitsu, K., Rice, M. J., Houfek, J. F., Stoltenberg, S. F., Kupzyk, K. A., & Barron, C. R. (2019). A systematic review of genetic influence on psychological resilience. *Biological research for nursing, 21*(1), 61-71. https://doi.org/10.1177/1099800418800396
Park, Y.-S., & Jee, Y.-J. (2019). A study on effects of education program for cognitive rehabilitation. *International Journal of Advanced Nursing Education and Research, 4*(3), 1-6. http://dx.doi.org/10.21742/ijaner.2019.4.3.01
Penedo, F. J., & Dahn, J. R. (2005). Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current opinion in psychiatry, 18*(2), 189-193. https://doi.org/10.1097/00001504-200503000-00013
Phillips, S. M., & McAuley, E. (2013). Social cognitive influences on physical activity participation in long-term breast cancer survivors. *Psycho-Oncology, 22*(4), 783-791. https://doi.org/10.1002/pon.3074
Polizzi, C., Lynn, S. J., & Perry, A. (2020). Stress and coping in the time of COVID-19: Pathways to resilience and recovery. *Clinical neuropsychiatry, 17*(2), 59–62. https://doi.org/10.36131/cn20200204
Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of clinical psychology, 58*(3), 307-321. https://doi.org/10.1002/jclp.10020
Rovniak, L. S., Anderson, E. S., Winett, R. A., & Stephens, R. S. (2002). Social cognitive determinants of physical activity in young adults: a prospective structural equation analysis. *Annals of behavioral medicine, 24*, 149-156. https://doi.org/10.1207/S15324796ABM2402_12
Ruddell, J. L., & Shinew, K. J. (2006). The socialization process for women with physical disabilities: The impact of agents and agencies in the introduction to an elite sport. *Journal of leisure research, 38*(3), 421-444. https://doi.org/10.1080/00222216.2006.11950086
Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American journal of orthopsychiatry, 57*(3), 316-331. https://doi.org/10.1111/j.1939-0025.1987.tb03541.x
Ryckman, R. M., Robbins, M. A., Thornton, B., & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. *Journal of personality and social psychology, 42*(5), 891–900. https://doi.org/10.1037/0022-3514.42.5.891
Samitz, G., Egger, M., & Zwahlen, M. (2011). Domains of physical activity and all-cause mortality: systematic review and dose–response meta-analysis of cohort studies. *International journal of epidemiology, 40*(5), 1382-1400. https://doi.org/10.1093/ije/dyr112
Sarkar, M., Fletcher, D., & Brown, D. J. (2015). What doesn't kill me…: Adversity-related experiences are vital in the development of superior Olympic performance. *Journal of Science and Medicine in Sport, 18*(4), 475-479. https://doi.org/10.1016/j.jsams.2014.06.010
Seery, M. D. (2011). Resilience: A silver lining to experiencing adverse life events? *Current Directions in Psychological Science, 20*(6), 390-394. https://doi.org/10.1177/0963721411424740
Shin, W.-Y., Kim, M.-G., & Kim, J.-H. (2009). Developing measures of resilience for Korean adolescents and testing cross, convergent, and discriminant validity. *Studies on Korean Youth, 20*(4), 105-131.

https://www.dbpia.co.kr/journal/articleDetail?nodeId=node01288607

Slaven, L., & Lee, C. (1997). Mood and symptom reporting among middle-aged women: the relationship between menopausal status, hormone replacement therapy, and exercise participation. *Health Psychology, 16*(3), 203–208. https://doi.org/10.1037/0278-6133.16.3.203

Smith, B. (2010). Narrative inquiry: Ongoing conversations and questions for sport and exercise psychology research. *International review of sport and exercise psychology, 3*(1), 87-107. https://doi.org/10.1080/17509840903390937

Taku, K., & Arai, H. (2020). Impact of COVID-19 on athletes and coaches, and their values in Japan: repercussions of postponing the Tokyo 2020 olympic and paralympic games. *Journal of loss and trauma, 25*(8), 623-630. https://doi.org/10.1080/15325024.2020.1777762

Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma & transformation: Growing in the aftermath of suffering*. Sage Publications, Inc. https://doi.org/10.4135/9781483326931

Timpka, T. (2020). Sports health during the SARS-Cov-2 pandemic. *Sports medicine, 50*, 1413-1416. https://doi.org/10.1007/s40279-020-01288-7

Ullah, S., Khan, U., Begum, A., Han, H., & Mohamed, A. (2023). Indigenous knowledge, climate change and transformations of Gwadar fishing community. *International Journal of Climate Change Strategies and Management*. https://doi.org/10.1108/IJCCSM-06-2022-0069

Venter, Z. S., Barton, D. N., Gundersen, V., Figari, H., & Nowell, M. (2020). Urban nature in a time of crisis: Recreational use of green space increases during the COVID-19 outbreak in Oslo, Norway. *Environmental research letters, 15*(10), 104075. https://doi.org/10.1088/1748-9326/abb396

Werner, E., & Smith, R. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. McGraw-Hill, New York. https://worldcat.org/en/title/7551134

White, S. M., Wójcicki, T. R., & McAuley, E. (2012). Social cognitive influences on physical activity behavior in middle-aged and older adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 67*(1), 18-26. https://doi.org/10.1093/geronb/gbr064

Xia, B., Ma, Z., & Hu, Y. (2020). Research on the relationship between physical exercise, psychological flexibility and positive emotion of college students based on computer mathematical model. *Journal of Physics: Conference Series, 1578*(1), 012009. https://doi.org/10.1088/1742-6596/1578/1/012009

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business research methods* (8th ed.). Mason, OH: South-Western/Cengage Learning.

Zulkosky, K. (2009). Self-efficacy: a concept analysis. *Nursing forum, 44*(2), 93-102. https://doi.org/10.1111/j.1744-6198.2009.00132.x