International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Influence of Basic Psychological Needs and Time Management in Volition in Exercise: A Convergent Design

Oliver Napila Gomez[1], Edna T. Salva[2]

[1,2]University of the Immaculate Conception

Abstract:
The study investigated the influence of basic psychological needs and time management on volition in exercise among college students in local universities and colleges (LUCs) in Northern Mindanao, Philippines. A convergent mixed methods design was applied to collect quantitative data through surveys and qualitative data using in-depth interviews and focus groups. Results showed that satisfaction with basic psychological needs was high, time-management skills were high, and volition in exercise was moderate. In a singular capacity, psychological needs did not significantly influence the volition in exercise, while time management directly influenced the volition in exercise. Together, these variables directly predict volition. Qualitatively, six emerging themes were revealed regarding the lived experiences of the participants on volition in exercise, namely: navigating life and practical constraints, balancing academic and family responsibilities, health and well-being as intrinsic motivators, social, environmental, and technological influences, self-improvement and confidence building, and structured programs as enablers of consistency. Three essential themes emerged on the role of experiences in shaping the beliefs, attitudes, and commitment of college students such as prioritizing health and well-being, believing in the impact of social support, and embracing exercise as integral to identity, shaped students attitude: cultivating a positive attitude towards exercise, setting and pursuing goal-oriented motivation, and building confidence and self-reflection, and shaped students' commitment: establishing routine and discipline, using exercise for self-care, and gaining independence and resilience. The extent to which the qualitative data corroborated with quantitative findings is diverse, including converging, diverging, and expanding relationships across the study.

Keywords: volition in exercise, basic psychological needs in exercise, time management, lived experiences, convergent mixed methods

Introduction

Developing consistent exercise habits reflects volition—the capacity for intentional, goal-directed action that bridges intention and behavior while complementing motivation to maintain exercise engagement (Beckmann et al., 2021; Chu et al., 2018). Volition is a vital self-regulatory process that enhances exercise adherence and persistence over time (Pfeffer et al., 2020). However, physical inactivity remains a global public health challenge, with the World Health Organization (2022) reporting that 81 percent of adolescents do not meet global recommendations for physical activity. Regional trends also highlight the prevalence of sedentary behaviors, with fewer than 25 percent of Norwegian students and 34.7 percent of

Asian university students exercising regularly during the pandemic (Vancampfort et al., 2019; Sari et al., 2022). In the Philippines, national reports indicate alarming levels of inactivity, as over 50 percent of Filipino youth spend three or more hours daily in sedentary activities, and only 32.8 percent of college students engage in regular exercise (Acampado & Valenzuela, 2018; WHO, 2019). Furthermore, participation levels in physical education among Filipino college students decline as they advance academically, revealing a widening engagement gap that requires targeted attention (Manasan et al., 2023; Aquino 2023).

In this study, the inclusion of basic psychological needs in exercise and time management as independent variables that influence volition in exercise is strongly supported by the interplay of theoretical frameworks such as Self-Determination Theory (SDT), Goal-Setting Theory (GST), and the Theory of Planned Behavior (TPB) (Ryan & Deci, 2022; Latham & Locke, 1991; Ajzen, 1991). It was hypothesized that the synergy between fulfilling psychological needs and mastering time management creates a strong framework for enhancing volition in exercise, as these variables address both the intrinsic and practical factors of sustained physical activity (Kekäläinen et al., 2018; Vučković et al., 2022).

Self-determination theory (SDT) (Ryan & Deci, 2022) offers a framework for understanding how satisfying basic psychological needs—autonomy, competence, and relatedness—can directly affect volition in exercise. According to SDT, when individuals view their exercise routines as self-chosen and in line with their personal values, believe in their ability to perform exercise tasks effectively, and feel a connection with others, strengthening intrinsic motivation and a greater commitment to physical activity (Noh et al., 2018; Rodrigues et al., 2019). These needs fuel intrinsic motivation, which is essential for sustained volitional exercise behaviors (Elsborg & Elbe, 2018). Research has shown that individuals who feel these needs are fulfilled are more likely to stick with their exercise routines, even when confronted with challenges or competing priorities (Dillenhöfer et al., 2022).

Meanwhile, the Goal-Setting Theory (GST) (Latham & Locke, 1991) explains how time management influences volition in exercise by emphasizing the importance of setting clear, specific, and challenging goals. Time management allows individuals to prioritize exercise-related objectives, allocate resources efficiently, and overcome barriers such as perceived time constraints (Hannan et al., 2019; Roberts et al., 2014). This positive cycle of goal achievement and time management encourages sustained exercise behaviors and long-term dedication (Vučković et al., 2022). Furthermore, GST highlights the value of structured planning and reflection in reducing procrastination and balancing competing priorities, both essential for consistent exercise adherence (Gjestvang et al., 2020). Practices such as creating detailed exercise schedules and breaking goals into manageable tasks not only support consistent exercise engagement but also amplify its mental health benefits, such as stress relief and improved mood (Ednie & Stibor, 2017).

The Theory of Planned Behavior (TPB) (Ajzen, 1991) offers a strong framework for understanding how fulfilling basic psychological needs in exercise and effective time management influence individuals' volition in exercise. According to TPB, behavior is primarily influenced by intention, which is shaped by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). When autonomy, competence, and relatedness are met, individuals develop positive attitudes toward exercise, seeing it as enjoyable, meaningful, and intrinsically rewarding, and subjective norms are shaped by the relatedness component, encouraging adherence by leveraging the influence of peers, family, or instructors (Ryan & Deci, 2022; Elsborg & Elbe, 2018). At the same time, time management enhances perceived behavioral control by allowing individuals to plan, prioritize, and incorporate exercise into their routines, thereby

reducing stress and boosting confidence in their ability to engage in physical activity consistently (Gjestvang et al., 2020).

The absence of contextual studies examining exercise volition in Northern Mindanao, especially among college students in Local Universities and Colleges (LUCs), highlights a significant gap in the literature. Grounded in a pragmatic worldview, this study prioritizes real-world applications and outcomes, focusing on practical strategies to combat physical inactivity among college students (Kaushik & Walsh, 2019; Hampson & McKinley, 2023).

This study examines how basic psychological needs and time management affect volition, aiming to provide insights into the interaction of psychological, behavioral, and contextual factors. Understanding these dynamics can give LUCs and physical education departments a framework for creating culturally responsive interventions that promote consistent exercise participation. Ultimately, this study contributes to broader public health initiatives aimed at addressing sedentary behaviors, increasing physical activity involvement, and encouraging healthier lifestyles among Filipino youth (Pituk & Cagas, 2019; Xu et al., 2020).

Methods

This study used a convergent mixed-methods design, a rigorous approach that integrates both quantitative and qualitative data to offer a comprehensive understanding of the research problem (Creswell & Creswell, 2017; Fetters et al., 2013). The convergent design facilitated the simultaneous collection and analysis of quantitative and qualitative data, ensuring that findings from both strands could be compared, corroborated, or expanded for deeper interpretation (Baran, 2020; Younas et al., 2023). The quantitative strand employed a descriptive-correlational design to describe the levels of basic psychological needs, time management, and volition in exercise while also examining the strength and direction of relationships among these variables (Ranganathan & Aggarwal, 2019). The qualitative strand utilized a phenomenological approach to explore participants' lived experiences with exercise volition, consistent with the philosophical tradition of understanding human consciousness and shared experiences (Qutoshi, 2018). By combining these methods, the study comprehensively addressed the research questions and provided rich, multi-layered insights into the factors influencing exercise volition among college PE students.

Participants were drawn from eight local universities and colleges (LUCs) in Northern Mindanao, Philippines, where physical education courses such as PATHFIT 1 and 3 concentrate on movement competency and exercise. For the quantitative phase, a systematic sampling technique was utilized to ensure representativeness and coverage across institutions, especially in studies involving large populations (Baig et al., 2019; Rasaq et al., 2024). Employing the Raosoft sample size calculator, an initial sample size of 902 was determined based on a 95% confidence level, a 5% margin of error, and a 90% response distribution, with sampling intervals calculated proportionately to the institutional population sizes. From the 880 surveys collected, 48 responses were excluded due to incomplete data, resulting in a final valid sample of 832 students, which meets statistical requirements for reliability and generalizability (Aggarwal & Ranganathan, 2019). For the qualitative strand, a purposive sampling method was employed, selecting participants who could offer rich, in-depth perspectives relevant to the study (Stratton, 2019; Coast, 2017). Ten participants were chosen for in-depth interviews (IDIs), while eight focus group discussions (FGDs) were conducted with eight to ten students per group, achieving data saturation through a variety of diverse and representative voices (Subedi, 2021; Baillie, 2019).

Quantitative data were gathered using three validated instruments: the Basic Psychological Needs in Exercise Scale (BPNES) (Moutão et al., 2012), the Time Management Questionnaire (TMQ) (Alay & Koçak, 2002), and the Volition in Exercise Scale (VES) (Elsborg et al., 2017). The BPNES evaluates autonomy, competence, and relatedness, which are key constructs of SDT, demonstrating reliability (α = 0.75–0.83) across various populations (Moutão et al., 2012). Similarly, the TMQ assesses time planning, time attitudes, and time wasters, reflecting essential aspects of time management skills among students, with strong internal consistency (α = 0.87) (Britton & Tesser, 1991; Alay & Koçak, 2002). The VES measures volitional facilitators and inhibitors, such as self-confidence, postponing training, and coping with failure, showing robust reliability (α = 0.70–0.87) in previous research (Elsborg et al., 2017; Gallotta et al., 2021). Pilot testing conducted at a newly established LUC in Cagayan de Oro verified the instruments' reliability, yielding Cronbach's alpha values of 0.96 for BPNES, 0.90 for TMQ, and 0.89 for VES, confirming their suitability for the current context.

Qualitative data were gathered through semi-structured interviews and focus group discussions, guided by open-ended questions aimed at exploring participants' lived experiences with volition in exercise (Bearman, 2019; DeJonckheere & Vaughn, 2019). These methods are widely recognized for eliciting detailed narratives and uncovering participants' beliefs, attitudes, and commitments (Robinson, 2023). To maintain consistency, interviews and focus group discussions were conducted in quiet, private settings, with rapport-building strategies utilized to foster trust and open dialogue (Lindsay et al., 2018). All interviews were audio-recorded with consent, transcribed verbatim, and cross-checked for accuracy.

Data analysis adhered to a structured process for both strands. Quantitative data were evaluated using descriptive statistics (mean, standard deviation) to assess the status of variables and multiple regression analysis to ascertain the influence of basic psychological needs and time management on exercise volition (Cataldo et al., 2019). Qualitative data were examined utilizing Braun and Clarke's (2006) thematic analysis, a widely recognized method for identifying, analyzing, and reporting patterns within qualitative data (Hanley et al., 2019; Forbes, 2021). Themes emerged inductively, ensuring that the findings reflected participants' experiences while upholding transparency through coding and audit trails (Carcary, 2021; Candela, 2019). The integration of results employed a merging strategy, in which quantitative findings were juxtaposed with qualitative themes to identify convergences, divergences, or expansions, thus providing a more comprehensive understanding of the research problem (Fetters et al., 2013; Zhou, 2023b).

To ensure the study's credibility, various strategies were employed, including member checking, triangulating data sources (interviews, FGDs, and observations), and reflective journaling to reduce researcher bias (Lincoln, 1985; Carcary, 2021). The research also adhered to ethical standards, obtaining approval from the UIC Ethics Review Committee. Participants provided informed consent, ensuring voluntary participation, confidentiality, and data security in accordance with the Data Privacy Act of 2012 (Republic of the Philippines, 2012). Measures were implemented to safeguard participants' rights, minimize risks, and maintain justice, ensuring fair treatment and equitable representation across institutions (Munthe-Kaas et al., 2020; Candela, 2019).

Results

Table 1 outlines the status of basic psychological needs, time management, and volition in exercise among college PE students. The findings are summarized across three primary variables: Basic Psychological Needs, Time Management, and Volition in Exercise, along with their respective domains, means, standard

deviations, descriptions, and interpretations.

Table 1 The Status of Basic Psychological Needs, Time Management, and Volition in Exercise

Variable	Category/ Domain	Mean	SD	Description	Interpretation
Basic Psychological Needs	Overall	3.92	0.64	High	Basic Psychological needs are substantially met
	Competence	3.85	0.73	High	Need for competence is substantially met
	Relatedness	3.96	0.82	High	Need for relatedness is substantially met
	Autonomy	3.94	0.76	High	Need for autonomy is substantially met
Time Management	Overall	3.48	0.41	High	Time management is often observed
	Time Planning	3.55	0.61	High	Time planning is often observed
	Time Attitudes	3.44	0.43	High	Time attitude is often observed
	Time Wasters	2.56	0.76	Low	Time wasters are rarely observed
Volition in Exercise	Overall	3.03	0.41	Moderate	Volition is sometimes demonstrated
	Reasons	3.8	0.85	High	Reasons are often demonstrated
	Postponing Training	3.1	0.84	Moderate	Postponing training is sometimes demonstrated
	Unrelated Thoughts	3.05	0.97	Moderate	Unrelated thoughts are sometimes demonstrated
	Self-Confidence	3.88	0.82	High	Self-confidence is often demonstrated
	Seeking Approval from Others	3.37	0.85	Moderate	Seeking approval from others is sometimes demonstrated
	Coping with Failure	3.6	0.79	High	Coping with failure is often demonstrated

The basic psychological needs of college PE students were largely met, with an overall mean of 3.92 (SD = 0.64), which indicates a high level of satisfaction. Among the domains, competence received a mean of

3.85 (SD = 0.73), suggesting that students felt confident in their ability to fulfill the requirements of exercise programs and reach their fitness goals. Relatedness scored the highest, with a mean of 3.96 (SD = 0.82), emphasizing the significance of positive relationships and communication during exercise activities. Autonomy was also rated highly (M = 3.94, SD = 0.76), demonstrating that students viewed exercise as being in line with their personal interests, choices, and identity. These results show that students' basic psychological needs in exercise—competence, relatedness, and autonomy—were all substantially fulfilled.

The overall time management among college PE students was rated highly, with a mean of 3.48 (SD = 0.41). Specifically, Time Planning received the highest category mean of 3.55 (SD = 0.61), reflecting the students' efforts to plan schedules, set goals, and organize tasks effectively. Time Attitudes had a mean of 3.44 (SD = 0.43), suggesting a generally positive mindset toward time management. Time Wasters had the lowest mean of 2.56 (SD = 0.76), indicating that students rarely engaged in unproductive or time-wasting activities. The findings suggest that students demonstrate strong planning and time management skills, though minor inefficiencies, such as occasional procrastination, remain present.

Volition in exercise was rated as moderate, with an overall mean of 3.03 (SD = 0.41), indicating inconsistent exercise behaviors. Reasons for exercising received the highest category mean of 3.80 (SD = 0.85), reflecting strong intrinsic motivators such as health benefits and personal goals. Postponing Training had a moderate mean of 3.10 (SD = 0.84), suggesting occasional procrastination before starting exercise routines. Unrelated Thoughts had a moderate mean of 3.05 (SD = 0.97), indicating some difficulty focusing during exercise due to distractions. Self-confidence was rated high, with a mean of 3.88 (SD = 0.82), demonstrating students' belief in their ability to perform well in exercise activities. Seeking Approval from Others received a moderate mean of 3.37 (SD = 0.85), reflecting external pressures or expectations during exercise. Coping with Failure had a high mean of 3.60 (SD = 0.79), highlighting students' resilience in recovering from setbacks related to exercise. These results show that while students possess strong intrinsic motivations and confidence, occasional challenges such as procrastination and distractions impact their volition in exercise.

Table 2 shows the results of the multiple regression analysis investigating the impact of Basic Psychological Needs in Exercise and Time Management on Exercise volition among college PE students. The analysis emphasizes the individual and combined effects of these predictors on the outcome variable.

Table 2 Significance of the Influence of Basic Psychological Needs in Exercise and Time Management on Volition to Exercise

Individual Influence of Predictors	**Volition to Exercise**			
	Standardized Coefficient	t	p-value	Remarks
Basic Psychological Needs in Exercise	.05	1.34	.18	Not Significant
Time Management	.18	4.75	.00	**Significant**
Combined Influence of Predictors				
R	.20			**Significant**
R^2	.04			
F	18.26			
P	.00			

Multiple regression analysis explored the impact of basic psychological needs and time management on exercise volition. Time management was a significant predictor of exercise volition ($\beta = 0.18$, $p = 0.00$), suggesting that effective time management positively affects students' commitment to exercise. Basic psychological needs ($\beta = 0.05$, $p = 0.18$) were not significant predictors when assessed individually.

The combined model was significant ($F(2, 829) = 18.26$, $p < 0.01$), with an R^2 value of 0.04, indicating that 4% of the variability in exercise volition is accounted for by time management and basic psychological needs.

Table 3 presents the themes, descriptions, and exemplars that emerged from the participants' lived experiences regarding their volition in exercise. The qualitative findings provide deeper insights into the challenges, motivations, and enabling factors that influence exercise behaviors among college PE students.

Table 3 Participants' Lived Experiences as Regards Volition in Exercise

Themes	Descriptions	Exemplars
Navigating Life and Practical Constraints	Participants managed exercise amid time, health, and financial limitations. They integrated fitness into daily life by engaging in practical activities, such as walking or household chores.	As long as we're doing the daily things we do at home, we can count that as exercise too. (FGD 4)
Academic and Family Responsibilities as Competing Priorities	Students struggled to balance academic workloads, family obligations, and exercise.	You'd choose to rest instead of exercising because your body might collapse, especially with classes still going on. (FGD 7)
Intrinsic Health and Well-Being as Core Motivators	Exercise was valued for its physical, mental, and emotional benefits.	Being active gives me peace of mind. When I walk, I feel relaxed and forget about stress. (FGD 1)
Social, Environmental, and Technological Influences	Family, friends, and technology influenced exercise engagement, positively and negatively.	Sometimes, it helps to stay on track if you're with the right people. (IDI 4)
Self-Improvement and Confidence Building	Exercise helped participants develop confidence, self-discipline, and resilience.	Exercise is a way to improve myself and be better in my life. (FGD 5)
Structured Programs as Enablers of Consistency	PE classes, sports programs, and campus environments provided motivation and structure for exercise.	In PE classes, I built my confidence because we were always chosen for activities and training. (FGD 1)

These themes in Table 3 illuminate the various factors affecting the participants' commitment, attitudes, and motivations for engaging in exercise. First, in *Navigating Life and Practical Constraints*, participants exhibited adaptability in managing their exercise routines despite various constraints such as time, health

issues, and financial limitations. They creatively integrated exercise into their daily lives, for instance, by walking or doing household chores, to maintain a level of fitness. This underscores their resourcefulness in staying active despite challenges. For example, a participant mentioned, *"As long as we're doing the daily things we do at home, we can count that as exercise too"* (FGD 4).

Academic and Family Responsibilities as Competing Priorities emerged as the second theme. Balancing academic workloads, family commitments, and exercise posed a significant challenge for participants. The demands of schoolwork and familial responsibilities frequently led to physical and mental exhaustion, resulting in the prioritization of rest over exercise. This was articulated by a participant who said, *"You'd choose to rest instead of exercising because your body might collapse, especially with classes still going on"* (FGD 7)

Intrinsic Health and Well-Being as Core Motivators is the third theme. Exercise is highly valued for its physical, mental, and emotional benefits. Participants see exercise as a way to enhance their overall well-being, alleviate stress, and maintain mental equilibrium. For instance, one participant expressed, *"Being active gives me peace of mind. When I walk, I feel relaxed and forget about stress"* (FGD 1). This emphasizes the intrinsic motivations driving their volition to exercise.

The fourth theme is *Social, Environmental, and Technological Influences*. Family, friends, and technology significantly influenced the participants' exercise engagement. Supportive relationships served as motivating factors, whereas technology played a dual role—acting as a source of inspiration through media and online workouts while also creating distractions. A participant shared, *"Sometimes, it helps to stay on track if you're with the right people"* (IDI 4)

Self-Improvement and Confidence Building emerged as the fifth theme. Exercise played a key role in the participants' personal growth by nurturing confidence, self-discipline, and resilience. For many, participating in physical activities provided an opportunity for self-improvement and overcoming personal limitations. This was reflected in the statement, *"Exercise is a way to improve myself and be better in my life"* (FGD 5).

Lastly, the theme, *Structured Programs as Enablers of Consistency*, emerged as the sixth. Structured programs such as physical education (PE) classes, sports teams, and campus activities provided participants with organized and regular opportunities for exercise. These programs not only motivated students to remain active but also enhanced their confidence and fostered a sense of discipline. One participant shared, *"In PE classes, I built my confidence because we were always chosen for activities and training"* (FGD 1).

Table 4 illustrates how experiences shape participants' beliefs, attitudes, and commitment toward exercise. The findings highlight interconnected themes derived from the participants' lived experiences that affect their perspectives and behaviors regarding exercise.

Table 4 The Role of Experiences in Shaping Beliefs, Attitude, and Commitment to Exercise

How lived experiences shaped…	**Themes**	**Descriptions**	**Exemplars**
beliefs	Prioritizing Health and Well-Being	Exercise is essential for physical, mental, and emotional health,	*Exercise isn't just for now; it's for long-term benefits as we get older.* (FGD 3)

		providing long-term benefits.	
	Believing in the Impact of Social Support	Family, friends, and role models offer encouragement, transforming exercise into a shared experience.	*If you're exercising with friends, you're happier... you enjoy more and forget about yourself.* (FGD 6)
	Embracing Exercise as Integral to Identity	Exercise becomes part of one's identity and lifestyle, influenced by personal growth and external factors.	*I'm a trainer in a band... so my exercise habits continue because of the band members.* (FGD 5)
attitude	Cultivating a Positive Attitude	Exercise is viewed as enjoyable, purposeful, and essential for overall well-being.	*Exercise is not a punishment but a reward... you'll get something good and better for your health.* (FGD 7)
	Setting and Pursuing Goal-Oriented Motivation	Participants set specific fitness goals to sustain exercise engagement and drive.	*Set a real goal... to build muscle and become a successful entrepreneur.* (FGD 5)
	Building Confidence and Self-Reflection	Exercise builds physical and social confidence, overcoming barriers like body image issues.	*It reflects my confidence in how I play volleyball... it can boost confidence.* (FGD 7)
commitment	Establishing Routine and Discipline	Structured routines and self-discipline help balance exercise with academic demands.	*I write down everything I want to do... I fit in exercises whenever I have free time.* (FGD 4)
	Using Exercise for Self-Care	Exercise serves as a therapeutic outlet for managing stress and maintaining mental balance.	*Being active gives me peace of mind. When I walk, I feel relaxed and forget about stress.* (FGD 1)
	Gaining Independence and Resilience	Exercise fosters independence, resilience, and resourcefulness, even with limited resources.	*I just do basic exercises, like stretching and planking... it doesn't need to be fancy as long as it's consistent.* (FGD 3)

In terms of beliefs, participants emphasized the importance of prioritizing health and well-being, acknowledging exercise as essential for their physical, mental, and emotional health while highlighting its

long-term benefits. The belief in the impact of social support emerged as another critical theme, as family, friends, and role models encouraged and transformed exercise into a shared, enjoyable activity. Additionally, participants described embracing exercise as integral to their identity, viewing it as a part of who they are and connecting it to their self-image growth.

Three themes emerged concerning participants' attitudes. Participants nurtured a positive outlook by perceiving exercise as meaningful and intrinsically rewarding. Goal-oriented motivation demonstrated how fitness objectives and structured goals enhanced exercise engagement. Finally, fostering confidence and self-reflection underscored how exercise promoted personal growth, boosted physical confidence, and addressed body image issues.

In terms of commitment, participants exhibited routine and discipline by fitting exercise into their busy schedules and utilizing organizational tools to manage academic responsibilities. Engaging in exercise for self-care highlighted its significance as a therapeutic outlet for stress relief and mental wellness. Lastly, participants demonstrated independence and resilience, effectively managing their exercise routines despite financial, resource, or time-related limitations through creativity and determination.

Table 5 presents the integrated findings of quantitative and qualitative data, illustrating the relationship between basic psychological needs, time management, and volition in exercise among college students. The table highlights how the quantitative results, which provide statistical insights into the status and influence of these variables, are supported, expanded upon, or sometimes diverged from by the qualitative themes derived from participants' lived experiences. The nature of integration—whether converging, expanding, or diverging—reflects the degree of alignment or contextual elaboration provided by the qualitative findings.

Table 5 Data Integration of Quantitative and Qualitative Findings

Aspect	Quantitative Findings	Qualitative Findings	Nature of Integration
Basic Psychological Needs	Overall mean = 3.92 (SD = 0.64), rated high; competence (3.85), relatedness (3.96), and autonomy (3.94).	Themes: *Prioritizing Health and Well-Being*, *Believing in the Impact of Social Support*, and *Embracing Exercise as Integral to Identity*.	**Expanding**
Time Management	Overall mean = 3.48 (SD = 0.41), rated high. Time planning = 3.55, time attitudes = 3.44, time wasters = 2.56.	Themes: *Establishing Routine and Discipline*, *Using Exercise for Self-Care*, and *Balancing Academic and Family Priorities*.	**Converging-Expanding**
Volition in Exercise	Overall mean = 3.03 (SD = 0.41), rated moderate. High scores for reasons (3.80) and self-confidence (3.88).	Themes: *Navigating Life and Practical Constraints*, *Intrinsic Health and Well-Being as Core Motivators*, and	**Expanding**

		Self-Improvement and Confidence Building.	
Influence of Predictors	Time Management was a significant predictor (β = 0.18, p = 0.00). Basic Psychological Needs were not significant (β = 0.05, p = 0.18). Combined model R^2 = 0.04.	Themes: *Academic and Family Responsibilities as Competing Priorities*, *Self-Improvement and Confidence Building*, and *Structured Programs as Enablers of Consistency*.	**Expanding-Diverging**

The integration of quantitative and qualitative findings emphasizes how participants' lived experiences affect basic psychological needs, time management, and volition in exercise. Quantitative findings showed that participants' basic psychological needs (competence, relatedness, and autonomy) were substantially met, with high mean scores across all domains. These findings were expanded by qualitative themes such as *Prioritizing Health and Well-Being*, which emphasized exercise's physical and mental benefits, and *Believing in the Impact of Social Support*, which underlined the role of family, peers, and role models in maintaining motivation. Additionally, *Embracing Exercise as Integral to Identity* expanded the concept of autonomy, as participants viewed exercise as an expression of their lifestyle and self-identity.

Similarly, quantitative results showed that time management was rated high, particularly in time planning and time attitudes, while time wasters were rated low. These findings converged and expanded with qualitative themes such as *Establishing Routine and Discipline*, which described how participants managed exercise schedules through planning and discipline. Additionally, *Using Exercise for Self-Care* emphasized how students balanced time to incorporate exercise as a stress-relief mechanism. Themes from *Academic and Family Responsibilities as Competing Priorities* provided context to challenges in time management.

Likewise, quantitative findings indicated that volition in exercise was moderate, with high scores for reasons and self-confidence but moderate ratings for postponing training and unrelated thoughts. These results were expanded by themes like *Navigating Life and Practical Constraints*, which revealed how students incorporated exercise into daily activities despite life's limitations. *Intrinsic Health and Well-Being as Core Motivators* supported the high reasons score by emphasizing exercise as a means for health and mental well-being. *Self-Improvement and Confidence Building* aligned with the high self-confidence rating, highlighting how exercise fosters resilience and personal growth.

Furthermore, time management was found to be a significant predictor of volition in exercise (β = 0.18, p = 0.00), while basic psychological needs were not significant (β = 0.05, p = 0.18). The combined model explained 4 percent of the variance in volition. Qualitative findings expanded on this by highlighting *Academic and Family Responsibilities as Competing Priorities*, which underscored the importance of time management in balancing exercise with other responsibilities. Themes like *Self-Improvement and Confidence Building* and *Structured Programs as Enablers of Consistency* provided further insights into how organized routines and support systems positively influence students' exercise behaviors.

Discussion

The importance of autonomy, competence, and relatedness in exercise motivation has been extensively

explored within the framework of SDT (Ryan & Deci, 2000). Studies such as those by Rodrigues et al. (2023) and Budiarto (2019) illustrate how group-based activities and supportive environments nurture competence and relatedness, thereby enhancing intrinsic motivation and engagement. However, contrasting research, like that of Yan et al. (2023), reveals inconsistencies in need satisfaction, particularly regarding relatedness, where gender and context affect fulfillment. In collectivist cultures such as the Philippines, the focus on social harmony and group achievement (Budiarto, 2019) corresponds with findings that peer relationships in physical education classes fulfill psychological needs. This cultural context underscores how group-based learning environments can bolster relatedness and competence, supporting findings by Liu et al. (2022). The implications suggest that educators should prioritize structured group activities and collaborative tasks to meet students' psychological needs, thus fostering both intrinsic motivation and volitional behaviors.

Time management has been recognized as an effective facilitator of exercise motivation, supported by studies such as Zhou et al. (2018) and Ponciano et al. (2022), which emphasize short-term planning and prioritization as essential strategies for integrating exercise into daily routines. However, the moderate levels of time management noted in earlier research, like Çevik (2021), indicate that procrastination and academic stress can disrupt structured planning. In the college setting, organized physical education programs likely provide external support that enhances students' time management abilities (Moseng et al., 2019; Battista et al., 2023). This underscores how a structured schedule can enhance planning behaviors and lessen the time-behavior gap. The implications highlight the necessity for institutions to teach practical time management techniques, such as exercise logs, weekly goals, and habit formation, to assist students in effectively prioritizing physical activity alongside their academic responsibilities.

The concept of volition in exercise aligns with the findings of Gallotta et al. (2021) and Quinzi (2024), which highlight that volitional behaviors are often influenced by procrastination, external distractions, and competing priorities. These results are also consistent with the observations of Kaushal et al. (2021), who assert that volitional control decreases under significant academic or personal stress. While volition is dependent on motivation, it is also shaped by external constraints that hinder behavior, such as workload and fatigue. This situation reflects the reality for many college students balancing multiple obligations, where time scarcity undermines their ability to maintain exercise volition. The implications suggest that educational programs should integrate strategies like cognitive-behavioral training and stress management interventions to aid students in developing volitional control and sustaining exercise as a regular habit.

Furthermore, the SDT (Ryan & Deci, 2000) suggests that autonomy, competence, and relatedness directly foster intrinsic motivation, which is expected to predict voluntary behaviors. Previous studies, such as those by Vansteenkiste et al. (2020) and Rodrigues et al. (2019), highlight that meeting these psychological needs promotes ongoing engagement in exercise. However, research conducted by Elsborg and Elbe (2018) and Wang (2023) revealed that situational factors, such as academic stress and time limitations, often diminish the practical impact of basic psychological needs. This context indicates that although basic needs lay the groundwork for motivation, external pressures can restrict their influence on behavior. The findings emphasize the need for introducing mediating factors, like self-efficacy and goal-setting strategies, to connect psychological need satisfaction with voluntary exercise behaviors.

The significant influence of time management on volitional behavior aligns with findings by Ponciano et al. (2022) and Kopp et al. (2020), who emphasize that effective time planning enhances self-regulation and goal achievement. However, Bento et al. (2023) caution that time management alone is inadequate if intrinsic volition or coping strategies are absent. In the context of college students, time management

serves as a practical tool to address competing responsibilities and organize schedules, as discussed by Zhou et al. (2018). This reinforces the notion that structured planning minimizes procrastination and promotes accountability. The implications suggest that PE programs should equip students with tools such as daily planners, self-monitoring strategies, and flexible schedules to assist them in prioritizing exercise amidst external demands.

Students' lived experiences align with the findings of Noprianty (2019) and Quinzi (2024), who observed that individuals adjust their exercise routines based on life transitions, time constraints, and shifting priorities. For many participants, intrinsic motivators such as health benefits, stress relief, and mental well-being emerged as key drivers, consistent with Vansteenkiste et al. (2020) and Liu et al. (2022). In the collectivist context of the Philippines, family and peer support play a vital role in sustaining exercise commitment, aligning with Budiarto (2019) and Ren and Zou (2022), who emphasize the importance of social connections. However, practical challenges such as financial limitations and environmental barriers reflect findings by Komazawa et al. (2021), indicating that resource accessibility remains a concern. These implications underscore the need for institutions to develop flexible and low-cost exercise programs, supported by social support systems and community-based initiatives to promote long-term engagement.

Students' experiences shaped beliefs about health and well-being, consistent with findings by Liu et al. (2022) and Rodrigues et al. (2023), which view exercise as a vital investment in both physical and mental health. Social support also emerged as a core belief, aligning with Collado-Mateo et al. (2021) and Han and Kweon (2020), who note that encouragement from family and friends enhances motivation and accountability. These beliefs imply that exercise is not merely a habit but an essential part of identity, as highlighted by Morano et al. (2020).

Attitudes were shaped through experiences that fostered intrinsic enjoyment, emotional well-being, and goal-oriented motivation. These findings align with Zamarripa et al. (2020) and Dunton et al. (2023), which demonstrate that viewing exercise as a source of fulfillment and self-improvement strengthens long-term participation. Setting and pursuing goals provided students with structure and resilience, supporting observations by Ludwig et al. (2019), who emphasize the significance of goal-setting in maintaining motivation.

Commitment was strengthened through routine, discipline, and self-care practices. The findings align with Zhou et al. (2018), who argue that effective time management and habit formation drive consistent exercise adherence. Moreover, participants highlighted resilience and adaptability in overcoming challenges, which is consistent with Sussman et al. (2022), who emphasize the importance of flexible scheduling in maintaining exercise routines. The implications suggest that institutions should promote goal-oriented and self-regulated strategies that integrate exercise as a sustainable component of students' lives.

Finally, the qualitative and quantitative findings converged on areas such as relatedness, self-confidence, time attitudes, and time planning. This alignment reinforces the results by Rodrigues et al. (2021) and Zhou et al. (2018), where social support, confidence, and structured planning serve as key facilitators of volitional exercise behaviors. Divergences appeared in areas like seeking approval and unrelated thoughts, highlighting subtle differences between positive social support and external pressures, as discussed by Karaşar and Baytemir (2018). Qualitative insights expanded on the quantitative data, providing contextual depth regarding findings on basic psychological needs, resilience, and intrinsic motivators, as observed by Vansteenkiste et al. (2020). The implications emphasize the necessity of integrating quantitative

assessments with qualitative narratives to develop comprehensive strategies for enhancing exercise volition.

Conclusion

This study examined the theoretical foundations of volition in exercise, drawing on the TPB, SDT, and GST. Time management emerged as a key predictor of volition, supporting GST's emphasis on the importance of structured routines and planning in achieving consistent behaviors. The findings partially align with TPB, where perceived behavioral control (through time management) impacts volition. However, the negligible effect of basic psychological needs questions TPB's assumption that intentions ultimately govern behaviors, indicating that external barriers like academic stress can hinder volitional engagement. Similarly, while SDT suggests that autonomy, competence, and relatedness fuel intrinsic motivation, their direct influence on volitional behavior seemed limited in this context. This disconnect underscores the complexity of volitional processes, where additional factors—such as self-efficacy, coping strategies, and time constraints—play essential roles.

These findings have significant implications for educational practice, particularly in physical education programs and institutional support systems. Addressing time management barriers and enhancing supportive exercise environments can help students bridge the intention-behavior gap. Structured programs such as PE classes, campus activities, and intramural sports can serve as enablers by fostering routines, discipline, and resilience while providing essential social support. Furthermore, integrating psychological needs satisfaction with practical strategies like time management may strengthen volitional behaviors. Educational institutions may adopt holistic approaches that consider students' unique challenges, including external pressures and cognitive distractions while promoting environments that support intrinsic motivation and personal growth through exercise.

REFERENCES

1. Acampado, E., & Valenzuela, M. (2018). Physical activity and dietary habits of Filipino college students: A cross-sectional study. *Kineziologija, 50*(1), 57–67. https://doi.org/10.26582/k.50.1.11
2. Adams, L., Feike, J., Eckert, T., Göhner, W., Spörhase, U., & Bitzer, E. (2019). Effectiveness of a motivational–volitional group intervention to increase physical activity among breast cancer survivors compared to standard medical rehabilitation—study protocol of a prospective controlled bi-centred interventional trial. *European Journal of Cancer Care, 28*(4). https://doi.org/10.1111/ecc.13073
3. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
4. Alay, S., & Kocak, S. (2002). Validity and reliability of time management questionnaire. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 22*(22). https://dergipark.org.tr/en/download/article-file/87887
5. Alonso-Mencía, M. E., Alario-Hoyos, C., & Delgado Kloos, C. (2019). Chrome plug-in to support SRL in MOOCs. In *Digital Education: At the MOOC Crossroads Where the Interests of Academia and Business Converge: 6th European MOOCs Stakeholders Summit, EMOOCs 2019, Naples, Italy, May 20–22, 2019, Proceedings 6* (pp. 3-12). Springer International Publishing. https://doi.org/10.1007/978-3-030-19875-6_1
6. André, N. (2024). A behavioral perspective for improving exercise adherence. *Sports Medicine - Open, 10*(1), 56. https://doi.org/10.1186/s40798-024-00714-8

7. Aquino, J. (2023). Assessing the role of recreational activities in physical education participation of college students in one state university in Laguna Philippines. *International Journal of Multidisciplinary Sciences, 1*(2), 190-204. https://doi.org/10.37329/ijms.v1i2.2506
8. Baig, F., Rana, I. A., & Talpur, M. A. H. (2019). Determining factors influencing residents' satisfaction regarding urban livability in Pakistan. *International Journal of Community Well-Being, 2*(2), 91–110. https://doi.org/10.1007/s42413-019-00026-w
9. Baillie, L. (2019). Exchanging focus groups for individual interviews when collecting qualitative data. *Nurse Researcher*. https://doi.org/10.7748/NR.2019.E1633
10. Bakker, A., Breevaart, K., Scharp, Y., & Vries, J. (2021). Daily self-leadership and playful work design: proactive approaches of work in times of crisis. *The Journal of Applied Behavioral Science, 59*(2), 314-336. https://doi.org/10.1177/00218863211060453
11. Baran, M. L. (2020). Mixed Methods Research Design: In M. L. Baran & J. E. Jones (Eds.), *Advances in Library and Information Science* (pp. 26–52). IGI Global. https://doi.org/10.4018/978-1-7998-1025-4.ch002
12. Battista, S., Kiadaliri, A., Jönsson, T., Gustafsson, K., Englund, M., Testa, M., & Dell'Isola, A. (2023). Factors associated with adherence to a supervised exercise intervention for osteoarthritis: data from the Swedish osteoarthritis registry. *Arthritis Care & Research, 75*(10), 2117-2126. https://doi.org/10.1002/acr.25135
13. Beckmann, J., Ehmann, M., Kossak, T.-N., Perl, B., & Hähl, and W. (2021). Volition in sports. *Zeitschrift Für Sportpsychologie, 28*(3), 84–96. https://doi.org/10.1026/1612-5010/a000321
14. Behzadnia, B., Kiani, A., & Babaei, S. (2020). Autonomy-supportive exercise behaviors promote breast cancer survivors' well-being. *Health Promotion Perspectives, 10*(4), 409-417. https://doi.org/10.34172/hpp.2020.60
15. Bento, A., Páez, L., & Raimundo, A. (2023). Mediating effect of motivation on the relationship of fitness with volitional high-intensity exercise in high-school students. *Healthcare, 11*(6), 800. https://doi.org/10.3390/healthcare11060800
16. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
17. Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*(3), 405–410. https://doi.org/10.1037/0022-0663.83.3.405
18. Budiarto, Y. (2019). Nonattachment, trait mindfulness, meditation practice, and life satisfaction: testing the Buddhism psychology model in Indonesia. *Open Journal for Psychological Research, 3*(1), 11-22. https://doi.org/10.32591/coas.ojpr.0301.02011b
19. Candela, A. (2019). Exploring the function of member checking. *The Qualitative Report, 24*(3), 619-628. https://doi.org/10.46743/2160-3715/2019.3726
20. Carcary, M. (2021). The research audit trail: Methodological guidance for application in practice. *Electronic Journal of Business Research Methods, 18*(2). https://doi.org/10.34190/JBRM.18.2.008
21. Cataldo, R., Arancibia, M., Stojanova, J., & Papuzinski, C. (2019). General concepts in biostatistics and clinical epidemiology: Observational studies with cross-sectional and ecological designs. *Medwave, 19*(08). https://doi.org/10.5867/medwave.2019.08.7698
22. Çevik, Ü. (2021). The relationship between time management, self-efficacy and academic success levels of nursing and midwifery students and various variables. *Samsun Sağlık Bilimleri Dergisi, 6*(1), 128-135. https://doi.org/10.47115/jshs.884422

23. Chu, X., Kuang, J., & Liu, J. (2018). The research on evaluation of college students' ability to achieve the physical exercising habit and volition. *Asian Social Science, 14*(6), 118–118. https://doi.org/10.5539/ASS.V14N6P118
24. Coast, J. (2017). *Qualitative methods for health economics.* Rowman & Littlefield.
25. Collado-Mateo, D., Lavín-Pérez, A., Peñacoba, C., Coso, J., Román, M., Luque-Casado, A., … & Amado-Alonso, D. (2021). Key factors associated with adherence to physical exercise in patients with chronic diseases and older adults: an umbrella review. *International Journal of Environmental Research and Public Health, 18*(4), 2023. https://doi.org/10.3390/ijerph18042023
26. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
27. Cui, C. (2023). How professional training impacts teaching innovation among ideological and political teachers: the mediating and moderating role of basic psychological needs satisfaction. *Frontiers in Psychology, 14.* https://doi.org/10.3389/fpsyg.2023.1246951
28. DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: a balance of relationship and rigour. *Family medicine and community health, 7*(2). https://doi.org/10.1136/fmch-2018-000057
29. Dillenhöefer, S., Stehling, F., Welsner, M., Schlegtendal, A., Sutharsan, S., Olivier, M., Taube, C., Mellies, U., Koerner-Rettberg, C., Brinkmann, F., & Gruber, W. (2022). Barriers for sports and exercise participation and corresponding barrier management in cystic fibrosis. *International Journal of Environmental Research and Public Health, 19*(20), 13150. https://doi.org/10.3390/ijerph192013150
30. Dillenhöefer, S., Stehling, F., Welsner, M., Schlegtendal, A., Sutharsan, S., Olivier, M., Taube, C., Mellies, U., Koerner-Rettberg, C., Brinkmann, F., & Gruber, W. (2022). Barriers for sports and exercise participation and corresponding barrier management in cystic fibrosis. *International Journal of Environmental Research and Public Health, 19*(20), 13150. https://doi.org/10.3390/ijerph192013150
31. Dunton, G., Do, B., Crosley-Lyons, R., Naya, C., Hewus, M., & Kanning, M. (2023). Assessing basic and higher-level psychological needs satisfied through physical activity. *Frontiers in Psychology, 14*. https://doi.org/10.3389/fpsyg.2023.1023556
32. Ednie, A. and Stibor, M. (2017). Influence and interpretation of intrinsic and extrinsic exercise motives. *Journal of Human Sport and Exercise, 12*(2). https://doi.org/10.14198/jhse.2017.122.18
33. Elsborg, P. and Elbe, A. (2018). Exercise-specific volition and motivation for weight loss maintenance following an intensive lifestyle intervention. *Health Psychology, 37*(8), 759-766. https://doi.org/10.1037/hea0000636
34. Elsborg, P., Wikman, J. M., Nielsen, G., Tolver, A., & Elbe, A.-M. (2017). Development and initial validation of the volition in exercise questionnaire (VEQ). *Measurement in Physical Education and Exercise Science, 21*(2), 57–68. https://doi.org/10.1080/1091367X.2016.1251436
35. Evans, M., Graupensperger, S., Benson, A., Eys, M., Hastings, B., & Gottschall, J. (2019). Groupness perceptions and basic need satisfaction: perceptions of fitness groups and experiences within club environments. *Group Dynamics Theory Research and Practice, 23*(3-4), 170-184. https://doi.org/10.1037/gdn0000103

36. Fetters, M.D., Curry, L.A. and Creswell, J.W. (2013), achieving integration in mixed methods designs—principles and practices. *Health Serv Res, 48*, 2134-2156. https://doi.org/10.1111/1475-6773.12117
37. Forbes, M. (2021). Thematic analysis: A practical guide. *Evaluation Journal of Australasia, 22*(2), 132–135. https://doi.org/10.1177/1035719x211058251
38. Froiland, J., Worrell, F., Olenchak, F., & Kowalski, M. (2020). Positive and negative time attitudes, intrinsic motivation, behavioral engagement and substance use among urban adolescents. *Addiction Research & Theory, 29*(4), 347-357. https://doi.org/10.1080/16066359.2020.1857740
39. Gallotta, M. C., Bonavolontà, V., Guidetti, L., Baldari, C., Innocenti, L., Cardinali, L., Falcioni, L., di Fronso, S., Emerenziani, G. P., & Zimatore, G. (2021). Initial validation of the Italian version of the Volition in Exercise Questionnaire (VEQ-I). *PloS One, 16*(4), e0249667. https://doi.org/10.1371/journal.pone.0249667
40. Gjestvang, C., Stensrud, T., & Haakstad, L. A. H. (2020). Motives and barriers to initiation and sustained exercise adherence in a fitness club setting—a one-year follow-up study. *Scandinavian Journal of Medicine & Science in Sports, 30*(9), 1796-1805. https://doi.org/10.1111/sms.13736
41. Guan, J., Xiang, P., Land, W., & Hamilton, X. (2023). The roles of perceived physical education competence, enjoyment, and persistence on middle school students' physical activity engagement. *Perceptual and Motor Skills, 130*(4), 1781-1796. https://doi.org/10.1177/00315125231178341
42. Hampson, T. and McKinley, J. (2023). Problems posing as solutions: Criticising pragmatism as a paradigm for mixed research. *Research in Education, 116*(1), 124-138. https://doi.org/10.1177/00345237231160085
43. Han, E. and Kweon, Y. (2020). Construction of exercise behavior model in patients with rheumatoid arthritis. *Iranian Journal of Public Health, 49*(9), 1666. https://doi.org/10.18502/ijph.v49i9.4083
44. Hanley, S., Knight, C. J., Glenn, N. M., Stephens, J. W., & Bracken, R. M. (2019). 'What's the point in extending your life if this is your life': A qualitative exploration of pre-surgery, short-term and long-term responses to bariatric surgery. *Qualitative Research in Sport Exercise and Health, 12*(4), 530–547. https://doi.org/10.1080/2159676x.2019.1640779
45. Hannan, T., Moffitt, R., Neumann, D., & Kemps, E. (2019). Implicit approach–avoidance associations predict leisure-time exercise independently of explicit exercise motivation. *Sport Exercise and Performance Psychology, 8*(2), 210-222. https://doi.org/10.1037/spy0000145
46. Kara, F. and Sarol, H. (2021). Level up the life!! leisure involvement, basic psychological need satisfaction and life satisfaction among university students. *Higher Education Studies, 11*(4), 91. https://doi.org/10.5539/hes.v11n4p91
47. Karaşar, B. and Baytemir, K. (2018). Need for social approval and happiness in college students: the mediation role of social anxiety. *Universal Journal of Educational Research, 6*(5), 919-927. https://doi.org/10.13189/ujer.2018.060513
48. Karataş, H. (2017). An investigation into university students' study skills. *New Trends and Issues Proceedings on Humanities and Social Sciences, 4*(1), 335-343. https://doi.org/10.18844/prosoc.v4i1.2274
49. Kaushal, N., Bherer, L., Hagger, M., & Bherer, L. (2021). Investigating the role of self-control beliefs in predicting exercise behaviour: A longitudinal study. *British Journal of Health Psychology, 26*(4), 1155-1175. https://doi.org/10.1111/bjhp.12525

50. Kaushik, V. and Walsh, C. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences, 8*(9), 255. https://doi.org/10.3390/socsci8090255
51. Kekäläinen, T., Kokko, K., Tammelin, T., Sipilä, S., & Walker, S. (2018). Motivational characteristics and resistance training in older adults: a randomized controlled trial and 1-year follow-up. *Scandinavian Journal of Medicine and Science in Sports, 28*(11), 2416-2426. https://doi.org/10.1111/sms.13236
52. Kim, B., Lee, S., Hong, H., & Han, K. (2019). Automated time manager: effectiveness of self-regulation on time management through a smartphone application. *IEEE Access, 7*, 90891-90903. https://doi.org/10.1109/access.2019.2926743
53. Komazawa, Y., Murayama, H., Harata, N., Takami, K., & Parady, G. (2021). Role of social support in the relationship between financial strain and frequency of exercise among older japanese: A 19-year longitudinal study. *Journal of Epidemiology, 31*(4), 265-271. https://doi.org/10.2188/jea.je20190248
54. Kopp, P., Senner, V., & Gröpel, P. (2020). Regular exercise participation and volitional competencies. *Sport Exercise and Performance Psychology, 9*(2), 232-243. https://doi.org/10.1037/spy0000197
55. Latham, G. P., & Locke, E. A. (1991). Self-regulation through goal setting. *Organizational Behavior and Human Decision Processes, 50*(2), 212–247. https://doi.org/10.1016/0749-5978(91)90021-K
56. Lincoln, Y. (1985). *Naturalistic inquiry*. Sage.
57. Liu, Z., Li, M., Ren, C., Zhu, G., & Zhao, X. (2022). Relationship between physical activity, parental psychological control, basic psychological needs, anxiety, and mental health in Chinese engineering college students during the COVID-19 pandemic. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.802477
58. Ludwig, R., Srivastava, S., & Berkman, E. (2019). Predicting exercise with a personality facet: planfulness and goal achievement. *Psychological Science, 30*(10), 1510-1521. https://doi.org/10.1177/0956797619868812
59. Luque-Casado, A., Mayo, X., Lavín-Pérez, A., Jiménez, A., & Álvarez, F. (2021). Understanding behavioral regulation towards physical activity participation: do we need a paradigm shift to close the gender gap? *Sustainability,* 13(4), 1683. https://doi.org/10.3390/su13041683
60. Madrona, P., Pita, A., Suárez, A., & Sánchez, G. (2018). Analysis of perceived physical and motor competence in 10- to 13-year-old Spanish children. *Motricidade, 14*(4), 3-13. https://doi.org/10.6063/motricidade.13679
61. Manasan, P. L., Quitor, C. G., Ronquillo, V. P., Dabu, D. C., Cruz, J. T. D., Sode, M. A. V., & Salvador Jr, L. C. (2023). Motives and barriers to exercise among underweight Filipino college students. *International Journal of Multidisciplinary: Applied Business and Education Research, 4*(9), 3244–3263. https://doi.org/10.11594/ijmaber.04.09.16
62. Mazzoni, A., Carlsson, M., Berntsen, S., Nordin, K., & Demmelmaier, I. (2019). "Finding my own motivation" — a mixed methods study of exercise and behaviour change support during oncological treatment. *International Journal of Behavioral Medicine, 26*(5), 499-511. https://doi.org/10.1007/s12529-019-09809-z
63. Montgomery, S., Donnelly, M., Badham, J., Kee, F., Dunne, L., & Hunter, R. (2021). A multi-method exploration into the social networks of young teenagers and their physical activity behavior. *BMC Public Health, 21*(1). https://doi.org/10.1186/s12889-020-10081-0

64. Morano, M., Bortoli, L., Ruiz, M., Campanozzi, A., & Robazza, C. (2020). Actual and perceived motor competence: are children accurate in their perceptions? *Plos One, 15*(5), e0233190. https://doi.org/10.1371/journal.pone.0233190
65. Moseng, T., Dagfinrud, H., & Østerås, N. (2019). Implementing international osteoarthritis guidelines in primary care: uptake and fidelity among health professionals and patients. *Osteoarthritis and Cartilage, 27*(8), 1138-1147. https://doi.org/10.1016/j.joca.2019.03.010
66. Moutão, J. M. R. P., Serra, L. F. C., Alves, J. A. M., Leitão, J. C., & Vlachopoulos, S. P. (2012). Validation of the basic psychological needs in exercise scale in a Portuguese sample. *The Spanish Journal of Psychology, 15*(1), 399–409. https://doi.org/10.5209/rev_SJOP.2012.v15.n1.37346
67. Munthe-Kaas, H., Nøkleby, H., Lewin, S., & Glenton, C. (2020). The TRANSFER Approach for assessing the transferability of systematic review findings. *BMC Medical Research Methodology, 20*(1), 11. https://doi.org/10.1186/s12874-019-0834-5
68. Nimiya, A. (2023). Sex difference in body image, exercise motivation and social comparison among instagram users: A cross sectional study. *F1000research, 12*, 1506. https://doi.org/10.12688/f1000research.134799.1
69. Noh, Y., Lee, K., & Bum, C. (2018). The relationship between soccer club coaches' decision-making style, basic psychological needs, and intention to continue to exercise: based on amateur male soccer club members in Korea. *Social Sciences, 7*(10), 200. https://doi.org/10.3390/socsci7100200
70. Noprianty, R. (2019). Time learning management nursing students using Time Management Questionnaire (TMQ) in implementing Problem Based Learning (PBL) methods. *Jurnal Pendidikan Kedokteran Indonesia: The Indonesian Journal of Medical Education, 8*(1), 39. https://doi.org/10.22146/jpki.44861
71. Padrón, I., Fraga, I., Vieitez, L., Montes, C., & Romero, E. (2021). A study on the psychological wound of covid-19 in university students. *Frontiers in Psychology, 12*. https://doi.org/10.3389/fpsyg.2021.589927
72. Pascoe, M., Bailey, A., Craike, M., Carter, T., Patten, R., Stepto, N., … & Parker, A. (2021). Single session and short-term exercise for mental health promotion in tertiary students: a scoping review. *Sports Medicine - Open, 7*(1). https://doi.org/10.1186/s40798-021-00358-y
73. Pathmanathan, C., Krishnamoorthy, N., & Shivapatham, G. (2022). Effective interventions to improve long-term physiotherapy exercise adherence among patients with lower limb osteoarthritis. a systematic review. *BMC Musculoskeletal Disorders, 23*(1). https://doi.org/10.1186/s12891-022-05050-0
74. Peiris, C., Gallagher, A., Taylor, N., & McLean, S. (2023). Behavior change techniques improve adherence to physical activity recommendations for adults with metabolic syndrome: a systematic review. *Patient Preference and Adherence, 17,* 689-697. https://doi.org/10.2147/ppa.s393174
75. Pfeffer, I., Elsborg, P., & Elbe, A.-M. (2020). Validierung der deutschsprachigen Version des Volition in Exercise Questionnaire. *German Journal of Exercise and Sport Research, 50,* 102–113. https://doi.org/10.1007/s12662-019-00632-y
76. Pituk, C. S., & Cagas, J. Y. (2019). Atividade física e aptidão física entre estudantes universitários Filipinos. *Journal of Physical Education, 30,* e3076. https://doi.org/10.4025/jphyseduc.v30i1.3076
77. Ponciano, I. C., Seixas, M. B., Peçanha, T., Pereira, A. L., Trevizan, P. F., Britto, R. R., & Silva, L. P. D. (2022). Maintenance of physical activity behavior by individuals with prediabetes and diabetes during the COVID-19 pandemic after completing an exercise intervention in Brazil. *International*

Journal of Environmental Research and Public Health, 19(14), 8857. https://doi.org/10.3390/ijerph19148857

78. Quinzi, F. (2024). Influence of living settings on physical activity levels and volition in exercise in male and female university students. *Plos One, 19*(7), e0304579. https://doi.org/10.1371/journal.pone.0304579
79. Qutoshi, S. B. (2018). Phenomenology: A philosophy and method of inquiry. *Journal of Education and Educational Development, 5*(1), 215–222. https://eric.ed.gov/?id=EJ1180603
80. Raffaelli, Q., Mills, C., Stefano, N., Mehl, M., Chambers, K., Fitzgerald, S., … & Andrews-Hanna, J. (2021). The think aloud paradigm reveals differences in the content, dynamics and conceptual scope of resting state thought in trait brooding. *Scientific Reports, 11*(1). https://doi.org/10.1038/s41598-021-98138-x
81. Ranganathan, P., & Aggarwal, R. (2019). Study designs: Part 3—Analytical observational studies. *Perspectives in Clinical Research, 10*(2). https://doi.org/10.4103/picr.PICR_35_19
82. Rasaq, A. M., Yusuf, A. O., Nuhu, S. R., & Ibrahim, A. M. (2024). Citation analysis of library and information science undergraduates' projects in Kwara State University, Malete (2013-2018). *Inkunabula Journal of Library Science and Islamic Information, 3*(1), 42–54. https://doi.org/10.24239/inkunabula.v3i1.3002
83. Reiner, S., D'Abundo, M., Cappaert, T., & Miller, M. (2023). Awareness of social presence on virtual fitness platforms and relationship with exercise motivation and physical activity levels. *Physical Activity and Health, 7*(1), 91-102. https://doi.org/10.5334/paah.218
84. Reiner, S., D'Abundo, M., Cappaert, T., & Miller, M. (2023). Awareness of social presence on virtual fitness platforms and relationship with exercise motivation and physical activity levels. *Physical Activity and Health, 7*(1), 91-102. https://doi.org/10.5334/paah.218
85. Ren, M. and Zou, S. (2022). Effect of physical exercise on college students' life satisfaction: mediating role of competence and relatedness needs. *Frontiers in Psychology, 13.* https://doi.org/10.3389/fpsyg.2022.930253
86. Republic of the Philippines. (2012). *Republic Act No. 10173: Data Privacy Act of 2012.* Official Gazette. https://privacy.gov.ph/data-privacy-act/
87. Roberts, S., Reeves, M., & Ryrie, A. (2014). The influence of physical activity, sport and exercise motives among UK-based university students. *Journal of Further and Higher Education, 39*(4), 598-607. https://doi.org/10.1080/0309877x.2014.938265
88. Robinson, D. B., Harenberg, S., Walters, W., Barrett, J., Cudmore, A., Fahie, K., & Zakaria, T. (2023). Game Changers: A participatory action research project for/with students with disabilities in school sport settings. *Frontiers in Sports and Active Living, 5*, 1150130. https://doi.org/10.3389/fspor.2023.1150130
89. Rodrigues, F., Jacinto, M., Couto, N., Monteiro, D., Monteiro, A. M., Forte, P., & Antunes, R. (2023). Motivational correlates, satisfaction with life, and physical activity in older adults: a structural equation analysis. Medicina, 59(3), 599. https://doi.org/10.3390/medicina59030599
90. Rodrigues, F., Teixeira, D., Cid, L., & Monteiro, D. (2019). Promoting physical exercise participation: the role of interpersonal behaviors for practical implications. Journal of Functional Morphology and Kinesiology, 4(2), 40. https://doi.org/10.3390/jfmk4020040

91. Ryan, R. and Deci, E. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. https://doi.org/10.1037/0003-066x.55.1.68
92. Ryan, R. M., & Deci, E. L. (2022). Self-determination theory. In F. Maggino (Ed.), *Encyclopedia of quality of life and well-being research* (pp. 1–7). Springer International Publishing. https://doi.org/10.1007/978-3-319-69909-7_2630-2
93. Sari, D. K., Mani, S., Fadli, M., Ihksan, R., Machrina, Y., Arrasyid, N. K., Siregar, K. B., & Sunarno, A. (2022). Is it important to increase physical activity among university students during the second-wave COVID-19 pandemic in Asian countries? A cross-sectional study of the knowledge, attitudes, and practices in Asian countries. *Journal of Multidisciplinary Healthcare, Volume 15,* 1559–1571. https://doi.org/10.2147/JMDH.S368635
94. Shuang-shuang, X. and Ma, X. (2023). Mechanisms of physical exercise effects on anxiety in older adults during the COVID-19 lockdown: an analysis of the mediating role of psychological resilience and the moderating role of media exposure. *International Journal of Environmental Research and Public Health, 20*(4), 3588. https://doi.org/10.3390/ijerph20043588
95. Stevinson, C., Plateau, C., Plunkett, S., Fitzpatrick, E., Ojo, M., Moran, M., … & Clemes, S. (2020). Adherence and health-related outcomes of beginner running programs: a 10-week observational study. *Research Quarterly for Exercise and Sport, 93*(1), 87-95. https://doi.org/10.1080/02701367.2020.1799916
96. Stratton, S. J. (2019). Data sampling strategies for disaster and emergency health research. *Prehospital and Disaster Medicine, 34*(3), 227–229. https://doi.org/10.1017/S1049023X19004412
97. Subedi, K. R. (2021). Determining the sample in qualitative research. *Online Submission, 4,* 1–13. https://doi.org/10.3126/scholars.v4i1.42457
98. Suikkala, A., Tohmola, A., Rahko, E., & Hökkä, M. (2021). Future palliative competence needs – a qualitative study of physicians' and registered nurses' views. *BMC Medical Education, 21*(1). https://doi.org/10.1186/s12909-021-02949-5
99. Sussman, T., Lawrence, J., & Pimienta, R. (2022). "This is how i want it": Exploring the use of a workbook with persons with dementia to support advance care planning engagement. *Dementia, 21*(8), 2601-2618. https://doi.org/10.1177/14713012221127358
100. Teixeira, P., Silva, M., Mata, J., Palmeira, A., & Markland, D. (2012). Motivation, self-determination, and long-term weight control. *International Journal of Behavioral Nutrition and Physical Activity, 9*(1), 22. https://doi.org/10.1186/1479-5868-9-22
101. Tous-Espelosin, M. (2023). "Out-of-hospital and with qualified exercise professionals": keys to the cortex-sp physical exercise program according to the experience of the participants. *European Journal of Investigation in Health Psychology and Education, 13*(9), 1728-1737. https://doi.org/10.3390/ejihpe13090125
102. Vancampfort, D., Van Damme, T., Firth, J., Smith, L., Stubbs, B., Rosenbaum, S., Hallgren, M., Hagemann, N., & Koyanagi, A. (2019). Correlates of physical activity among 142,118 adolescents aged 12–15 years from 48 low- and middle-income countries. *Preventive Medicine, 127,* 105819. https://doi.org/10.1016/j.ypmed.2019.105819
103. Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion, 44*(1), 1–31. https://doi.org/10.1007/s11031-019-09818-1

104. Vaquero-Solís, M., Sánchez-Miguel, P., Tapia-Serrano, M., González, J., & Gallego, D. (2019). Physical activity as a regulatory variable between adolescents' motivational processes and satisfaction with life. *International Journal of Environmental Research and Public Health, 16*(15), 2765. https://doi.org/10.3390/ijerph16152765
105. Vučković, V., Krejač, K., & Kajtna, T. (2022). Exercise motives of college students after the covid-19 lockdown. *International Journal of Environmental Research and Public Health, 19*(12), 6977. https://doi.org/10.3390/ijerph19126977
106. Wei, N. (2023). Impact of social media addiction on academic performance and the role of art therapy. *Lecture Notes in Education Psychology and Public Media, 29*(1), 247-253. https://doi.org/10.54254/2753-7048/29/20231520
107. Welhaf, M. (2022). Interpolated testing and content pretesting as interventions to reduce task-unrelated thoughts during a video lecture. *Cognitive Research Principles and Implications, 7*(1). https://doi.org/10.1186/s41235-022-00372-y
108. WHO Team. (2019). 2019 GSHS fact sheet Philippines (Surveillance, Monitoring and Reporting [SMR]). https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/data-reporting/philippines/2019-philippines-fact-sheet.pdf?sfvrsn=7e3888af_1&download=true
109. Witlox, L., Velthuis, M., Boer, J., Bisschop, C., Wall, E., van der Meulen, W., Schröder, C., Peeters, P., & May, A. (2019). Attendance and compliance with an exercise program during localized breast cancer treatment in a randomized controlled trial: The pact study. *Plos One, 14*(5), e0215517. https://doi.org/10.1371/journal.pone.0215517
110. World Health Organization. (2022). Physical activity. *World Health Organization*. https://www.who.int/news-room/fact-sheets/detail/physical-activity
111. Xu, G., Sun, N., Li, L., Qi, W., Li, C., Zhou, M., Chen, Z., & Han, L. (2020). Physical behaviors of 12-15 year-old adolescents in 54 low- and middle-income countries: Results from the Global School-based Student Health Survey. *Journal of Global Health, 10*(1), 010423. https://doi.org/10.7189/jogh.10.010423
112. Yamani, N., Taleghani, F., Alizadeh, M., & Mafinejad, M. (2018). Determining the expected competencies for oncology nursing: a needs assessment study. *Iranian Journal of Nursing and Midwifery Research, 23*(3), 188. https://doi.org/10.4103/ijnmr.ijnmr_217_16
113. Yan, L., Guo, T., & Yang, J. (2023). Psychological need satisfaction, motivational regulation, and leisure-time physical activity of Chinese college athletes: comparison across gender and competition level. *SCIREA Journal of Education, 8*(2), 64-88. https://doi.org/10.54647/education880424
114. Younas, A., Fàbregues, S., & Creswell, J. W. (2023). Generating metainferences in mixed methods research: A worked example in convergent mixed methods designs. *Methodological Innovations, 16*(3), 276–291. https://doi.org/10.1177/20597991231188121
115. Zamarripa, J., Rodríguez-Medellín, R., Pérez-Garcia, J. A., Otero-Saborido, F., & Delgado, M. (2020). Mexican basic psychological need satisfaction and frustration scale in physical education. *Frontiers in Psychology, 11*. https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2020.00253
116. Zhou, M., Fukuoka, Y., Mintz, Y., Goldberg, K., Kaminsky, P., Flowers, E., … & Aswani, A. (2018). Evaluating machine learning–based automated personalized daily step goals delivered through a mobile phone app: randomized controlled trial. *JMIR Mhealth and Uhealth, 6*(1), e28. https://doi.org/10.2196/mhealth.9117

117. Zhou, Y. (2023a). Exercise intention and its associated factors among persons post-stroke: a cross-sectional study. *Patient Preference and Adherence*, *17*, 2535-2544. https://doi.org/10.2147/ppa.s424595
118. Zhou, Y. (2023b). Mixed methods integration strategies used in education: a systematic review. Methodological Innovations, 17(1), 41-49. https://doi.org/10.1177/20597991231217937