

Original Research

Attitudes and Motivations Towards Implantation of Intention Towards Exercise among Entrepreneurs: A Brain Freshness Activity

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Abstract

In the contemporary landscape, developing individuals' attitudes, motivations, and intentions toward exercise and physical activities emerges as an imperative cornerstone for fostering a healthy and thriving lifestyle. The present study examines the effect of the theory of the planned behavior (TPB) constructs on exercise motivation (MT) and intention towards exercise (ITWE) among Egyptian entrepreneurs. The study employed a quantitative approach and collected cross-sectional responses from entrepreneurs through a survey questionnaire. The study utilized 305 valid samples to conclude the findings. Using PLS-SEM, the study found a positive significant effect of attitude ($\beta = 0.782$; $p < 0.01$) and subjective norms (SN) on MT ($H_2 = \beta = 0.268$; $p < 0.01$). The effect of perceived behavioural control (PBC) is negative on MT ($\beta = -0.025$; $p > 0.01$). Besides, the MT factor positively and significantly impacted ITWE ($\beta = 0.906$; $p < 0.01$). Concerning mediating effects, the MT mediates the relationship between attitude ($\beta = 0.709$; $p < 0.01$) and SN ($\beta = 0.243$; $p < 0.01$),



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except for PBC ($\beta = -0.023$; $p > 0.01$). The study's outcomes carry significant implications for policymakers and health practitioners, providing them with a robust foundation for prioritizing MT and ITWE as pivotal components in enhancing the overall well-being of individuals, particularly within the entrepreneurial community. By doing so, policymakers and health practitioners can contribute to creating a healthier and more resilient society, aligning with the broader goal of public health improvement.

Keywords

TPB theory; exercise motivation; intention towards exercise; entrepreneurs; brain freshness; physical activity

1. Introduction

In the present era, developing individuals' motivations and intentions towards exercise (ITWE) has become significant to living a healthy life [1, 2]. Physical exercise contributes significantly to an individual's emotional and physical well-being, improving overall task performance [3]. According to [2, 4, 5], and other scholars, the theory of planned behaviour (TPB) has demonstrated its worth as a framework for comprehending human behaviour and decision-making in a variety of contexts, including those related to health—such as exercise. The TPB theory is prominent in gauging individuals' behaviours, motivations, attitudes, and intentions in diverse sectors and contexts [6-8]. The attitude underlines the thinking or feeling of individuals towards involvement in physical activity or exercise. Likewise, subjective norm (SN) underlines individuals' perceptions of the need to adopt exercise, which is developed through their normative beliefs. The final indicator of TPB, perceived behavioural control (PBC), shows the individual's expectancy of performance of the behaviour within their control.

In the context of Egyptian entrepreneurs, the implantation of ITWE represents a fascinating and relevant area of study. The success and well-being of entrepreneurs are intricately tied to their ability to manage stress, maintain their physical and mental health, and sustain high levels of productivity [4, 5]. Regular exercise is crucial in achieving these objectives, as it can enhance physical fitness, reduce stress, and boost cognitive and emotional well-being [9, 10].

In the literature, several constructs such as environmental behaviour, engagement, ethical decision-making, social networking, intrinsic motivation, social learning, and human motivation are investigated, which proved to be the robust predictors of intention and attitudes towards physical activity and exercise etc. [7, 11, 12]. Nevertheless, the effect of TPB constructs such as attitude, subjective norms (SN), and perceived behavioural control (PBC) are still in the infancy stage to confirm its role among entrepreneurs, particularly in the Egyptian context [4, 5, 13]. Based on these needs and gaps, we raised the following questions:

RQ1: How do attitude, subjective norms and perceived behavioural control affect motivation towards exercise among Egyptian entrepreneurs?

RQ2: How does motivation towards exercise affect intention towards exercise among Egyptian entrepreneurs?

This study seeks to delve into the attitudes and motivations that influence Egyptian entrepreneurs' intentions to engage in exercise. Understanding the determinants of exercise behaviour in this population is of utmost importance, as it can shed light on the factors that may promote or hinder the adoption of regular exercise routines. The study would provide benefits by informing targeted health promotion strategies for entrepreneurs, particularly Egyptian entrepreneurs, potentially leading to improved health, reduced stress, and enhanced performance. This research can contribute to public health knowledge, encourage a healthier work-life balance, and address potential health disparities within the entrepreneurial community, ultimately promoting well-being and productivity among this specific group while offering broader insights into exercise behaviour.

The structure of the paper is based on an introduction; the second part offers the literature review and hypotheses development; the third part is about methods; the fourth discusses findings; the fifth discussion of results and the conclusion. The final section highlights the implications, limitations, and future research agenda.

2. Literature Review and Hypotheses Development

2.1 TPB Theory

Applying the Theory of Planned Behavior (TPB) has yielded valuable insights across diverse contexts. The findings of domain studies collectively underscore the versatility and relevance of the TPB in various contexts, demonstrating how TPB constructs, such as attitude, SN, and PBC, consistently play a pivotal role in shaping intentions and behaviour across diverse domains [7, 8, 11, 12, 14]. The researcher [7] employed the TPB to examine the construction of eco-friendly houses. They discovered that TPB constructs, including attitude, SN, and PBC, significantly influenced individuals' intentions to engage in environmentally responsible construction practices. Similarly, [8] integrated the TPB with the Norm Activation Model to comprehensively understand environmental practices among Malaysian companies. The study's findings highlighted the collective influence of TPB constructs on companies' engagement in environmentally friendly practices. In the realm of ethics and whistleblowing, [12] merged the Extended TPB with the Fraud Pentagon model to investigate the decisions of accountants to blow the whistle and TPB constructs as significant predictors of ethical decision-making within the accounting profession. Likewise, constructs like attitude, SN, and PBC influence workers' intentions to participate in these initiatives [14]. In the empirical investigation of [11], TPB factors are associated with ethical considerations and deterrence factors, collectively influencing individuals' intentions to engage in e-textbook piracy.

2.2 Motivation (MT)

The MT significantly develops exercise attitude, intentions, and diverse constructs. In the [15] study, MT is a crucial mediator within a physical activity counseling trial, demonstrating its pivotal role in influencing exercise behaviour. The researcher [16] shows a robust connection between affective states, basic psychological needs, and exercise MT. The predictive power of affective responses to exercise on future motives and physical activity behaviour is noted as positive exercise experiences shaping MT [17]. In the perception of [18], contextual MT in physical

education underscores the significance of creating motivating educational environments to promote exercise intentions among students. Likewise, the study by [19] demonstrates the impact of competition on intrinsic MT in physical activity. A cross-domain investigation by [9] regarding MT shows the predictive relevance of physical activity and well-being among students. Based on the physical activity and leisure motivation scale (PALMS), [20] measures the positive MT for physical activity, offering a new tool for assessing exercise motivation. The study of [21] shows a robust MT in physically active women regarding exercise. Promoting autonomy in physical activity underscores the role of autonomy support in enhancing individuals' participation in exercise [22].

2.3 Intention Towards Exercise (ITWE)

ITWE plays a significant role in individuals' participation in physical activities. The scholars [10] suggest entrepreneurial intentions in the context of physical and health education students, where exercise intentions may play a role in their overall well-being and performance. The impact of music on exercise attitudes and intentions demonstrates how external factors, such as music, can influence exercise motivation [23]. According to [24], motivational climate affects attitudes towards exercise in physical education classes, potentially impacting exercise intentions among students. The emotional aspects significantly contribute to exercise intentions [1]. Scholars like [25] and [26] exert attitudes and behavioural intentions as robust predictors of dissection survivors towards exercise. In the perception of [27], teachers' self-efficacy, attitudes, and intentions regarding implementing a new physical education curriculum had affected students' exercise intentions. The attitudes and intentions of primary school students positively existed towards physical activity [28]. A seminal work by [29] and [30] proposed the exercise intentions of older post-acute hospital inpatients. The influence of fitness influencers on exercise intentions in a social media context [31]. [32] focused on college students' exercise intentions in the context of lifetime fitness courses.

As a result, the above-existing literature offers a few gaps. First, the implementation of TPB theory is robustly, and applied considerably in the context of entrepreneurial intention, environmental behaviour, engagement, ethical decision-making, social networking, intrinsic MT, social learning, human motivation, etc. [7, 11, 12]. However, the effect of TPB constructs such as attitude, SN, and PBC are still needed to confirm MT and ITWE in an integrated manner. Contextually, among entrepreneurs in Egypt, these results need to be revised [4, 5, 13]. Hence, based on this lack of empirical evidence and the positive association between attitude, SN, PBC MT, MT, and ITWE, the researchers developed the model (Figure 1) for confirmation among Egyptian entrepreneurs.

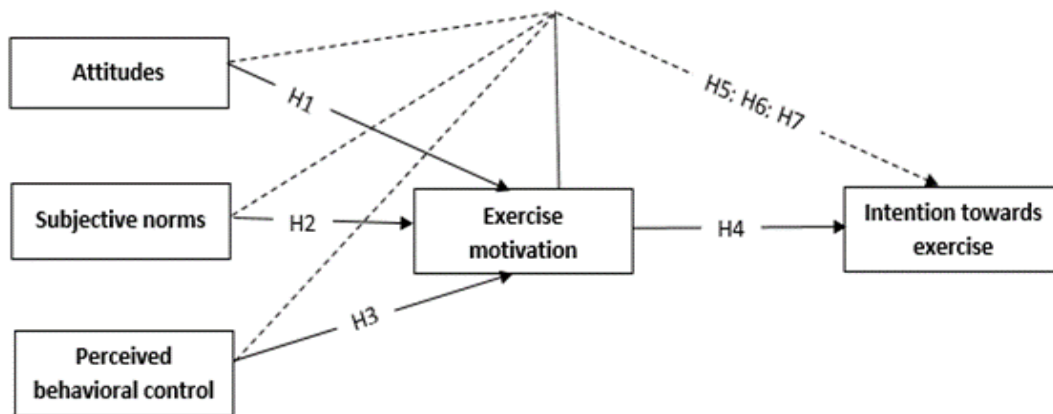


Figure 1 Model of the study. Source: Developed by the researchers.

2.4 TPB Theory and Motivation (MT)

In behavioural psychology and social sciences, the Theory of Planned Behavior (TPB) is a well-established framework that seeks to understand the factors influencing human intentions and behaviour. [33] explored social networking site adoption in Malaysia, leveraging the TPB, the Technology Acceptance Model (TAM), and intrinsic motivation. The study's outcome revealed a complex interplay between TPB factors, such as attitude, PBC, and intrinsic motivation, emphasizing the multifaceted nature of behaviour adoption [33]. This finding resonates with the work of [34], who investigated entrepreneurial intentions among university students in Vietnam, where an integrated model encompassing social learning, human motivation, and TPB was employed. The results underscore the significance of considering TPB alongside human motivation as they jointly contribute to shaping intentions in the entrepreneurial context [34]. Besides, [35] adopted an approach that combines Self-Determination Theory (SDT) and TPB to examine autonomous and controlled motivations in the context of social networking site discontinuance intention. Their study highlights the importance of distinguishing between autonomous and controlled motivations within the TPB framework [35]. SDT is associated with personality and human motivation in social contexts, distinguishing motivation in control and autonomy. The theory also focuses on the effects of social environments on motivations, attitudes, values, and behaviours developmentally and in current situations. More specifically, SDT undertakes that the human organism is grown to be integrally active, intrinsically motivated, and oriented toward emerging naturally through integrative processes [36, 37]. These active processes of intrinsic motivation and addition activate efficiently toward strong formation and psychological well-being in human beings. In the perception of [38], the TPB model is the robust predictor of entrepreneurial intentions, placing particular emphasis on the role of motivation. Motivation is pivotal in understanding the TPB framework's complex dynamics of entrepreneurial intentions [36]. According to [39], factors such as attitude, purchase intention, and consumer buying behaviour toward organic food from a self-determination theory and TPB perspective further highlight the significance of integrating these theories to comprehend consumer behaviour [39]. The empirical assessment of [40] suggests the positive predictive effect of the TPB constructs (SN, attitude, and PBC) on physical activity and individuals' engagement in exercise. Similarly, in Saudi Arabia, cultural factors, social norms, and personal motivations emerged as critical influencers of

ITWE [41]. According to [42] and [43], exercise motivation for colorectal cancer survivors positively. According to the journal's formatting guidelines, references should be numbered in numerical order. Please ensure that references [6-9] are inserted to maintain the correct sequence, appearing before reference [10]. Alternatively, you can edit the numbering and rearrange the reference list accordingly. If you have any questions regarding the editing of the reference order, please feel free to contact us. Thank you. shapes exercise behaviour. The study of [44] demonstrates that TPB factors are meaningful and substantial predictors of physical activity behaviour among female college students in Saudi Arabia. Integrating TPB and the temporal self-regulation theory, [45] claims a positive relationship between motivation, self-regulation, and health-related beliefs in this clinical context.

Consequently, these studies confirm the relationship between TPB factors and motivation, which emerges as a central theme, demonstrating the interdependence of these constructs and their implications for understanding human intentions and actions in various domains. However, understanding the dynamics of motivation toward exercise in the Egyptian entrepreneurial landscape is critical. The TPB factors, i.e., attitude, SN, and PBC, may provide valuable insights. Entrepreneurs who cultivate a positive attitude towards exercise to enhance productivity and well-being perceive social support and encouragement from their professional and personal networks, and access to resources that strengthen their PBC are more likely to be motivated to incorporate exercise into their demanding routines [4, 5, 13].

Recognizing and addressing these factors could significantly promote exercise and well-being among Egyptian entrepreneurs, ultimately contributing to their success and health. Further empirical research in this specific context is warranted to validate these relationships. Hence, we proposed:

- H1. A positive attitude has a significant impact on the motivation of entrepreneurs to engage in exercise.
- H2. The positive SN has a significant impact on the motivation of entrepreneurs to engage in exercise.
- H3. A positive PBC has a significant impact on the motivation of entrepreneurs to engage in exercise.

2.5 Exercise Motivation (MT) and Intention Towards Exercise (ITWE)

MT is a crucial determinant of ITWE. Several studies have highlighted the role of MT in shaping individuals' intentions to engage in physical activity. For instance, [46] explored the relationship between intrinsic MT and ITWE, showing that individuals with higher levels of intrinsic MT are more likely to form ITWE. This suggests that the inherent enjoyment and personal fulfillment derived from physical activity play a pivotal role in developing exercise intentions. According to [2], autonomous, self-determined MT individuals are likelier to have enduring exercise intentions. Social motivation also plays a role, as demonstrated in the study by [47], where gamification in exercise positively impacted exercise MT and intentions. Furthermore, as explored by [24] and [48], the MT climate can be altered through interventions to foster more positive attitudes towards exercise, subsequently leading to increased exercise intentions among individuals, including students. In the perception of [1], individuals with more positive affective responses to exercise are more likely to form stable exercise intentions. Perceived autonomy supports exercise

regulations and intentions and engaging in exercise [21]. As described by [49], implementation intentions have been used to enhance the predictive utility of the TPB in exercise intention prediction. Setting specific intentions related to exercise can positively influence one's exercise intention. As studied by [50], the MT to be physically active beyond school graduation indicates that different types of intrinsic MT can influence long-term exercise intentions. Furthermore, the context in which exercise is initiated can impact MT and intentions. As examined by [23], music has been found to positively affect exercise attitudes and intentions, suggesting that external factors like music can boost motivation and, in turn, exercise intentions. Recently, [3] investigated parenting profiles and their impact on children's MT toward health-oriented physical activity and intention to be physically active, highlighting the importance of family and social factors in motivation and intention formation. A systematic review conducted by [51] on fitness app usage intentions revealed that various factors, including perceived benefits and social influence, shape individuals' intentions to use fitness apps, which are often closely linked to ITWE. Finally, the study by [2] emphasized the transition from intentions to habits in exercise adherence, showing that forming exercise habits can be influenced by one's intentions, reinforcing the idea that motivation is a critical determinant of long-term exercise engagement.

Within Egypt's bustling entrepreneurial landscape, the connection between MT and ITWE is critical for fostering a balanced and healthy lifestyle [13]. Egyptian entrepreneurs who find intrinsic MT driven by their genuine enjoyment of physical activity are likelier to form exercise intentions [5]. Moreover, recognizing the impact of emotional responses and autonomy support further confirms that entrepreneurs who enjoy exercise and feel supported in their choices are more likely to maintain their intentions. Understanding these dynamic relationships is essential for promoting the well-being and productivity of Egyptian entrepreneurs, emphasizing the need for tailored interventions and empirical research within this specific context. Thus:

H4. A positive motivation has a significant impact on the motivation of entrepreneurs to engage in exercise.

2.6 Exercise Motivation (MT) as a Mediator

The MT construct has a robust prominence in developing ITWE, and the TPB also proved to be the influential predictor of both MT and ITWE [4, 5, 13, 34, 38]. The TPB factors, i.e., attitude, PBC, and intrinsic MT, positively predict behaviour adoption [33]. In the study of [35], TPB factors positively and significantly predict MT and intention. [38] claim the TPB model's positive effect in predicting entrepreneurial intentions and MT. In the perception of [39], factors such as attitude, purchase intention, and consumer buying behaviour toward organic food.

As a result, the literature provides consistent relationships between attitude, SN, and PBC towards MT and ITWE in several contexts [33-35]. However, MT as a mediator between TPB constructs and ITWE still needs confirmation within the Egyptian context [4, 5, 13]. Thus, we developed:

H5. MT mediates the relationship between attitude and ITWE among entrepreneurs.

H6. MT mediates the relationship between SN and ITWE among entrepreneurs.

H7. MT mediates the relationship between PBC and ITWE among entrepreneurs.

3. Methods

3.1 Design and Research Strategy

The researchers' decision to employ quantitative methods is rooted in the quest for valid and reliable results. Quantitative research offers unique advantages, such as objectivity, precision, replicability, and the ability to subject data to rigorous statistical analysis [52]. This objectivity minimizes the influence of researcher bias, thereby contributing to the validity of the findings. Besides, the precision afforded by quantitative methods helps reduce errors and variations, enhancing the credibility of the research. The capacity for statistical analysis is a powerful tool to establish relationships, patterns, and associations, further reinforcing the study's validity [53].

Furthermore, the potential for larger sample sizes in quantitative research facilitates generalizability, making it possible to draw valid conclusions about a broader population based on the collected data. We collected cross-sectional data as it enables the researchers to assess relationships and interactions among these factors, aligning with the study's goals and often more efficient and cost-effective than longitudinal studies, which require extensive resources and a longer time frame to track the same individuals or groups over time. In the domain of TPB, motivation, and ITWE, several scholars [4, 5, 11-13] applied the same methods.

3.2 Respondents and Tools

The researchers' decision to collect data from entrepreneurs in Egypt through surveys is a practical and insightful choice. This method allows for direct interaction with the target group, making it an efficient means to gather data, potentially due to their local expertise or connections. The assertion that entrepreneurs in Egypt possess robust motivation and intention towards exercise and physical activities can be grounded in the region's rich cultural and social context [54, 55]. Egypt has a long history of valuing physical activities, and this, combined with global health and well-being trends, could drive their enthusiasm for exercise [56]. By conducting surveys among this niche group, the researchers can delve into the specific motivations and intentions that guide the exercise habits of entrepreneurs in Egypt, potentially shedding light on their unique perspectives and practices in this regard [57]. The survey tool is administered in English. The study's respondents were well-educated and aware of the English language. In a pilot study, they did not confront any language barrier regarding understanding and filling out the questionnaire. Hence, we decided to move it to English.

3.3 Reliability, Validity and Procedures

The meticulous establishment of survey questionnaire reliability and validity is pivotal in ensuring a robust and trustworthy research tool. To fulfill this objective, the research meticulously executed a pilot study with a sample size of 15 respondents. The instrument's reliability was initially rigorously confirmed by assessing internal consistency among its items, employing the esteemed Cronbach's alpha. Impressively, the computed alpha values exceeded 0.70 in the overall instrument and individual factors, indicating a commendable degree of reliability per the standards established by [58]. The quest for validity was equally rigorous, involving a critical evaluation by two distinguished university professors. One professor possessed expertise in the latest research trends, particularly Structural Equation Modeling (SEM) analysis, while the second was a field expert. Their insights prompted valuable refinements to the survey, encompassing

enhancements in content, design, and questionnaire presentation. This meticulous approach bolstered the research tool's trustworthiness and enhanced its capacity to yield high-quality data.

Our data collection strategy used convenience sampling to identify and engage Egyptian entrepreneurs. We collected the data from January 2023 to June 2023. The collection of data took almost six months. Our data gathering involved a combination of online surveys and in-person visits, which were conducted with utmost consideration for ethical principles. Before data collection, we meticulously briefed the respondents about the study's aims and objectives, emphasizing their voluntary contribution. To fortify their trust and safeguard privacy, we reassured them that their responses would solely serve educational purposes. Subsequently, we obtained signed consent forms from the participants and either delivered the surveys in person or sent them.

Initially, we collected 310 samples in a raw shape at a large scale. We cleaned the data, detecting missing values and outliers through missing values analysis and the Mahalanobis distance (MD), respectively. The MD measures the degree of freedom (D2/pdf based on exceeding the value of D2/pdf as ± 2.5). As a result, five cases were found to be unsuitable; one was missing more than 5%, while the other four were found to be outliers. Finally, we used 305 valid samples to infer the conclusion.

3.4 Measures

The researchers adopted all the items from the literature. More specifically, we evaluated 'attitude' based on three items adopted from [59]. Subjective norms are assessed on three items of [60]. We measured PBC on three items adopted from [61, 62]. The exercise motivation is evaluated with three items by well-known scholars [63-65]. Finally, the researchers measure intention towards exercise based on four items suggested by [66] (see details in Appendix A). We measure all the items employing a Likert scale ranging from strongly agree to disagree strongly.

4. Analysis

4.1 Respondents' Demography

A total of 305 valid cases were utilized for the study's conclusions. The respondents' demographic information suggests a majority of males against females (males = $n = 182$ or 59.67%; females = $n = 123$ or 40.33%). Regarding the age of the respondents, a majority of respondents were 31-40 years ($n = 179$ or 58.69%); 26.88% ($n = 82$) were 21-30 years; 10.82% ($n = 33$) were forty-one and above years; while only 11% ($n = 3.61$) were less than twenty years of age. Concerning their education level, a majority of respondents, 49.18% ($n = 150$), were bachelor's degree holders; 31.47% ($n = 96$) were matriculation; 15.74% ($n = 48$) were masters; other 10% ($n = 3.28$) and only 0.33% ($n = 1$) having M. Phil or PhD degree holders. The final indicator (experience) suggests 57.70% ($n = 176$) were more than 6-10 years of experience; 17.38% ($n = 53$) were less than five years; 13.77% ($n = 42$) were 11-20 years and only 11.15% ($n = 34$) were twenty-one and above years of age.

4.2 Measurement Model

In our study, we thoroughly examined the validity and reliability of our variables' constructs.

This process involved scrutinizing the interrelationship between the items and their corresponding factors, achieved through factor loading analysis, as [58] recommended. According to [58], it is advisable to consider removing items from a scale if their factor loadings fall below 0.70. Upon closer examination, the researchers discovered that every item had strong factor loading values far higher than this cutoff. Item SN2 had the lowest factor loading score (0.749), whereas item SN3 had the highest (0.961). This result illustrates how well the elements and their corresponding structures relate (Table 1 and Figure 2). Additionally, we used a variety of indicators to evaluate the constructs' dependability and internal consistency. When compared to the recommended threshold of 0.70, the composite reliability (CR) values, as determined by following the recommendations proposed by [58], were consistently higher. The PBC value was 0.892, whereas the MT value was 0.964. This suggests that there is high internal consistency in the structures. We looked at the average variance extracted (AVE) to assess the convergent validity of our notions. These results, which ranged from 0.735 (for PBC) to 0.898 (for MT), were higher than the 0.50 cutoff point that [58] recommended. This confirms the constructs' ability to capture a substantial proportion of the variance in their respective items.

Table 1 Measurement model.

Construct	Item	Loadings	VIF	AVE	CR	Alpha (α)
Attitude [ATT]	ATT1	0.942	4.108	0.868	0.952	0.924
	ATT2	0.908	2.824			
	ATT3	0.944	4.435			
Intention towards exercise [ITWE]	ITWE1	0.919	3.663	0.796	0.940	0.914
	ITWE2	0.929	3.979			
	ITWE3	0.923	3.837			
	ITWE4	0.790	1.889			
Motivation [MT]	MT1	0.953	4.875	0.898	0.964	0.943
	MT2	0.945	4.308			
	MT3	0.946	4.387			
Perceived behavioural control [PBC]	PBC1	0.913	2.114	0.735	0.892	0.829
	PBC2	0.883	1.903			
	PBC3	0.770	1.763			
Subjective norms [SN]	SN1	0.926	2.657	0.781	0.914	0.879
	SN2	0.749	2.330			
	SN3	0.961	4.101			

Source: Authors' own estimation. Note(s): AVE = average variance extracted values; CR = composite reliability; α = Cronbach's alpha.

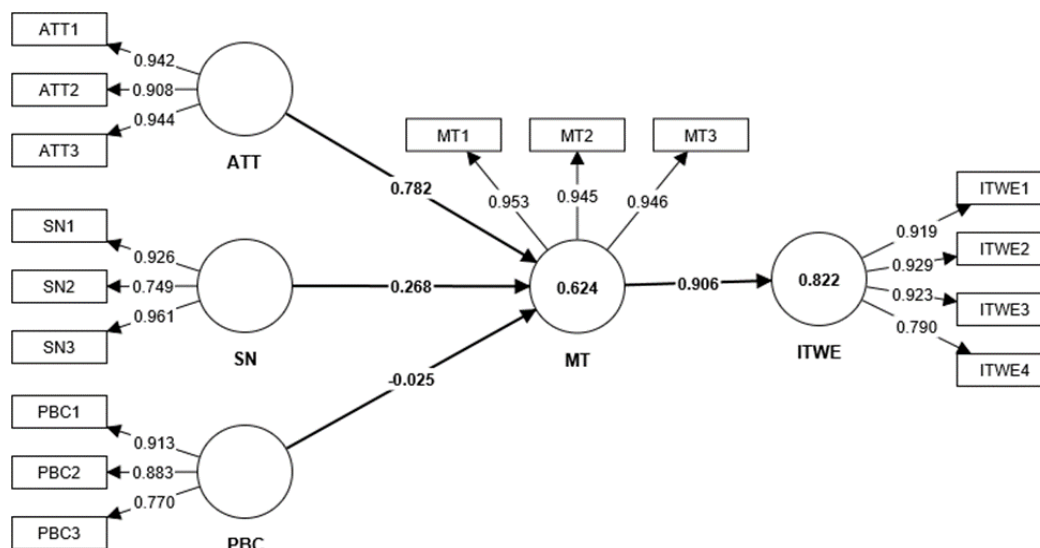


Figure 2 SEM factor loadings. Source: Authors’ own estimations.

Finally, we assessed the overall reliability of our scales using Cronbach's alpha (α), as recommended by [58]. The alpha values were commendable, ranging from 0.829 (for PBC) to 0.943 (for MT), indicating high internal consistency and reliability across the scales. Besides, we examined the presence of multicollinearity through the Variance Inflation Factor (VIF), following the insights of [67]. Multicollinearity can be problematic in regression analysis when highly correlated independent variables affect the interpretation of coefficients and prediction accuracy. Fortunately, our VIF values were consistently below 0.5 for all items, suggesting the absence of multicollinearity, as highlighted by [68] (see Table 1 for details).

Besides, we ensured that the Heterotrait-Monotrait (HTMT) was used to observe the correlation ratio [69]. This statistical measure is employed in the assessment of discriminant validity in the fields of psychometrics and SEM. The degree to which constructs (variables) intended to assess specific attributes or ideas are, in fact, different is known as discriminant validity. Hence, it appeared with acceptable and satisfactory scores (>0.85) [69] (Table 2).

Table 2 HTMT ratio.

Constructs	1	2	3	4	5
1. Attitude	---				
2. Intention towards exercise	0.823	---			
3. Motivation	0.797	0.862	---		
4. Perceived behavioural control	0.144	0.138	0.109	---	
5. Subjective norms	0.138	0.155	0.143	0.105	---

Note: Diagonals represent the square root of the AVE, while the other entries represent the correlations.

4.3 Structural Model

The researchers employed structural equation modeling (SEM) to ensure the hypothesized paths. Concerning the direct route, the analysis found a positive and significant effect of attitude

on motivation (H1 = $\beta = 0.782$; $p < 0.01$). Thus, H1 is supported. The impact of subjective norms on motivation is positive and significant (H2 = $\beta = 0.268$; $p < 0.01$). Hence, H2 is accepted. On the other hand, the perceived behavioural control was negatively associated with motivation (H3 = $\beta = -0.025$; $p > 0.01$), which rejected the H3. Moreover, motivation is also a positive and significant predictor of intention towards exercise (H4 = $\beta = 0.906$; $p < 0.01$). As a result, H4 is accepted (Table 3 and Figure 3).

Table 3 SEM estimations [direct paths].

H. No.	Proposed relationships	Std. (β)	Mean	Std. Dev	t-value	p-value	Decision
H1	Attitudes \rightarrow Motivation	0.782	0.780	0.034	23.05	0.000	Supported
H2	Subjective norms \rightarrow Motivation	0.268	0.270	0.061	4.398	0.000	Supported
H3	Perceived behavioral control \rightarrow Motivation	-0.025	-0.018	0.036	0.694	0.488	Not supported
H4	Motivations \rightarrow Intention towards exercise	0.906	0.907	0.021	43.278	0.000	Supported

Source: Authors' own estimation. Note: Significance level = $p < 0.05$.

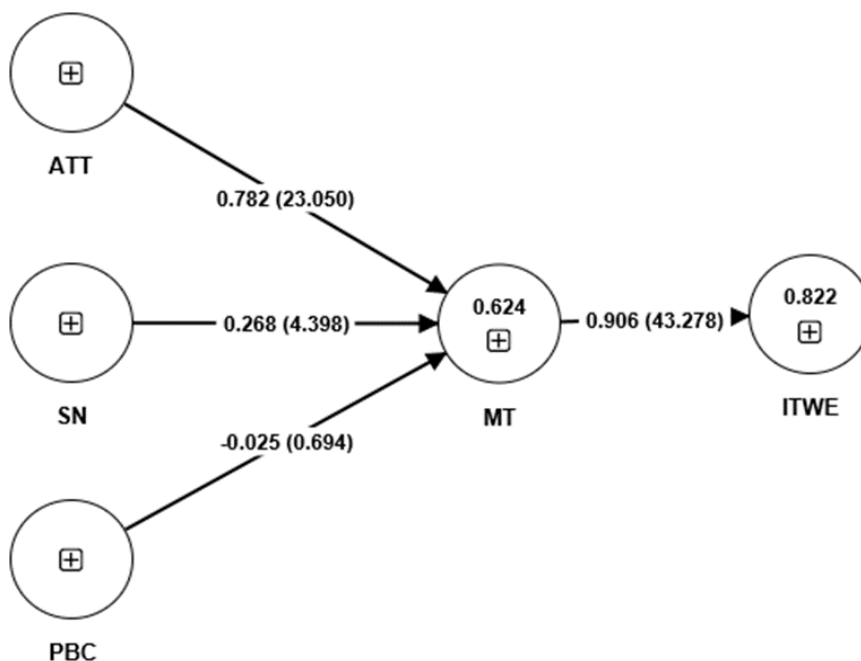


Figure 3 Path analysis. Source: Estimated by the researchers. Note(s): ATT = attitude; SN = subjective norms; PBC = perceived behavioural control; MT = exercise motivation; ITWE = intention towards exercise.

Concerning indirect effects, the analysis demonstrates a mediating effect of motivation in developing a relationship between attitude and intention towards exercise (H5 = $\beta = 0.709$; $p < 0.01$) and subjective norms and intention towards exercise (H6 = $\beta = 0.243$; $p < 0.01$). Hence, H5 and H6 are supported. Finally, motivation is found to be a negative mediator between perceived

behavioural control and intention towards exercise ($H6 = \beta = -0.023$; $p > 0.01$), which rejected the $H7$ (Table 4 and Figure 3).

Table 4 SEM estimations [Indirect paths].

H. No.	Proposed relationships	Std. (β)	Mean	Std. Dev	t-value	p-value	Decision
H5	Attitudes \rightarrow Motivation \rightarrow Intention towards exercise	0.709	0.707	0.04	17.511	0.000	Supported
H6	Subjective norms \rightarrow Motivation \rightarrow Intention towards exercise	0.243	0.245	0.056	4.34	0.000	Supported
H7	Perceived behavioral control \rightarrow Motivation \rightarrow Intention towards exercise	-0.023	-0.016	0.033	0.695	0.487	Not supported

Source: Authors' estimation. Note: Significance level = $p < 0.05$.

5. Discussion

The study aimed to investigate attitudes and motivations towards ITWE among Egyptian entrepreneurs. Based on analysis, the study found a positive and significant effect of attitude and subjective norms (SN) on exercise motivation (MT). These results are accorded with several scholars like [33-39] who provided the positive connection of attitude and SN with motivation. These scholars recommended that individuals' SN and attitude have great significance in developing MT, as they believe regular exercise is a massive element for improving their moods. Regular exercise makes individuals feel energetic and healthy. Likewise, the present study's results may exist as Egypt's cultural and social fabric strongly emphasizes societal expectations and group cohesion, making subjective norms (SN) particularly influential. Entrepreneurs may feel a strong drive to exercise when they perceive it aligns with these societal norms in a society where community and family bonds are paramount. Additionally, the positive connection between attitude and exercise motivation corresponds with the global trend of growing health consciousness. Entrepreneurs, who often bear considerable workloads and stress, increasingly recognize the importance of maintaining their health to sustain their business ventures, leading to positive attitudes towards exercise. Moreover, referencing previous scholars who found similar positive associations between attitude, SN, and motivation underscores a consensus in the literature, thus validating these results in the Egyptian entrepreneurial context. Given the high-stress levels associated with entrepreneurship, these findings highlight the role of exercise as a stress reliever and well-being enhancer, further motivating entrepreneurs to engage in physical activities. This study's insights could inform targeted interventions and educational programs, focusing on shifting attitudes and promoting positive norms to encourage healthier lifestyles among Egyptian entrepreneurs, all within their specific professional environment.

The study found a negative relationship between perceived behavioural controls (PBC) and exercise motivation (MT) among entrepreneurs in Egypt. These results contradict several scholars like [4, 13, 34-39], who provided positive connections between PBC and MT in diverse contexts. These results suggest that Egypt's distinctive cultural and societal context, emphasizing collective values and societal influences, may affect the significance of PBC in motivating exercise.

Entrepreneurship in Egypt carries unique stressors and challenges, possibly overshadowing the perceived control over exercise habits. Variations in methodology, sample characteristics, and changes over time in the societal context can also influence the observed relationship. Besides, differences in the measurement and operationalization of PBC and exercise motivation may have contributed to these disparate results. The researchers' local expertise and understanding of the nuances within the Egyptian entrepreneurial context might have further shaped their interpretation.

The study confirmed a positive significant relationship between exercise motivation (MT) and intention towards exercise (ITWE) among entrepreneurs in Egypt, which is reinforced by several scholars [1, 3, 23, 51]. In the contemporary landscape, there is a growing consciousness of physical health and well-being's critical role in one's life. Entrepreneurs, often contending with high levels of stress and demanding workloads, increasingly acknowledge that regular exercise can significantly enhance their overall well-being, serving as a potent motivator that directly influences their intention to engage in physical activities.

Moreover, the study provided the mediating effect of MT between attitude, SN, and ITWE, except for PBC. These results are not accorded with several scholars like [5, 34, 35]. These deviations can be attributed to cultural, sample-related, measurement, methodological, and contextual variations. The unique characteristics of the Egyptian entrepreneurial environment may have influenced these results, emphasizing the need for context-specific research and recognizing that cultural and situational factors can impact mediation relationships. Moreover, the researchers' local expertise may have unveiled nuanced insights that differ from broader, non-context-specific studies, highlighting the importance of considering local insights when studying these constructs.

6. Conclusion

In summary, the study's findings reveal a positive and significant influence of attitude and SN on MT, while PBC does not exhibit a similar effect on MT among Egyptian entrepreneurs. MT emerges as a robust and positive predictor of ITWE. Furthermore, MT mediates the connection between attitude, SN, and ITWE. However, MT notably does not mediate the relationship between PBC and ITWE, presenting a nuanced picture of the motivational dynamics within this entrepreneurial context. The study highlights the importance of the TPB theory and motivation, which significantly enhances the ITWE among Egyptian entrepreneurs. On the other hand, one TPB (PBC) construct does not support the development of MT, while MT also does not support reinforcing the connection between PBC and ITWE.

7. Implications of the Study

7.1 Practical Implications

The findings of this study have significant practical implications for promoting exercise among Egyptian entrepreneurs. The study underscores the importance of shaping positive attitudes and leveraging SN within the entrepreneurial community. Educational and workplace initiatives can encourage a culture that emphasizes the benefits of exercise, highlighting its significance for both personal well-being and societal expectations. Moreover, recognizing the pivotal role of exercise

motivation in predicting intention, interventions should prioritize strategies that boost intrinsic motivation among entrepreneurs. Workshops, coaching, and resources tailored to enhance MT can be valuable tools. Furthermore, given the nuanced relationship with PBC, programs should take a more tailored approach to address entrepreneurs' unique challenges and barriers in their specific context. Customized intervention programs should target attitudes and social norms, aligning with the entrepreneurial context and unique cultural dynamics. Educational initiatives, continuously monitored and adapted to evolving circumstances, can be instrumental in empowering entrepreneurs to prioritize and maintain an active and healthy lifestyle, considering their specific motivational dynamics and contextual nuances. These findings offer a roadmap for fostering a culture of physical activity among Egyptian entrepreneurs that is both sustainable and beneficial to their overall well-being.

7.2 Theoretical Implications

This study's theoretical implications can advance our understanding of MT and its application in various contexts. The findings contribute to a nuanced comprehension of MT by shedding light on the distinct roles played by attitude, SN, and PBC, particularly in the context of Egyptian entrepreneurs. This insight encourages a more precise and context-specific interpretation of motivational theories, potentially enriching our understanding of how these factors interact within specific populations. Of particular note is the questioning of the direct influence of PBC on MT, challenging traditional interpretations within the TPB theory. This highlights the context-dependent nature of PBC and underlines the necessity of examining its impact across different cultural and occupational settings. Besides, recognizing MT as a mediator between cognitive factors and behavioural intentions provides valuable insights into the mediating processes in exercise contexts, prompting further exploration and development of motivational theories. Moreover, the study emphasizes the importance of considering cultural and contextual variables when applying motivation theories. It offers a reminder that universal applicability should be assumed with due consideration of specific contextual factors. As such, the theoretical implications of this study underscore the need for a more culturally sensitive, context-specific, and adaptable approach to exercise motivation theory, inviting further exploration, refinement, and integration of existing motivational constructs.

8. Limitations and Future Research Directions

The study does have certain limitations that warrant consideration. Firstly, the exclusive use of quantitative methods, specifically cross-sectional data collection, restricts the depth of insights that could be gained. Qualitative approaches or longitudinal studies might have provided a more comprehensive understanding of the dynamics at play. Additionally, solely relying on survey questionnaires for data collection might overlook nuanced aspects that could be explored through interviews or observations. The use of convenience sampling, while practical, could introduce selection bias and limit the generalizability of the findings. Based on a sample size of 305 respondents, the study's conclusions may not fully represent Egyptian entrepreneurs' diversity. Acknowledging that the findings are specific to the Egyptian entrepreneurial context and might not be readily extrapolated to different cultural or occupational settings is crucial. A more thorough approach that incorporates a variety of sampling methodologies, cross-cultural

viewpoints, and qualitative and quantitative tools may provide a more holistic picture of the complex dynamics at work.

There are various creative paths that future MT and ITWE research among Egyptian businesses might go. One possible direction is using a mixed-methods strategy that blends quantitative and qualitative approaches. This method might better comprehend the complex variables affecting MT and ITWE in this setting. Longitudinal studies are also necessary to capture the changing dynamics of MT and ITWE over time and enable researchers to evaluate the influence of trends and outside influences on these variables. It is essential to increase the representativeness of samples by combining probability sampling methods with sampling tactics. Furthermore, making cross-cultural comparisons helps clarify how MT and ITWE differ in various entrepreneurial contexts, providing essential insights into the impact of societal and cultural elements. More studies might examine the underlying processes that influence the links between cognitive factors and ITWE to understand these motivational dynamics further. In the future, the development of motivation and exercise can be made possible by encouraging individuals to believe that attitude and SN are significant predictors of motivation and exercise intention. Entrepreneurs and other business people would be inspired to develop their improved intrinsic motivation and intention to exercise as it is a sign of freshness and makes life healthier. Moreover, in the future, the study will support individuals in engaging in regular physical activity as it has a massive value in maintaining health.

Appendix A

Attitude towards exercise [51].

For me, regular physical activity or exercise over the next two weeks would:

- It makes me feel good about myself.
- It makes me feel like I never have any energy (r).
- It would keep me healthy.

Subjective norms [52].

- Most people who are important to me would want me to engage in regular physical activity over the next 2 weeks.
- Most people whose opinions I value would expect me to engage in regular physical activity over the next 2 weeks.
- Most people who are important to me will engage in regular physical activity over the next 2 weeks themselves.

Perceived behavioral control [53, 54].

- How much personal control do you feel you have over engaging in regular physical activity in the next 2 weeks if you really wanted to do so?
- How much do you feel that engaging in regular physical activity over the next 2 weeks is beyond your control even if you really wanted to (reverse scored).
- Is engaging in regular physical activity over the next 2 weeks up to you if you wanted to do so?'

Exercise motivation [55-57].

- I will exert effort to engage in regular physical activity over the next 2 weeks.
- I am willing to try hard to engage in regular physical activity over the next 2 weeks.
- I am motivated to engage in regular physical activity over the next 2 weeks.

Intention towards exercise [58].

- I have made plans concerning ‘when’ I am going to engage in regular physical activity over the next 2 weeks.
- I have made plans concerning ‘where’ I am going to engage in regular physical activity over the next 2 weeks.
- I have made plans concerning ‘what’ kind of regular physical activities I am going to engage in over the next 2 weeks.
- I have made plans concerning ‘how’ I am going to get to a place to engage in regular physical activity over the next 2 weeks.

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Author Contributions

Abdelwahed AAA developed the conceptualization framework and hypotheses of the study. Mohammed A. Al Doghan, MA developed the methods and write-up of the manuscript. Soomro BA analyzed the data and discussed the results in the light of literature. All authors accepted the final version after revisions.

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Competing Interests

The authors have declared that no competing interests exist.

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