Development of A Model to Improve Male Nursing Students' Self-Leadership at Medical Universities in Guangxi Province, China

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Abstract
Background and Aims: Self-leadership was vital for the success of male nursing students, empowering them with confidence and the skills needed to excel in a traditionally male-dominated field. The objective of this study was to construct a self-leadership model to foster the development of self-leadership among male nursing students in Guangxi Province, China.
Methodology: Utilizing a mixed-methods approach that integrated quantitative and qualitative research methodologies, the study involved 308 male nursing students from three representative medical universities.
Results: The research revealed that the mean levels of self-leadership and self-determination among male nursing students were moderate. Seven core self-leadership strategies were identified through a systematic literature review and content analysis: Goal Setting, Self-awareness, Time Management, Growth Mindset, Effective Communication, Learned Resourcefulness, and Collaboration. A significant regression equation was found $F_{(7, 297)} = 36.71$, p<.000), with an R^2 of .396. The seven self-leadership strategies were significant predictors of self-leadership, and approximately 36.71% of the variation in self-leadership can be explained by participation in the seven self-leadership strategies. An analysis of Beta scores showed the following significance levels: Goal Setting ($\beta = .502$, p<.05), Self-awareness ($\beta = .174$, p<.05), Learned Resourcefulness ($\beta = .170$, p<.05, Effective Communication ($\beta = .097$, p<.05),) Growth Mindset ($\beta = .056$, p<.05), Time Management ($\beta = .043$, p<.05), and Collaboration ($\beta = .036$, p<.05).Qualitative data from interviews with nursing faculty members contributed to the identification of twelve activities that could potentially strengthen self-leadership and self-determination in male nursing students. These activities were incorporated into developing a theoretical model delineating the interplay between self-leadership strategies and self-determination. Experts validated the final model using the focus group method.
Conclusion: According to the study, male nursing students demonstrate moderate levels of self-leadership and self-determination. Goal-setting, self-awareness, learned resourcefulness, effective communication, growth mindset, time management, and collaboration are significant predictors of this behavior. A theoretical model highlighting twelve activities to improve male nursing students' self-leadership and self-determination was developed through additional qualitative analysis, and focus group methodology was used to validate the model by experts.
Keywords: Mode of Self-leadership; Male Nursing Students; Medical Universities; Guangxi; China

Introduction

Nurses constitute an indispensable segment of the healthcare profession. Their role encompasses providing comprehensive care and support to patients, promoting health and well-being, and closely collaborating with other healthcare professionals. The dedication, empathy, and expertise nurses demonstrate to make them an integral part of the healthcare delivery system. The demand for nurses has grown globally over the past two decades. According to the International Council of Nurses, the shortage of nurses has been depicted as a global crisis since 2002 (Roth et al., 2021). This crisis is precipitated by an aging workforce, insufficient training capacity, and increasing healthcare demands due to population growth and pandemics. The recent COVID-19 pandemic has further strained the nursing workforce and amplified the shortage worldwide (Miranda et al., 2020). The situation is similar in China, where the nursing shortage is a significant concern. The shortage has been compounded by high burnout rates among nurses, leading to increased turnover and further exacerbating the problem (Zhang et al., 2021).

Male nurses can play a pivotal role in alleviating the nursing shortage. Traditionally, nursing has been a female-dominated profession. However, incorporating more male nurses into the workforce can not only help address the shortage but also bring a diverse set of skills and perspectives. For instance, male nurses are often perceived as more comfortable with physically demanding tasks, such as lifting

and transferring patients (McMurray, 2011). Their unique perspectives and strengths can enhance the quality of patient care and result in more well-rounded healthcare teams.

Although the potential benefits of increasing male representation in nursing are beneficial, the number of male nurses in China is significantly lower than in other countries. This disparity is attributed to public prejudice, perceived low professional status, and salary considerations. Moreover, gaining admission into nursing programs is often more challenging for males than females in China (Yu et al., 2021). Thus, the nursing profession in China continues to be dominantly female. In 2019, of the 4.09 million nurses in China, only 2.3 percent were men (Liu, 2020). Studies examining male nursing graduates reveal a stark reality: even though they graduate from the nursing profession, only 28 percent of them continue working as nurses, and the majority leave within less than five years of working as a nurse (Wang et al., 2011).

The concept of self-leadership was first introduced by Manz (1986) and later expanded on by Neck and Houghton (2006). Self-leadership is related to emotional intelligence and higher academic self-efficacy in nursing students (Lee, 2015). Studies have shown that self-leadership increases work engagement in nursing professionals (Kim & Kim, 2019; Urairak & Chaleoykitti, 2019). An additional study also found that self-leadership and positive psychological capital increased learning in nursing students (Jeong & Han, 2019). Therefore, developing self-leadership in male nursing students may be one way to help keep male nurses in their programs and continue to work as nurses for their careers.

Thus, this research aimed to develop a model to improve self-leadership among male nursing students at medical universities in at medical universities in Guangxi Province, China, hoping to increase their retention and graduation rates. This could contribute to alleviating the nursing shortage and improving the overall quality of healthcare in the region.

Research Objectives

1. To explore the self-leadership strategies that influence the development of self-leadership in nursing students.

2. To identify the current levels of self-leadership, self-leadership strategies, and self-determination of male nursing students at medical universities in Guangxi Province, China.

3. To develop a self-leadership model that influences the development of self-leadership in male nursing students at medical universities in Guangxi Province, China.

4. To verify the effectiveness of the self-leadership model that influences the development of self-leadership in male nursing students at medical universities in Guangxi Province, China.

Literature Review

The study aimed to create a self-leadership model that influences the development of self-leadership in male nursing students at medical universities in Guangxi Province, China. The theoretical framework of this research is based on two theories: Self-leadership Theory and Self-determination Theory. These theories are used to explain the mechanism of self-regulation and motivation. By combining these theories, the study aims to explore the interplay between self-guided behavior and motivation to develop these constructs in male nursing students to improve their personal development and growth.

Self-Leadership Theory, introduced by Manz in 1986, is a process of self-influence. It is a leadership concept that focuses on how individuals lead themselves effectively in their own lives. This theory focuses on personal empowerment, self-direction, and self-motivation as essential components of leadership.

According to Manz, self-leadership theory encourages individuals to take charge of their lives and become proactive. It is helpful when individuals have to motivate themselves, make decisions, and achieve personal or professional goals. Manz's theory has been shown to have practical applications in various contexts that include business, education, and personal development. According to Manz, the strategies individuals can use to lead themselves fall into the following three categories:1)Behavior-Focused Strategies: Behavior-focused strategies involve actions and behaviors that individuals perform to self-regulate and lead themselves. They include self-monitoring, self-goal setting, self-reinforcement,

and self-punishment. 2)Natural Reward Strategy: Natural reward strategies are based on the idea that individuals can motivate themselves by doing things that are inherently satisfying or enjoyable once they engage in specific behaviors. Some natural reward strategies involve intrinsic motivation, achieving a sense of flow or becoming fully immersed in an activity, and using positive self-talk to affirm one's actions. 3) Constructive Thought Pattern Strategies: Constructive thought patterns involve managing and organizing one's thoughts to support self-leadership. They are focused on cultivating a positive and constructive mindset. Some strategies involve visualization, creating positive mental images, and self-affirmation or acknowledging one's strengths, values, and positive qualities. For this study, self-leadership is used to support those strategies that can help male nursing students to better lead themselves by utilizing self-leadership strategies to engage in positive mental behaviors that will help them in their education and lead to successful completion of their studies and motivation to stay in nursing as a profession.

Self-determination Theory (Ryan & Deci, 1997) Self-determination theory (SDT) is a psychological model that interprets human actions in terms of three inherent needs: autonomy, competence, and relatedness. It proposes that meeting these needs leads to engagement in satisfying activities and enhances well-being while obstructing them can result in stress and decreased well-being. The theory also differentiates between intrinsic and extrinsic motivation, suggesting that the former leads to long-term engagement and satisfaction. Autonomy refers to the need for control over one's life and the sense that one's actions are driven by one's choices, values, and interests rather than external pressures. It is a feeling that an individual has control over their actions. When individuals feel they have more control, they are more likely to experience higher motivation, satisfaction, and well-being levels.

On the other hand, if individuals feel that they do not have a choice in their actions, they may be less motivated. Competence is related to the need to feel capable and effective. It involves the desire to master skills, achieve success, and experience a sense of accomplishment. Individuals engaging in challenging activities are more likely to experience a sense of competence. To support competence, it is necessary to allow individuals to have opportunities for skill development, feedback, and challenges. Relatedness refers to the need for social connections, relationships, and a sense of belonging. It involves the desire for individuals to connect with others and experience a sense of community, to feel cared for and understood by others. Some ways to do this include creating supportive and inclusive environments and providing collaboration and social interaction opportunities. SDT is used in this study to support those activities and the model that can help male nursing students increase their autonomy, competency, and relatedness to improve their nursing program success further.

Self-leadership is the process of influencing oneself to achieve the self-direction and self-motivation needed to perform or achieve desired goals. It has been identified as a critical factor for success in various fields (Neck et al., 2017). However, its potential role and influence in enhancing the engagement and persistence of male nursing students have yet to be extensively explored. Furthermore, there may be a need for a better understanding of the specific self-leadership strategies compelling in the context of male nursing students at medical universities in Guangxi Province. Given the unique cultural, social, and educational environment, it is crucial to identify strategies that resonate with these students' experiences and challenges. Thus, there is a need for research to help male nursing students be more motivated in their choice of profession and to help them be more motivated toward their studies.

Conceptual Framework

This study explored the desired types of activities that can effectively improve students' self-leadership, determine the current level of self-leadership of male nursing students and the current level of self-determination of male nursing students at medical universities in Guangxi Province, and develop a model for the development of self-leadership for male nursing students at medical universities in Guangxi Province. The conceptual framework is shown in Figure 1.
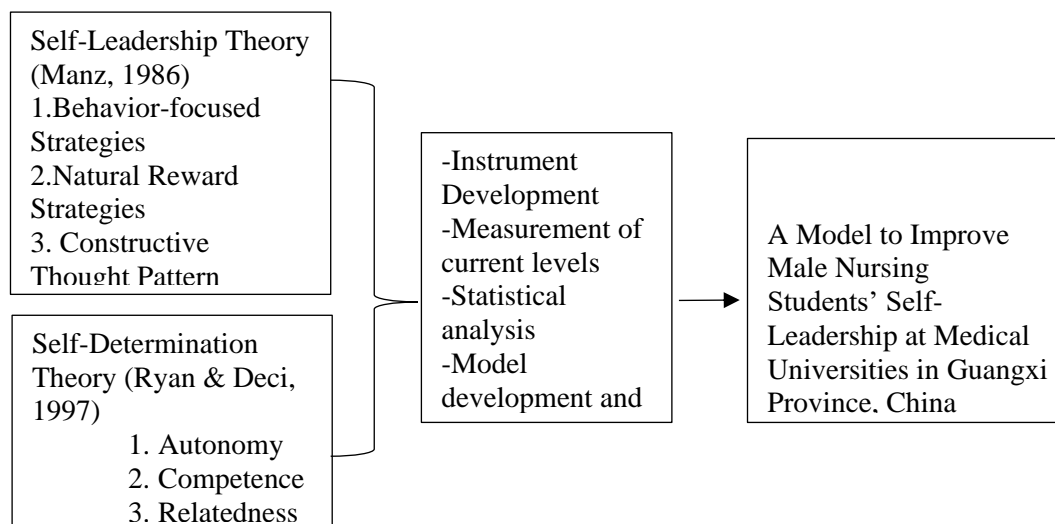
Self-Leadership Theory
(Manz, 1986)
1.Behavior-focused
Strategies
2.Natural Reward
Strategies
3. Constructive
Thought Pattern

-Instrument
Development
-Measurement of
current levels
-Statistical
analysis
-Model
development and

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Self-Determination
Theory (Ryan & Deci,
1997)
    1. Autonomy
    2. Competence
    3. Relatedness

Figure 1 Conceptual Framework of the Study

Methodology

       This study employed a mixed-methods approach. The exploratory phase (qualitative) began with an exploration of the topic without a predefined hypothesis. Qualitative data was collected by analyzing key themes and concepts from the literature. Based on the concepts derived, the researcher designed a new instrument by creating items intended to measure the concepts. Following this, the researcher administered the instrument to the selected population. Statistical analysis was used to confirm significant findings. Finally, the findings were integrated to develop a model.

       Results of the Literature Synthesis and Content Analysis

       Seven core self-leadership strategies were identified through literature review and content analysis: *Goal Setting*, *Self-awareness*, *Time Management*, *Growth Mindset*, *Effective Communication*, *Learned Resourcefulness*, and *Collaboration*.

       Instrument

       To identify the current levels of self-leadership, self-leadership strategies, and levels of self-determination of the male nursing students, the study used a combination of self-developed items related to self-leadership strategies, the Abbreviated Self-Leadership Questionnaire (ASLQ) developed by Houghton et al. (2012), and the Basic Needs Satisfaction Scale (BNSS) developed by Deci and Ryan (2004). For the study's 35 self-developed items, the items were validated by using the Content Validity Index (CVI) and tested for reliability using Cronbach's alpha. The instrument was translated into Chinese and data collection was done using online methods.

       Population and Sample

       The population for the study was male nursing students from three medical universities in Guangxi Province. They were Guangxi Medical University, Guilin Medical University, and Youjiang Medical College for Nationalities. The selection of these three universities as the focus of the research was informed by specific criteria related to the nature of the study. Specifically, each of these universities had more than 30 male nursing students. The total population of male nurses in these universities was 403 students. Table 1 shows the population and sample.

Table 1 Population and Sample of the Study

University	Population	Sample Size
Guangxi Medical University	240	162
Guilin Medical University	80	71
Youjiang Medical College for Nationalities	83	75
Total	403	308

Results

Level of Self-Leadership and Self-Determination

The overall mean of the male nursing students' self-leadership strategies was $\bar{x}$ = 3.355 with an SD of 0.970, with the item of *Self-awareness* receiving the highest score $\bar{x}$ = 3.455 with an SD of 0.936 and the item *Goal Setting* receiving the lowest score $\bar{x}$ =3.276 with an SD of 0.956. The item *Time Management* receiving score $\bar{x}$ =3.280 with an SD of 0.941. The item *Growth Mindset* received a score of $\bar{x}$ =3.413 with an SD of 1.007. The item *Effective Communication* received a score of $\bar{x}$ =3.367 with an SD of 0.969. The item *Learned Resourcefulness* received a score $\bar{x}$ = 3.336 with an SD of 0.974. The item Collaboration received a score of $\bar{x}$ =3.361 with an SD of 1.009. The overall interpretation of the level of self-leadership strategies was Moderate. Table 2 shows the results.

Table 2. Current Levels of Male Nursing Students' Self-leadership Strategies (n=308)

Items	Mean	SD	Interpretation
Goal Setting	3.276	0.956	Moderate
Self-awareness	3.455	0.936	Moderate
Time Management	3.280	0.941	Moderate
Growth Mindset	3.413	1.007	Moderate
Effective Communication	3.367	0.969	Moderate
Learned Resourcefulness	3.336	0.974	Moderate
Collaboration	3.361	1.009	Moderate
Overall	3.355	0.970	Moderate

The overall mean of the male nursing students' *Self-determination* was $\bar{x}$ = 3.028 with an SD of 0.571, with the construct of *Autonomy* receiving the highest score $\bar{x}$ = 3.083 with an SD of 0.799 and the construct of *Competence* receiving the lowest score $\bar{x}$ =2.996 with an SD of 0.762. The item *Relatedness* had a score of $\bar{x}$ = 3.005 with an SD of 0.694. The overall levels of self-determination for male nursing students were interpreted as Moderate. Table 3 shows the results.

Table 3. Current Levels of Self-determination of Male Nursing Students (n=308)

Items	Mean	SD	Interpretation
Autonomy	3.083	0.799	Moderate
Competence	2.996	0.762	Moderate
Relatedness	3.005	0.694	Moderate
Overall	3.028	0.571	Moderate

A regression analysis was performed on variables related to self-leadership strategies and the overall level of self-leadership. The variables linked to self-leadership strategies served as independent variables (IV), while the overall self-leadership level was the dependent variable (DV). Before conducting the actual regression analysis, a correlation analysis was performed to evaluate the strength and direction of the relationships between the independent and dependent variables. This step aimed to identify potential multicollinearity issues (high correlation between independent variables) and offer preliminary insight into the associations between variables. See Table 4.

Table 4. Bivariate Correlations

Variables	1	2	3	4	5	6	7
1. Goal setting	-						
2. Self-awareness	0.828** (<.001)						
3. Time management	0.865** (<.001)	0.812** (<.001)					
4. Growth mindset	0.794** (<.001)	0.821** (<.001)	0.816** (<.001)				
5. Effective communication	0.804** (<.001)	0.802** (<.001)	0.836** (<.001)	0.841** (<.001)			
6. Learned resourcefulness	0.810** (<.001)	0.800** (<.001)	0.830** (<.001)	0.851** (<.001)	0.871** (<.001)		
7. Collaboration	0.778** (<.001)	0.782** (<.001)	0.828** (<.001)	0.853** (<.001)	0.873** (<.001)	0.887** (<.001)	
8. Overall Level of Self-leadership	0.814 (< .000)	0.754 (< .000)	0.734 (< .000)	0.722 (< .000)	0.700 (< .000)	0.743 (< .000)	0.705 (< .000) -

Note. *Denotes a statistically significant relationship (statistical significance level set at p=.05, two tails). p- values appear within parentheses below the correlation coefficients.

An examination of the bivariate correlations among the seven self-leadership strategies in this study showed that the following strategies correlated significantly with overall level of self-leadership: *Goal setting* (r=.814, p=.000), *Self-awareness* (r=.754, p=<.000), *Time management* (r=.734, p=<.000), *Growth mindset* (r=.722, p=<.000), *Effective communication* (r=.700, p=<.000), *Learned resourcefulness* (r=.743, p=<.000), and *Collaboration* (r=.705, p=<.000), were significantly correlated with overall level of self-leadership at a significance level of .05. Therefore, a multiple regression analysis was further conducted to predict which of the seven self-leadership strategies (IV) predicted the overall level of self-leadership (DV). Table 5 shows the multiple regression results.

Table 5. Multiple Linear Regression Results for Self-leadership Strategies Impact on Overall Level of Self-leadership (n=308)

Model (constant)	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
	0.499		4.530	0.000**
Goal Setting	0.502	0.549	7.621	0.000**
Self-awareness	0.174	0.186	2.791	0.002**
Time Management	0.043	0.047	0.611	0.000**
Growth Mindset	0.056	0.065	0.880	0.000**
Effective Communication	0.097	0.108	1.378	0.000**
Learned Resourcefulness	0.170	0.190	2.310	0.022*
Collaboration	0.036	0.041	0.509	0.000**

a. Dependent Variable: Self-leadership
b. Predictors: Goal Setting; Self-awareness; Time Management; Growth Mindset; Effective Communication; Learned Resourcefulness; Collaboration

From the regression analysis, all seven of the self-leadership strategies were significantly correlated with the overall self-leadership of male nursing students. An analysis of Beta scores showed

the following significance levels: Goal Setting (β = .502, p<.05), Self-awareness (β = .174, p<.05), Learned Resourcefulness (β = .170, p<.05, Effective Communication (β = .097, p<.05),) Growth Mindset (β = .056, p<.05), Time Management (β = .043, p<.05), and Collaboration (β = .036, p<.05).

Table 6. Results of the Multiple Regression Analysis (n=308)

Variables	R	R2	d/s	F	p
			Total Residual		
Independent	.63	.396	7 297	36.71	.000
Goal Setting					
Self-awareness					
Learned Resourcefulness					
Effective Communication					
Growth Mindset					
Time Management					
Collaboration					
Dependent					
Self-leadership					

A multiple linear regression was calculated to predict self-leadership based on seven self-leadership strategies. A significant regression equation was found F(7, 297) = 36.71, p<.000), with an R2 of .396. Participants' predicted self-leadership is equal to 0.499, seven self-leadership strategies were significant predictors of self-leadership. From the regression equation obtained, it can be said that approximately 36.71% of the variation in self-leadership can be explained by participation in seven self-leadership strategies.

From the combined results of the literature synthesis and statistical analysis, a model was drafted and evaluated. Experts were asked to evaluate the model. The final validated model is shown in Figure 2.
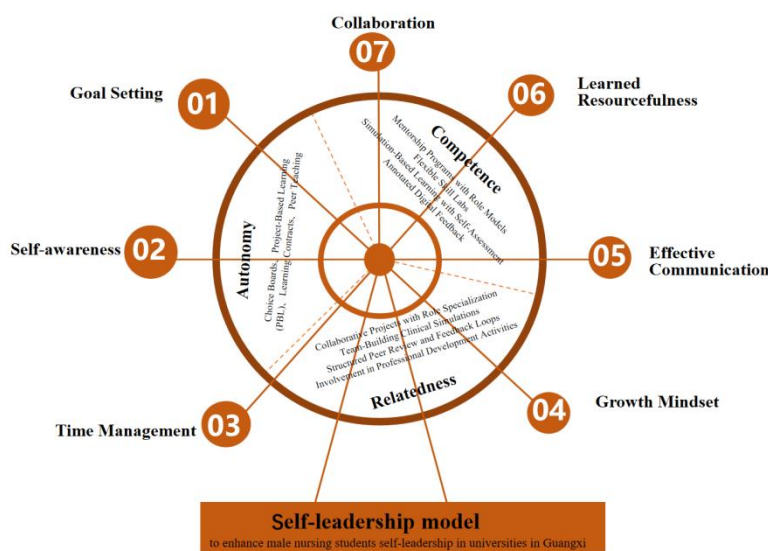

Figure 2 Self-Leadership Model for Enhancing Male Nursing Students' Self-Leadership Explanation and Implementation of the Model

The model developed for male nursing students in Guangxi, China, delineates three critical dimensions of self-determination: autonomy, competence, and relatedness. To enhance autonomy, the model incorporates activities like choice boards, which enable students to have a say in their learning

process, and Project-Based Learning (PBL), which immerses them in real-world challenges. Learning contracts are also utilized, detailing the students' learning intentions and commitments, alongside peer teaching, which promotes student knowledge exchange.

For the dimension of competence, the model includes mentorship programs that pair students with experienced role models and Flexible Skill Labs, which provide practical experience at varying levels of complexity. These are complemented by simulation-based learning with self-assessment, which allows students to evaluate their skills critically, and annotated digital feedback, which offers precise and constructive insights into their performances. Relatedness is fostered through activities like Collaborative Projects with Role Specialization, where students work together and value diverse skills, and Team-Building Clinical Simulations, which nurture a sense of community. Structured Peer Review and Feedback Loops create a supportive educational atmosphere, and involvement in Professional Development Activities connects students to the broader nursing profession.

The model outlines seven key strategies crucial in bolstering the self-leadership among male nursing students. These strategies provide psychological motivation and empower students to enhance their self-leadership skills. Each strategy is pivotal, with its importance reflected in how closely it relates to the core dimensions of self-leadership. Firstly, Goal Setting is fundamental, helping students to define clear objectives and chart a course to achieve them. Self-awareness follows, encouraging students to reflect on their strengths and areas for growth, which is essential for personal development. Time Management is another critical strategy, enabling students to organize their responsibilities efficiently, which is vital for meeting their goals. A Growth Mindset is promoted, which inspires students to embrace challenges and view setbacks as opportunities for learning and professional development. Effective communication is also crucial, allowing students to convey their thoughts clearly and collaborate effectively with others. Learned Resourcefulness equips students to overcome obstacles and utilize available resources to their advantage creatively. Lastly, Collaboration is emphasized, as working well with others is indispensable for success in nursing, fostering a team-oriented approach to patient care and problem-solving. By integrating and practicing these strategies, male nursing students can significantly improve their capacity for self-leadership, setting a solid foundation for their future careers in nursing.

Initially, administrators within nursing institutions must develop a comprehension of the theoretical underpinnings and operational mechanisms intrinsic to the model. This necessitates identifying and assimilating the three cardinal dimensions of self-determination—autonomy, competence, and relatedness—into the educational ethos. Furthermore, integrating the seven key self-leadership strategies into pedagogical practices is paramount. Subsequently, the model should be incorporated into the nursing curriculum. This entails systematically embedding choice boards, Project-Based Learning (PBL), and peer teaching modules to facilitate autonomy and establish learning contracts delineating student responsibilities and intentions. The institution must invest in faculty development programs that equip educators with the requisite skills to implement mentorship initiatives, Flexible Skill Labs, and Simulation-Based Learning with Self-Assessment. Such programs should enhance instructional competencies by providing annotated digital feedback and orchestrating collaborative projects with role specialization.

Providing appropriate infrastructure and resources is a critical factor in the practical realization of the model. This encompasses allocating funds to augment skill labs, acquire simulation equipment, and establish digital platforms for feedback dissemination. The model deployment should be accompanied by a robust evaluation framework that enables ongoing assessment of the model's efficacy. This involves collecting and analyzing quantitative and qualitative data on student engagement, skill acquisition, and self-leadership capacities. An inclusive approach must be adopted to engage all stakeholders, including students, faculty, and the nursing community. This engagement is essential for fostering a collaborative environment conducive to the model's success and ensuring alignment with professional standards and expectations. The model advocates for continuous professional development opportunities that connect students with the broader nursing profession. This is expected to enhance their sense of relatedness and professional identity. By articulating these steps, administrators can strategically implement the self-leadership model and foster an educational milieu that effectively

cultivates self-leadership among male nursing students, contributing to their professional preparedness and resilience in the nursing domain.

Discussion

The present research reaffirms the significance of self-leadership within the academic sphere, specifically in the context of male nursing students at medical universities in Guangxi Province, China. The findings of this study resonate with a body of research that underscores the importance of self-leadership in both academic and professional domains (Houghton et al., 2016). These studies collectively suggest that self-leadership is not merely desirable but a critical component that correlates with heightened job performance and academic success.

In the specialized field of nursing, where the ability to make informed decisions, manage time effectively, and communicate efficiently is essential, developing self-leadership strategies is invaluable. It equips students with the autonomy and motivation necessary to navigate the challenging and often unpredictable healthcare environment. The moderate levels of self-leadership and self-determination identified among this study's male nursing student population indicate the potential for growth in these areas. This echoes the sentiment of prior research, which points to the necessity of cultivating self-leadership within educational settings (Houghton et al., 2012; Neck, Manz, & Houghton, 2017). Nursing, by nature, demands a high degree of self-efficacy, and the moderate levels found in this study suggest that targeted interventions are required to enhance this trait.

The importance of self-leadership within the academic context, particularly in nursing education, can be paralleled with evidence from other studies that show its positive relationship with academic and job performance (Houghton et al., 2016; Wang & Yuan, 2018). The development of self-leadership capabilities is crucial in nursing due to the high demands of the profession, where practitioners must exhibit autonomy, continuous learning, and adaptability (Chen et al., 2020).

The regression analysis conducted as part of this research showed the positive correlations between self-determination and self-leadership levels, reinforcing that self-leadership is a pivotal factor in nurturing self-efficacy among students. This is consistent with the theoretical underpinnings provided by Bandura (1997) and Schunk & Pajares (2009), who have posited that self-efficacy influences goal setting, motivation, perseverance, and resilience. The model developed through this research, which concentrates on self-leadership strategies to foster self-leadership, can potentially influence the educational experiences of male nursing students in Guangxi Province. As the healthcare sector increasingly recognizes the importance of self-leadership qualities in its workforce, implementing the proposed model can contribute to the holistic development of nursing students, thus addressing the instructional gaps identified in the literature (Sudu, 2022). Furthermore, including qualitative insights from nursing faculty members offered a nuanced perspective on the practical aspects of self-leadership and self-efficacy enhancement. The activities suggested by these faculty members can be integrated into the model to offer a more comprehensive approach to student development.

In conclusion, the findings of this study underscore the critical role self-leadership plays in forming competent, confident, and self-directed nursing professionals. By advancing the self-leadership aptitudes of male nursing students, educational institutions enhance individual student outcomes and contribute to the broader objectives of healthcare education and the quality of patient care.

Recommendations

From the findings of this study, educational interventions should be designed and implemented to enhance the self-leadership skills of male nursing students. Therefore, this section proposes several recommendations to improve the current practices within nursing education programs in Guangxi Province, China. Firstly, the integration of self-leadership strategies into the nursing curriculum is essential. Students can develop these skills in parallel with their clinical knowledge by embedding components such as goal setting, self-awareness, and effective communication into course materials. Workshops, simulations, and reflective exercises could effectively achieve this integration, enabling students to apply self-leadership strategies in a controlled, educational setting before entering the clinical environment. Research has shown that simulation experience can help nursing students better

prepare for real-world practice (Bland et al., 2011; Oh et al., 2015; Lesa et al., 2021). Simulation-based learning can have a positive impact on learner's self-efficacy and motivation. Specifically, Oh et al.'s meta-analysis showed that simulation-based learning affected knowledge acquisition, communication skills, self-efficacy, learning motivation, and clinical skill acquisition.

Additionally, developing targeted training programs focused on self-leadership could significantly benefit students. These programs should be based on the theoretical model developed in this study, providing practical, interactive opportunities for students to engage with and internalize these concepts. Such programs could include leadership retreats, team-building exercises, and case-study discussions, all of which could foster an environment conducive to personal and professional growth.

Faculty development is another critical area that requires attention. Educators play a crucial role in modeling and reinforcing self-leadership strategies. Professional development opportunities that equip faculty with the necessary tools and understanding to teach these strategies effectively can significantly impact student outcomes. It is essential for faculty to not only instruct students in self-leadership but also to embody these principles in their teaching methods and interactions with students.

The establishment of peer mentoring programs can also offer substantial benefits. These programs create a platform for senior students to guide and support their junior counterparts, facilitating the sharing of experiences and strategies related to self-leadership. This peer-to-peer interaction can supplement formal education, providing a real-world context for applying self-leadership skills. According to Lim et al. (2022), peer mentoring positively impacts nursing students. Peer mentoring programs can be beneficial at both the individual and institutional levels. Individual benefits for students included improved self-efficacy and academic performance. It also helps to reduce stress and anxiety. Those acting as mentors also benefited by gaining confidence and competence. When institutions recognize that peer mentoring is a valuable activity, they can harness the benefits of their student body to increase the cost-effectiveness of their operations.

Regular assessment and feedback are critical to the development of self-leadership. Using this study's validated questionnaire, educators can gauge each student's self-leadership abilities and provide personalized feedback. This process can guide the creation of individual development plans, which can help students identify and strengthen their self-leadership competencies. Creating a supportive environment that fosters self-determination is also crucial. By offering students choices in their learning activities, recognizing their efforts, and fostering a sense of community, educators can support the development of autonomy, competence, and relatedness—foundational to self-determination theory. Furthermore, continuous research and evaluation should be undertaken to assess the effectiveness of self-leadership interventions. Longitudinal studies that monitor the impact of these strategies on student development and their subsequent professional success will provide valuable insights for refining the educational model. Finally, advocacy for policy changes at the institutional and regional levels is needed to underscore the importance of self-leadership in nursing education. Policies that support allocating resources for self-leadership initiatives are crucial for sustaining and expanding these programs. Collaborations with healthcare organizations can also provide students with practical experiences reinforcing self-leadership skills in real-world settings.

In conclusion, if implemented, the recommendations outlined above could enhance the educational experiences of male nursing students. By fostering self-leadership, these future healthcare professionals will be better equipped to meet the challenges of the nursing profession and contribute to the delivery of high-quality patient care.

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