Mediating effects of meaning in life on the relationship between general self-efficacy and nursing professional commitment in nursing students
A structural equation modeling approach

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Abstract

Meaning in life (MiL) is regarded as a valuable indicator of positive functioning in terms of an understanding of one's purpose in life, well-being, and professional commitment. As such, it is important to improve MiL for the stability of nursing staff. General self-efficacy is a significant predictor of both MiL and nursing professional commitment. Nursing professional commitment is key for both the stability of nursing staff and the provision of excellent health care. Few scholars have investigated the relationship between general self-efficacy and nursing professional commitment. In particular, a possible mediating effect of MiL has not been fully explored in nursing students.

We aimed to examine the association between general self-efficacy and MiL among nursing students and to determine whether MiL mediates the relationship between general self-efficacy and nursing professional commitment for Chinese nursing students.

A cross-sectional descriptive design was used. Between June and September 2019, 710 Chinese nursing students from 2 colleges completed the Meaning in Life Scale (MiLS), General Self-Efficacy Scale (GSES), and Nursing Professional Commitment Scale (NPCS). Data were analyzed using structural equation modeling (SEM) and SPSS (version 23.0, IBM Corp, Armonk, NY).

The mean MiL score was above the moderate level ($M = 52.55$, $SD = 9.79$). However, the mean scores of self-efficacy and nursing professional commitment were relatively low. Self-efficacy was positively related to MiL ($B = 0.46$, $P < .01$), and MiL was positively related to nursing professional commitment ($B = 0.37$, $P < .01$). However, self-efficacy was not related to nursing professional commitment ($B = 0.12$, $P = .01$). We therefore suggest that MiL has a complete mediating role between self-efficacy and nursing professional commitment among Chinese nursing students.

In this study, we confirmed the complete mediation of nursing professional commitment by MiL in nursing students, thus providing scientific evidence that could be beneficial for the development of interventions to increase nursing professional commitment.

Abbreviations: MiL = meaning in life, SD = standard deviation, SEM = structural equation modeling, X2/DF = likelihood ratio.

Keywords: general self-efficacy, meaning in life, nursing professional commitment, nursing students

1. Introduction

The shortage of nurses in developing countries has attracted the attention of scholars at home and abroad, and the research has shown that the main reason for this shortage is the insufficiency of the workforce in practice[1] and the turnover of qualified nurses.[2] Professional commitment determines the retention and permanence of nursing staff. It is a vital factor for meeting the demand and supply of medical and health services as well as for ensuring the quality of medical and health services. Professional commitment is also of vital importance for administrators and directors of health organizations.[3] According to the National Nursing Development Plan (2016–2020) and the China Care Quality Report, the nurse-to-patient ratio has improved substantially.[4] However, the lack of reserve personnel, especially in the face of serious ageing problems, increasing medical health service demand, and public health emergencies such as the 2019 severe acute respiratory syndrome (SARS)-nCoV-2 acute respiratory disease or earthquakes, indicates an urgent need for more nurses. As nursing students are the main reserve force of future nursing staff, their professional commitment would be helpful not only for addressing the shortage of nurses in the future but also for promoting a high-quality nursing service, which is crucial to nursing stability and the optimization of the allocation of nursing resources.

Nurses' professional commitment is formed gradually, and there is a correlation between professional commitment in school and at work.[4] If nursing students have a higher professional commitment while they are in school, they will have a higher commitment when they enter the workforce.[5]

Commitment is seen as a "global entity, serving as a stabilizing force that acts to maintain behavioral direction when expectancy conditions are not met."[6,7] Numerous researchers have verified the importance of employees' commitment when organizations lose employment security.[6,8–10] Professional commitment is the development of organizational commitment within the professional field.[7] Long et al[11] defined professional commitment as an individual's subjective attitude towards his or her profession as well as a "psychological contract" signed with the profession as a whole. Lian et al[12] also stated that professional commitment involves a positive attitude and behavior among college students who identify with their professions and are willing to make corresponding efforts. Many authors have agreed that nursing professional commitment refers to a willingness to make an effort as well as the maintenance of membership and belief in goals and values.[13–15]

Self-efficacy comprises "feelings of competence and confidence defined as self-assurance that one will be able to perform specific tasks successfully."[16] These feelings can change as a result of learning, experience, and feedback.[17,18] The authors of several studies have evaluated the effect of self-efficacy on the maintenance of job satisfaction, nursing engagement, professional turnover intention, and organizational commitment[2,19–21] and found that self-efficacy also plays an important role in maintaining career stability, optimistic attitude, and positive emotion. Some researchers have reported that individuals' self-efficacy influences their choices and behavior and that professional commitment can also promote subjective initiatives in the learning and skill training of the nursing profession, further enhancing their self-confidence and self-efficacy.[22] Some scholars have shown that higher levels of self-efficacy are related to better recovery from setbacks, higher resilience, and goal commitment.[23] However, others have found that self-efficacy has little or no relationship with outcome indicators.[19] Therefore, our first aim is to explore the effects of self-efficacy and nursing professional commitment.

Meaning in life (MiL) is defined "as the degree to which an individual comprehends and sees significance in their life, as well as the extent to which they feel that they have a purpose in life."[23–25] Therefore, MiL is a multidimensional construct that has 3 components: comprehension, significance, and purpose.[25,26] Given the increase in medical consumption demand and the development of nursing education, nursing students are facing higher requirements and challenges. Nursing students now need to adhere to a people-oriented approach and be educated in the meaning of life, death, and other humanistic care, as well as take a holistic view of the person, process and life cycle of care and service.[3]

Public demand for nurses and public perceptions of the nursing profession require nursing students to have a greater sense of responsibility and mission. Nursing students must not only have a clear pursuit of their purpose in life but also strive to achieve their own self-improvement and MiL.

Authors of previous studies have found that MiL is an important predictor of well-being[27,28] and is associated with positive affect and life satisfaction.[29] Miao and Gan[24] suggested that MiL can promote proactive coping via positive affect. Recently, Sari[30] found that MiL is also related to career decision self-efficacy.[29] Schulenberg et al[31] reported that MiL plays a role in the relationship between self-efficacy and well-being. The stronger MiL is the more specific an individual's goals and pursuit of quality life will be. When facing life pressures, individuals with high MiL will have sufficient ability and confidence to face and cope with challenges, which will in turn affect their values, professional identity, creativity, and sense of belonging.[32] Self-efficacy and MiL are important internal psychological resources that play a key role in individuals' professional commitment.[33] Therefore, the second purpose of this study is to explore the effects of MiL on both self-efficacy and professional nursing commitment.

Based on previous literature, we develop a theoretical model to explain the mechanisms underlying the associations among MiL, self-efficacy, and nursing professional commitment. Based on our theoretical model, we predict that MiL and self-efficacy have positive effects on nursing professional commitment and that self-efficacy has a positive predictive effect on MiL (Fig. 1). Therefore, the third purpose of this study is to test the hypothesized model.

2. Methods

2.1. Design

A cross-sectional design was used in this study.

2.2. Respondents and procedures

A convenience sample of 710 nursing students (623 women) was recruited from 2 colleges in Shanxi and Sichuan Provinces in China. Students who met the following criteria were included: college students who gave informed consent to participate and college students majoring in nursing. The exclusion criteria were as follows: nursing students who were on sick leave during the investigation and nursing students who had transferred to another specialty or had been transferred from another specialty to nursing fewer than 6 months prior to the study.
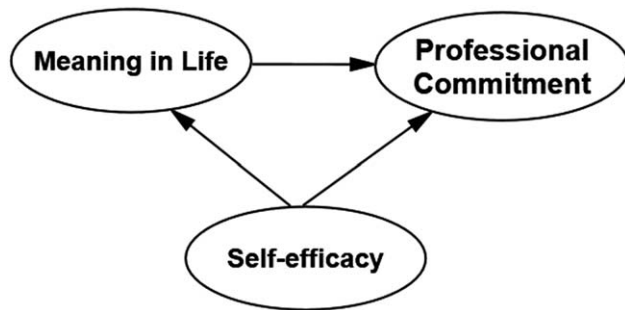
Figure 1. Hypothesized theoretical model. Note. Based on the theoretical model, we predict that MiL and self-efficacy will have positive effects on nursing professional commitment and that self-efficacy has a positive predictive effect on MiL. MiL = meaning in life.

2.3. Instruments

The questionnaires included sections assessing the participants' demographic characteristics (age, sex, grade, residence, religion, number of siblings, and education level), self-efficacy, and professional commitment.

2.4. The general self-efficacy scale

The general self-efficacy scale (GSES) was developed by Schwarzer et al.[34,35] Based on the original version, Wang et al[36] created a new GSES suitable for Chinese people that includes 10 items. The responses are scored on a 4-point scale ranging from 1 (incorrect) to 4 (completely correct), with a total possible score between 10 and 40 points. A higher score implies stronger general self-efficacy. This questionnaire is a reliable tool for measuring nurses' general self-efficacy. In this study, the Cronbach α coefficient was 0.903.

2.5. The meaning in life scale

The meaning in life scale (MiLS) was first developed by Steger et al.[37] Using the original version, Liu and Gan[38] and then Wang et al[39] created a new scale suitable for Chinese people. This questionnaire consists of 10 items categorized into 2 subscales: presence of meaning (5 items) and search for meaning (5 items). The responses are scored on a 7-point scale ranging from 1 (absolutely disagree) to 7 (absolutely agree). The MiLS total score is computed as the sum of the 2 subscale scores and ranges from 10 to 70, with higher scores indicating a higher level of meaning in life (item 9 is reverse-coded). In this study, the Cronbach α coefficient was 0.852.

2.6. The nursing professional commitment scale

The nursing professional commitment scale (NPCS) was derived from the original scale developed by Lu et al[40] and was revised in 2007.[41] This scale consists of 23 items categorized into 3 subscales: willingness to make an effort (9 items), maintaining membership (8 items), and belief in goals and values (6 items). The responses are scored on a 5-point scale, and the total possible score ranges from 23 to 115 points, with a higher score indicating greater commitment (items 10–17 are reverse-coded). In this study, the Cronbach α coefficient was 0.933.

2.7. Data Collection

The data were collected from a convenience sample between September and November 2019. We selected 2 colleges in Shanxi and Sichuan Provinces in China. Three trained research assistants were sent to collect data from schools in these provinces. Before data collection, the research assistants briefly described the procedures for filling out the questionnaires to the participants. After the purpose and significance of the study were explained, all participants were told that their responses would be anonymous, and the participants declared that their responses were not affected by any power or person, thus fulfilling the requirements for informed consent. The respondents had between 20 and 25 minutes to complete the questionnaires. Among the 759 returned questionnaires, 49 were incomplete due to missing values or regular and repeated options. Therefore, 710 questionnaires were suitable for analysis, meaning that there was a response rate of 93.54%. It has been previously determined that >200 samples must be obtained for path analysis.[42] Therefore, the inclusion of 710 students was valid.

2.8. Data analyses

The self-efficacy, MiL, and nursing professional commitment scores showed normal distributions, as assessed by a Kolmo-gorov–Smirnov test using SPSS 23.0 (IBM Corp., Armonk, NY).

For all study variables, the descriptive statistics (frequency, percentage, mean and standard deviation [SD]) were calculated, and the independent-samples t test, one-way analysis of variance and the Pearson correlation test were performed using SPSS 23.0 (IBM Corp.).

The proposed structural model of self-efficacy, MiL, and nursing professional commitment outlined in Fig. 1 was estimated using the analysis of moment structures, with maximum likelihood used to confirm the relationships and predictions (AMOS 23.0, IBM Corp.). The measurement errors of the proposed structural model were also considered. The goodness of fit of the structural equation model (SEM) was judged by absolute fit indices (root mean square error of approximation < 0.05, the goodness-of-fit index > 0.09, and adjusted goodness-of-fit index > 0.09), value-added fitness indices (norm fit index > 0.90, relative fit index > 0.90), and simple fit indices (Parsimony goodness-of-fit index > 0.50, Parsimony-adjusted norm fit index > 0.50, Parsimony comparative fit index > 0.50, and likelihood ratio [X2/df] < 2.00). It is necessary to modify a model to improve fit when the modification indices are larger than 4.[43]

3. Results

3.1. Demographic characteristics

The demographic characteristics of the sample are presented in Table 1. A total of 710 students participated in the study. The participants had a mean age of 20.46 years (SD = 1.92; range = 18–23). Of the respondents, 87.7% were women (n = 623), 92.70% were ethnically Han (n = 658), and 47.0% were junior students (334). Additionally, 46.5% came from urban cities, and 53.5% were from rural cities. A total of 97.70% had no religion; among the 2.30% who reported a religion, the religions included Christianity, Catholicism, and Buddhism. Of the participants, 20.70% reported being an only child, while 79.3% had siblings.

Table 1

Demographic characteristics and differences in nursing professional commitment (N = 710).

Variable	N (%)	Mean ± SD	t (F)	P
Gender				
Male	87 (12.3)	77.68 ± 16.37	1.333	.183
Female	623 (87.7)	79.91 ± 14.40		
Ethnicity				
Han	658 (92.7)	79.57 ± 14.49	0.430	.668
Ethnic minority	52 (7.3)	80.48 ± 16.78		
Grade				
Freshman year	109 (15.4)	80.11 ± 13.88	0.629	.596
Sophomore year	103 (14.5)	78.79 ± 14.55		
Junior year	334 (47.0)	79.16 ± 14.13		
Senior year	164 (23.1)	80.83 ± 16.26		
Residence				
Urban	330 (46.5)	78.79 ± 14.50	1.433	.152
Rural	380 (53.5)	80.37 ± 14.78		
Religion				
Yes	16 (2.3)	77.81 ± 19.29	−0.504	.615
No	694 (97.7)	79.68 ± 14.55		
Fay with only child				
Yes	147 (20.7)	78.30 ± 15.45	1.245	.214
No	563 (79.3)	80.00 ± 15.46		

N = number, SD = standard deviation.
[**] $P < .01$ 2-tailed.
[*] $P < .05$ 2-tailed.

Demographic characteristics did not impact the nursing professional commitment scores (Table 1).

3.2. Self-efficacy, meaning in life and professional commitment

The means, SDs, and correlations between related variables are presented in Table 2. The mean MiL score was above the moderate level ($M = 52.55$, SD = 9.79). However, the mean scores for self-efficacy and nursing professional commitment were relatively low, with a mean self-efficacy score of 24.62 (SD = 5.67) and a mean nursing professional commitment score of 82.15 (SD = 15.07). Nursing professional commitment had a significant positive correlation with self-efficacy ($r = 0.256$, $P < .01$) and MiL ($r = 0.316$, $P < .01$), indicating that as self-efficacy and MiL improve, nursing professional commitment also improve.

3.3. Moderating effects of self-efficacy on meaning in life and professional commitment

The proposed model showed no negative variance and a large standard error, meaning that the model did not violate identification rules.[44,45] The absolute, value-added and simple fit indices all indicated that the model fit the data well (Fig. 2). Self-efficacy was positively related to MiL ($B = 0.46$, $P < .01$), and MiL was positively related to nursing professional commitment ($B = 0.37$, $P < .01$), but self-efficacy was not related to nursing professional commitment ($B = 0.12$, $P = .01$). This result suggests that MiL plays a complete mediating role between self-efficacy and nursing professional commitment among nursing students.

4. Discussion

Professional commitment is considered an important predictor of stability in nursing staff. Consequently, our aim was to verify the

Table 2

Correlations among self-efficacy, meaning in life and professional commitment (N = 710).

Variable	Mean	SD	SES	MLS	PM	SM	NPCS	WMAE	MM	BGAV
SES	24.62	5.67	1							
MLS	52.55	9.79	0.383[**]	1						
PM	24.22	5.37	0.348[**]	0.816[**]	1					
SM	28.33	5.66	0.281[**]	0.851[**]	0.656[**]	1				
NPCS	82.15	15.07	0.256[**]	0.316[**]	0.270[**]	0.268[**]	1			
WMAE	29.28	8.07	0.266[**]	0.321[**]	0.314[**]	0.249[**]	0.895[**]	1		
MM	30.76	5.91	0.160[**]	0.176[**]	0.131[**]	0.137[**]	0.780[**]	0.525[**]	1	
BGAV	22.11	4.44	0.167[**]	0.249[**]	0.165[**]	0.267[**]	0.709[**]	0.504[**]	0.355[**]	1

BGAV = belief in goals and values, MLS = meaning in life scale, MM = maintaining membership, NPCS = nursing professional commitment scale, PM = presence of meaning, SD = standard deviation, SES = self-efficacy scale, SM = search for meaning, WMAE = willingness to make an effort.
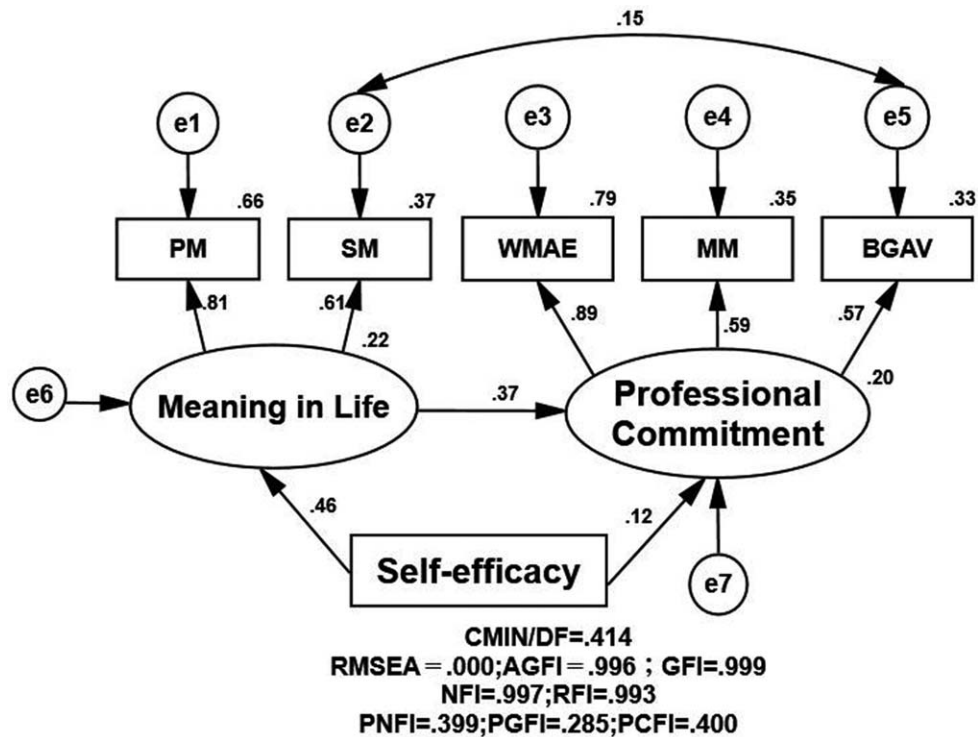[**] $P < .01$ 2-tailed.
[*] $P < .05$ 2-tailed.

Figure 2. Results of SEM analysis of the effect of meaning in life on self-efficacy and nursing professional commitment among the whole sample. All the coefficients in this figure are standardized and significant at level 0.01. The numbers on the straight arrows indicate the standard path coefficient. BGAV = belief in goals and values, MM = maintaining membership, PM = presence of meaning, SEM = structural equation model, SM = search for meaning, WMAE = willingness to make an effort.

predictive role of MiL and self-efficacy in nursing professional commitment. We found that self-efficacy and MiL were significant predictors, but they worked through different mechanisms: MiL had a direct effect, while self-efficacy had an indirect effect and was completely mediated by MiL. This finding enhanced our understanding of the MiL of nursing students. Nursing students undertake a sacred mission to heal and comfort patients out of a deep reverence for life and a commitment to nursing. Additionally, the findings increase our understanding of the mechanisms of self-efficacy in practical applications. It could be argued that the findings indicate that there is a better way to improve nursing professional commitment in students and maintain a stable team of nursing professionals.

The MiL score was above the moderate level, which is consistent with the findings from Xu et al.[46] Nurses' above-average MiL may be related to clear career planning as well as the maturity and quality of the nursing professional development system in China. However, the mean scores for self-efficacy and nursing professional commitment were relatively low, which may be the result of heavy study pressure and a complex nursing practice environment. While we identified a significant positive correlation between self-efficacy and MiL as well as a positive association between MiL and nursing professional commitment, the SEM results showed no direct correlation between self-efficacy and nursing professional commitment. We therefore suggest further exploration of the correlations between self-efficacy and other variables as well as the related factors of self-efficacy for more accurate results.

In line with DeWitz et al,[47] we suggest that self-efficacy is a significant predictor of MiL. Based on the concept of lifelong development,[47] it has been stated that "finding one's own life meaningful was closely associated with the high level of internal dynamics and belief in their environment."[30] Nursing students with a high level of self-efficacy have higher resilience and goal commitment and demonstrate better recovery from set-backs.[34,35] Therefore, they can better perceive and make full use of the benefits of the nursing profession while avoiding disadvantages in both learning and life. This leads to well-being, fulfilment and MiL, which are important aspects of life.[48]

The direct effect of MiL on nursing professional commitment is in line with the findings of Duffy and Sedlacek,[48] who reported that MiL is an important predictor of the development of a career calling for students. It has been reported that perception of MiL can be of use in environmental decision-making and can affect individuals' self-regulation of cognition, emotion and behaviours.[24,49] In terms of knowledge, high levels of MiL could increase nursing students' awareness and understanding of their purpose in life. In terms of emotion, high levels of MiL could enhance student nurses' positive emotions, sense of direction, sense of control, and sense of worth. Affected by knowledge and emotion, nursing students can adopt adaptive behaviors, such as proactive and preventive coping, to promote their self-growth, minimize possible harm or losses and pursue their future goals. All of the above can promote nursing professional commitment.

The observed indirect effect of self-efficacy on nursing professional commitment was completely mediated by MiL, which is consistent with results from existing studies.[2,50] Scholars have provided evidence that the interaction effect of self-efficacy and the likelihood of seeking feedback are mediated by perceptions of the value of feedback.[51] This finding is in

contrast to suggestions of a positive relationship between self-efficacy and the likelihood of seeking feedback. Nursing students with high levels of self-efficacy can better perceive the benefits of the profession and are more likely to be enthusiastically engaged in working and learning professional knowledge. Once these students experience the benefits of both giving and receiving, they will find meaning in life, which in turn will encourage them to overcome difficulties in exchange for certain values and meanings.

The nursing professional commitment scores indicated that high MiL influenced perceptions of the value of feedback in the study. We also found that self-efficacy changed as a result of learning, experience and feedback and was controlled by many complex factors, such as positive emotions. Therefore, we need to find a suitable medium for better practice. Above all, MiL could be regarded as a moderating variable, improving nursing students' perceived professional benefits and commitment. To successfully increase commitment, nursing educators should implement effective strategies for improving MiL.

The finding that MiL and self-efficacy may influence nursing professional commitment has important implications for the stability of future nursing teams. Nursing educators and administrators may want to formulate related intervention strategies, such as the development of perceived MiL or increased self-efficacy, to improve students' nursing professional commitment.

We have some suggestions for future research. First, future researchers should use qualitative research methods to add to our conclusions. Second, in-depth literature tracking and practice investigation should be conducted to determine the demographic characteristics related to nursing professional commitment. Third, while there was no direct relationship between self-efficacy and nursing professional commitment in the model, there was a relationship in the general linear regression analysis that was related to either our statistical analysis or the interaction between variables. Therefore, in-depth research and discussion should be carried out to explore this relationship further in the future.

4.1. Limitations

Although our study produced important results, it has some limitations. First, our use of convenience sampling (undergraduates from 2 colleges) might limit the generalizability and robustness of the study results. Therefore, nursing students with diverse educational backgrounds should be included in research in the future to verify our hypothesis and model. Second, the data from the self-report questionnaires may not truly reflect the thoughts of the nursing students due to the flaws in this method of data collection. Authors of future studies should consider using both subjective and objective data on MiL, self-efficacy, and nursing professional commitment. Finally, our conclusions are based on cross-sectional data, meaning we cannot draw conclusions about experimental cause–effect relationships between the studied variables. Therefore, a subsequent large-scale longitudinal investigation is necessary. Nevertheless, we think that these limitations do not nullify our conclusions.

5. Conclusions

We confirmed the complete mediation of nursing professional commitment by MiL in nursing students. This finding implies that nursing educators and administrators should consider the importance of MiL to nursing professional commitment of nursing students in stabilizing nursing staff. Additionally, effective measures should be taken to improve the perception and experience of MiL. While this study may be applicable only to undergraduate nursing students, our model can be used to improve the nursing professional commitment model for nursing students and can be used as a foundation for the improvement of theories, such as those on humanistic care or MiL, and interventions.

Author contributions

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