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The Effects of Future Life Goals on Engagement and Burnout among University Students: The Mediating Role of Self-determined Motivation[1)]

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< abstract >

The current study investigated the mediating role of self-determined motivation in the relationship between future life goals and academic engagement and burnout of 308 Chinese Medical University students. The path analysis results revealed that distinct future life goals (financial success, social status, and communal goals) corresponded to distinct levels of self-determined motivation. These motivational levels subsequently impacted both academic engagement and burnout. Financial goals predicted heightened burnout through a pathway of controlled motivation. Social status goals, while positively influencing academic engagement via increased autonomous motivation, also contributed to elevated burnout through controlled motivation. On the contrary, communal goals amplified academic engagement through augmented autonomous motivation while simultaneously reducing burnout by diminishing amotivation. These findings emphasize the significant role of students' future life goals in understanding their current academic motivation and engagement.

keywords : Future life goals, self-determined motivation, autonomous motivation, controlled motivation, amotivation, engagement, burnout

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대학생들의 미래 삶의 목표가 학업 참여와 소진에 미치는 영향: 자기결정성 동기의 매개효과를 중심으로[1)]

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< 요 약 >

본 연구에서는 308명의 중국 의과대학 학생들을 대상으로 미래 삶의 목표와 학업 참여 및 소진 경험 간의 관계에서 자기결정적 동기의 매개효과를 살펴보았다. 경로모형 분석결과, 미래 삶의 목표(재정적 성공, 사회적 지위, 공동체적 목표)는 다양한 수준의 자기 결정적 동기와 관련이 있으며, 결과적으로 학업 참여와 소진에 영향을 미치는 것으로 나타났다. 재정적 목표는 통제된 동기를 매개로 학업적 소진을 유의미하게 증가시켰다. 사회적 지위 목표는 자율적 동기를 높여 학업 참여에 긍정적인 영향을 미치지만, 통제된 동기를 매개로 소진을 증가시키는 것으로 나타났다. 반면, 공동체적 목표는 자율적 동기를 높여 학업 참여도를 높이는 동시에 감소된 무동기를 매개로 소진 경험을 줄이는 것으로 나타났다. 이러한 연구결과는 학생들의 현재 학업 동기와 참여도를 이해하는 데 있어 학생들의 미래 인생 목표가 중요한 역할을 한다는 점을 강조한다.

주요어 : 미래 삶의 목표, 자기결정성 동기, 자율동기, 통제동기, 무동기, 학업참여, 소진

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Ⅰ. Introduction

The years of emerging adulthood represent a critical developmental period during which university students invest resources, energy, and effort in pursuit of their long-term life goals (Burrow & Hill, 2011). These long-term goals vary widely among individuals, encompassing a diverse range of aspirations. For instance, some college students may aspire to accumulate material wealth, seeking a comfortable life free from financial worries. Others might aim to secure fame or status in society, while other students might pursue making meaningful contributions to society. Such diversity in long-term life goal pursuits is crucial as these goals shape the purpose and meaning of individuals' lives (Fiorito et al., 2021; Sepulveda et al., 2021).

A significant body of evidence indicated that the pursuit of various future life goals is associated with different outcomes such as well-being (Dittmar et al., 2014; Klug & Maier, 2015; Lekes et al., 2010; Martos & Kopp, 2012). Moreover, pursuing a future life goal plays a crucial role in guiding one's engagement in current activities (Damon, 2008). For instance, college students with robust communal goals, such as a commitment to serving the community, might invest substantial time participating in nonprofit or volunteer organizations that don't yield direct personal benefits. Conversely, college students with life goals centered on financial success and social status may actively pursue opportunities that can result in increased income, social recognition, or some form of acknowledgment.

Given that individuals tend to motivate themselves to turn their future aspirations into reality (Elliot & Dweck, 2005), such aspirations are likely to have immediate effects on university students' motivation for learning. Despite the significant implications for understanding the nature of university students' future life goals and their impact, relatively less research has focused on how future life goals may impact their current motivation and engagement. Preliminary evidence from studies on the middle-aged population suggests an association between future life goals and current cognitive function (Lewis et al., 2017). However, this link has not been firmly established, particularly in the context of university students' academic motivation and engagement. Given the transitional nature of emerging adulthood, it becomes crucial to investigate how the various life goals of college students are linked to their academic motivation and overall well-being in the

present (Henderson-King & Mitchell, 2011; Janke & Dickhäuser, 2019; Niemiec et al., 2009). In addition, examining university students' long-term life goals is invaluable on its own merit, considering the challenges they face in navigating the competitive job market while seeking a sense of purpose in their lives (Butler, 2021).

In the current study, we aim to explore the impact of long-term future life goals on the current academic functioning of students attending a highly selective medical university. Specifically, we investigated the process through which future life goals relate to the quality of academic motivation (i.e., varying degrees of self-determined motivation such as autonomous motivation, controlled motivation, and amotivation), subsequently influencing students' current academic engagement and burnout. Self-determined motivation is deeply related with students' future life goals. Self-determined motivation plays a crucial role in this investigation as a mediating factor. Autonomous motivation, driven by internal factors like personal interest and inherent satisfaction, often leads to proactive engagement in academic pursuits (Deci & Ryan, 2000). On the other hand, controlled motivation, arising from external pressures or rewards, and amotivation, characterized by a lack of motivation or purpose, can significantly impact students' academic engagement (Deci & Ryan, 2000). By understanding how future life goals influence these different levels of self-determined motivation, we aim to uncover the underlying mechanisms through which students' long-term aspirations shape their present academic experiences.

Ⅱ. Literature Review

1. Categorization of future life goals

In the field of motivation, researchers have explored goals at various levels. The current research centers on the concept of future life goals, which are positioned at an intermediate level, as a bridge between global aspirations such as worldview and more immediate goals guiding current actions and events (e.g., doing well on the exam). These future life goals represent long-term values such as financial success, fame/social status, and communal service that individuals actively pursue over the course of their lives.

Researchers have proposed various approaches to categorizing and conceptualizing these

intermediate-level goals (Hill et al., 2011; Kasser & Ryan, 1996). Hill et al. (2011) defined purpose orientations as goals for life and examined four types of orientation, which included creative (e.g., propensity for original and artistic goals), prosocial (e.g., propensity for helping others and contributing to societal well-being), financial (e.g. pursuing financial success), and personal recognition (e.g. seeking respect from peers and attaining high social status). Kasser and Ryan (1993) categorized central life aspirations, including self-acceptance, financial success, affiliation, and communal goals. Roberts and Robins (2000) focused on the content of these goals, examining 20 different life goals across 10 domains including economic, aesthetic, social, relational, political influence, hedonistic, religious, personal growth, theoretical knowledge, and unclassified goals. Novacek and Lazarus (1990) examined personal commitments, identifying six components such as affiliation, power/achievement, personal growth, altruism, stress avoidance, and sensation-seeking.

While different programs of research examined various life goals, the current study focused on three types of life goals including financial success, social status, and communal goals. Based on the systemic literature review that indicates that both goals are prevalent among medical students in high-income developed countries (Goel et al., 2018), we investigated goals focusing on financial success and social status separately, rather than combining them as extrinsic goals. These three goals represent common values that university students endorse for their future. It is essential to note that these life goals are not stable personality traits such as the big five personality factors but cognitive and motivational in nature. Therefore, the exploration of these life goals carries significant practical implications, as they can be influenced and modified through educational experiences (e.g., service learning, as observed in Shin et al., 2018) and interventions (e.g., intervention strategies for university students, as discussed in Shin, 2013). As these goals play a crucial role in shaping individual life contexts and structures, understanding their dynamics becomes essential for guiding students toward positive and fulfilling academic experiences.

2. The impact of future life goals

Researchers have shown that various life goals can be positioned differently on the extrinsic-intrinsic continuum. For example, goals such as serving community are often more inherently rewarding and tend to satisfy innate psychological needs (i.e., autonomy, competence, and relatedness (Deci & Ryan, 2000) and thus more intrinsic in nature. Research has consistently shown that fulfillment of innate psychological needs is directly related to a true sense of personal well-being or happiness (e.g., Deci & Ryan, 2000). In contrast, goals such as money, fame, and social recognition do not directly satisfy basic psychological needs. These goals are less likely to contribute to or only indirectly promote the satisfaction of basic psychological needs. Accordingly, pursuit of these goals is not rewarding on its own. That makes these goals extrinsic in nature. Extrinsic goals have been negatively linked to psychological well-being indicators such as life satisfaction and pro-social activities (e.g., Bradshaw et al., 2023; Kasser & Ryan, 1996; Ryan et al., 1999).

Such distinction of extrinsic and intrinsic nature of various goals was confirmed across many cultures (Bradshaw, 2019; Grouzet et al., 2005). In addition, the impact of these goals on individuals' overall well-being has been well established. Yet, we do not know much about exactly how these future goals impact students' current academic functioning, such as the quality of motivation, academic engagement, and burnout. Some related studies indicate that students' life goals are closely related to academic variables including academic engagement (Hill et al., 2018) and the meaning of education (Henderson-King & Mitchell, 2011). Drawing from these prior findings, future goals are likely to exert a significant influence on academic functioning. Nonetheless, a noticeable gap exists in empirical research regarding the specific impact of individual future goals within academic contexts. This study aims to bridge this gap and further enhance our comprehension of these processes.

2.1. The effect of financial goals

Financial goals refer to individuals' aspirations for monetary achievements and financial stability. These goals represent the desire to attain material prosperity and financial independence. Financial goals have been consistently associated with various indicators of

psychological distress. Specifically, they exhibit negative correlations with subjective well-being and mental health (Chen et al., 2014; Dittmar & Isham, 2022; Dittmar et al., 2014; Kasser & Ahuvia, 2002). Additionally, financial goals have shown positive correlations with symptoms of behavioral disorders (Kasser & Ryan, 1996). Furthermore, they have been linked to self-reported physical health symptoms, such as faintness, headaches, and sore muscles (Kasser, 2016; Kasser & Ryan, 1996). These financial goals also appear to compromise interpersonal relationships, including satisfaction with family life (Kasser, 2016). The majority of the reviewed studies, primarily conducted with students, provide compelling evidence that financial goals lead to maladaptive consequences across psychological, physical, social, and academic domains.

While extensive research has primarily explored the link between financial goals and psychological well-being, relatively few studies have examined their impact on academic functioning. With respect to academic motivation and engagement, financial goals were linked to low motivation, engagement, and achievement (Janke & Dickhäuser, 2019; King, 2020; King & Datu, 2017; Ku et al., 2012).

2.2. The effect of social status goals

Social status goals refer to an individual's aspiration for public recognition, fame, popularity, and a distinguished position within society, contributing to a sense of validation and prestige. Individuals endorsing these goals tend to seek acknowledgment, respect, and a positive reputation from others. Often, both financial success (monetary) and social status-oriented goals are grouped under the umbrella term of materialism (Kasser, 2016) or classified as extrinsic value goals (Deci & Ryan, 2000; Kasser & Ryan, 1996). For instance, Vansteenkiste and Sheldon (2006) examined the extrinsic goals, which encompassed the dimensions of financial success, fame, and image. Additionally, Kasser (2016) comprised a set of extrinsic goals focused on health, possessions, image, and status. Such goals have been associated with maladaptive interpersonal relationships, and diminished physical and psychological well-being (Bradshaw et al., 2023; Deci & Ryan, 2000; Kasser, 2016; Kasser & Ryan, 1996). However, the pursuit of fame, status, and popularity as long-term future goals has received limited attention compared to financial goals. While not exactly a long-term future goal, developmental researchers have examined the social goals, encompassing dimensions such as intimacy, nurturance, dominance, and status/popularity. Goals

emphasizing status/popularity have shown associations with low academic and career motivation, unhealthy patterns of help-seeking behaviors (e.g., high expedient help seeking and avoidance of help seeking), low engagement, and high destructive behaviors (Jones & Cooke, 2021; Kiefer & Ryan, 2008; Kiefer & Shim, 2016; Ryan et al., 1997).

2.3. The effect of communal goals

Communal goals refer to the goals focusing on helping others, serving the community, and contributing to societal betterment. In contrast to the often-negative associations observed with financial and status goals (commonly grouped as materialism), communal goals, are positively linked to various facets of well-being. These goals are sometimes referred to as prosocial goals, or intrinsic goals (Bergin, 2019; Chang et al., 2020; Duriez, 2011; Fiorito et al., 2021; King & Mendoza, 2021; Lekes et al., 2010; Ryan et al., 1996). Intrinsic goals are inherently rewarding and satisfy basic psychological needs such as autonomy, competence, and relatedness (Deci & Ryan, 2000) and include communal goals as well as self-acceptance goals, and affiliation goals.

Both communal and intrinsic goals have been positively related with well-being, life satisfaction, and happiness (Bergin, 2019; Lekes et al., 2010; Ryan et al., 1996). Furthermore, they exhibit positive associations with academic functioning, including academic achievement, prosocial behavior (e.g., cooperation with teachers), self-reported prosocial behaviors, and behavioral indicators of community involvement (Bergin, 2019; Fiorito et al., 2021; King & Mendoza, 2021). Importantly, these positive impacts of intrinsic/communal goals have been found to be cross-culturally applicable (King & Mendoza, 2021; Lekes et al., 2010; Ryan et al., 1996).

3. Self-determined motivation and academic engagement

Quality of motivation can be conceptualized and assessed in various ways within the framework of different motivational theories (Schunk et al., 2014). In this study, we adopt the self-determination theory (SDT) perspective, which assesses the quality of motivation based on the degree of self-determination. The SDT classifies motivation into six distinct categories: a) amotivation (indicating the absence of motivation), b) external motivation

(motivation driven by external rewards or avoidance of punishment), c) introjected regulation (motivation based on avoiding guilt or fulfilling a sense of obligation), d) identified regulation (motivation stemming from personal importance or value), e) intrinsic motivation (motivation driven by inherent enjoyment in a task) (see Deci & Ryan, 2000 for a comprehensive review).

Although some researchers differentiated all six categories, the current study focuses on three key distinctions: amotivation, controlled motivation, and autonomous motivation. The first category is amotivation representing a state in which an individual lacks any motivation to engage in a specific task. Amotivation has received less research attention compared to controlled versus autonomous motivation and sometimes treated as an outcome of different quality of motivation. Nevertheless, some studies have revealed links between amotivation and reduced academic engagement, heightened anxiety, distraction, and reduced satisfaction at school (Elphinstone & Farrugia, 2016; Howard et al., 2021; Ilter, 2021). Additionally, there is evidence suggesting that amotivation can serve as a modest mediator leading to reduction in psychological well-being (Lubans et al., 2016).

The second category is controlled motivation. In this form of motivation, individuals engage in tasks out of a sense of obligation, and the pressure to perform. Such feeling of obligation or pressure come either from external sources (e.g., fear of punishment or the prospect of tangible rewards) or internal sources (e.g., feelings of guilt or shame). They are distinct from truly autonomous motivation, as there is not a voluntary and intentional choice to pursue the task. Some prior studies have investigated external and introjected regulation separately (e.g., Elphinstone & Farrugia, 2016; Howard et al., 2021; Nishimura et al., 2013; Ratelle et al., 2007) and others have combined them into a controlled motivation (e.g., Bureau et al., 2022; Filak & Sheldon, 2008; Wang et al., 2019). However, in either case, these two types of motivation have consistently shown similar results: Both forms of controlled motivation are associated with unfavorable academic outcomes. Students characterized by introjected or external regulation tend to experience lower levels of energy, diminished enjoyment, and heightened levels of stress within the school environment (Elphinstone & Farrugia, 2016; Nishimura et al., 2013; Wang et al., 2019).

The last category is autonomous motivation. Intrinsic and identified regulation are collectively categorized as ‘autonomous motivation,’ and individuals displaying this type of motivation tend to experience higher levels of energy, enjoyment in school, enhanced

psychological well-being, and reduced academic stress and apathy (Deci & Ryan, 2000; Elphinstone et al., 2016; Nishimura et al., 2013; Wang et al., 2019). Studies that have measured these types of regulation individually (e.g., Elphinstone et al., 2016; Nishimura et al., 2013; Ratelle et al., 2007) and those that have employed combined measures of autonomous motivation (e.g., Bureau et al., 2022; Deci & Ryan, 2000; Filak & Sheldon, 2008; Wang et al., 2019) have consistently reported the benefits of these types of motivation. Few studies have reported the differences in the benefits of intrinsic, integrated, or identified regulation. For instance, identified regulation lacks the positive relationship with academic engagement that integrated and intrinsic regulation exhibit, while the propensity to engage in more meta-cognitive thinking and strategic approaches is associated primarily with intrinsic regulation and/or autonomous motivation as a singular measure (Elphinstone et al., 2016; Urban & Urban, 2023). However, these differences appear to be inconclusive and limited.

An extensive body of literature supports a similar continuum from controlled motivation to autonomous motivation, with varying levels of academic functioning and engagement. At the lowest end of the spectrum lies amotivation, characterized by a complete lack of motivation, which has been linked to higher levels of anxiety, distractions, dropout rates, and diminished satisfaction with the school experience (Elphinstone, 2016; Ratelle et al., 2007). Progressing up to controlled motivation (external and introjected), minimal improvements are observed. Students with controlled motivation tend to exhibit lower academic engagement (i.e., class participation), increased rates of anxiety, distractions, dropouts, academic pressure, and a diminished sense of value in school (Elphinstone, 2016; Ratelle et al., 2007; Wang et al., 2019).

Students with autonomous motivation (identified, integrated, and intrinsic) demonstrate higher levels of academic performance (e.g., grades and test scores), greater value in school, reduced dropout rates, lower anxiety, decreased academic pressure, and an inclination to engage in more complex and effortful cognitive processes (Deci & Ryan, 2000; Elphinstone, 2016; Filak & Sheldon, 2008; Wang et al., 2019). Furthermore, in addition to the numerous benefits for psychological well-being and academic performance, students with autonomous motivation have been linked to other positive outcomes, including increased engagement, creativity, performance, and persistence in the school environment (Connell & Wellborn, 1991; Grolnick et al., 1991; Koestner et al., 1984; Wang et al., 2022).

For outcomes of future life goals and quality of motivation, we focused on the high and low end of the engagement continuum: Burnout and vigorous engagement. Vigorous engagement is similar to flow (Csikszentmihalyi, 1990). However, flow refers to short-term peak experiences while vigorous engagement represents a more pervasive and persistent state of mind, characterized by high levels of energy and mental resilience while working. Thus, the selected outcomes in the present study are particularly relevant and provide valuable insights for understanding the individual differences in engagement of the students included in the current sample. These students are expected to invest long hours days in a highly competitive learning environment and may be particularly at a higher risk of experiencing burnout.

4. Investigating medical students' future life goals with an Asian sample

Understanding the future life goals of elite medical students within an Asian context holds significant importance. A medical career offers various rewards such as respect, status, intellectual accomplishment, and a sense of meaningfulness, making it an appealing field for individuals with diverse aspirations (Goel et al., 2018; Hassan et al., 2020). Investigating how students with varying aspirations perform academically upon entering a medical university becomes a pivotal question. This inquiry not only enhances our understanding of academic excellence among medical students but also draw practical implications for institutions responsible for educating future medical practitioners.

Through this research, we hope to offer new insights for educators who aim to nurture future medical professionals dedicated to serving the greater good. As such, the current study has a broader implication considering the societal benefits of cultivating medical professionals oriented toward pro-social communal goals, transcending the self-serving goals.

However, existing research primarily examining the impact of future life goals has predominantly focused on Western cultures. According to the social constructionist viewpoint, the context shapes the nature and effect of goals. Accordingly, it is unclear whether we can extend the findings obtained from the Western samples can be generalized to our sample (students attending an elite medical university). In collectivistic culture like China, life goals such as financial success, and social status may take different meanings,

leading to different consequences. This leaves us uncertain whether similar associations observed in Western contexts can be replicated in Eastern cultures. For example, the significance of financial goals may manifest differently in diverse cultural contexts, and the relationships between financial and status goals may differ in a Chinese population compared to a predominantly American population group.

Therefore, investigating future goals and their effects on academic motivation, and engagement is particularly relevant when studying university students in China who are constantly exposed to messages emphasizing the importance of financial security and social prestige.

5. The present study

The primary purpose of the current study is to examine the potential impact of students' future life goals on the quality of their academic motivation and engagement. Specifically, we aim to test the viability of a mediation model in which future life goals are related to the varying degrees of self-determined motivation (i.e., autonomous motivation, controlled motivation, and amotivation), which in turn affect the quality of engagement (i.e., vigorous engagement and burnout).

We hypothesized that the pursuit of financial goals will be associated with a low level of autonomous motivation and a high level of controlled motivation and amotivation, ultimately resulting in high burnout and low engagement in academic activities. In contrast, we expect that aspirations for social status will be positively related to high levels of controlled motivation and amotivation, leading to high levels of burnout and low academic engagement. Finally, we anticipate that the pursuit of communal goals as long-term life goals will be linked to high-quality academic motivation characterized by high autonomous motivation and low controlled motivation and amotivation, resulting in high academic engagement with low experiences of burnout.

Ⅲ. Method

1. Participants and procedure

The data were collected from a Medical University located in Northeastern China. A total of 308 students (64.7% female, mean age=20.8) participated in the study. These students were enrolled in the 7-year clinical medicine program at the Medical University, which has higher entrance exam score requirements and provides more intensive and extensive training aimed at producing surgical and medical doctors. Other medical programs in the same university requires 5 years to complete.

Upon obtaining permission from the instructors, we visited eight large lecture classrooms to administer the survey. Participants were informed that their participation was voluntary, and that no personally identifiable information would be collected. Almost all students present in the classrooms during the survey voluntarily participated. A small gift was given to randomly selected students at the conclusion of each session.

2. Measures

The initial items were presented in English and thus need to be translated into Chinese. In order to guarantee the accuracy of the translated measures, we adhered to a standard translation and back-translation procedure set forth by Hambleton and Patsula (1998) and Van de Vijver and Tanzer (2004). A 5-point Likert scale was used for all measures. Reliability coefficients for measures were calculated with the current sample, and all measures demonstrated acceptable reliability.

2.1. Future life goals

The students rated the importance of future life goals, drawn from Grouzet et al. (2005). The original scale included various life goals. For this study, we focused on three types of future life goals: financial success (e.g., “I will have enough money to buy everything I want”), social status (e.g., “I will be admired by many people”), and communal goals (e.g., “I will help the world become a better place”). Participants rated

the importance of these goals on a scale from 1 (not at all important) to 5 (very important). Following the suggestion of Kasser and Ryan (1996), we considered both the overall importance and relative centrality of individual goals by centering all variables based on the individual mean. Positive scores indicate a higher endorsement of a certain goal over others, while negative scores reflect a lower endorsement of a particular goal compared to others. The study's sample exhibited an acceptable Cronbach's α coefficients (.82 for financial goals, .78 for social status goals, and .84 for communal goals).

2.2. Self-determined motivation

We used the Academic Motivation Scale developed by Vallerand et al. (1989). We contextualized the measure by replacing the word "college" with "school (medical)". In this scale, intrinsic motivation and identified regulation, introjected regulation, external regulation, and amotivation were distinguished. A composite score of autonomous motivation (e.g., "For the pleasure that I experience in broadening my knowledge about subjects (medical) which appeal to me") was created by combining the scores of the two subscales of intrinsic motivation and identified regulation. A composite score of controlled motivation ("Because I want to show myself that I can succeed in my studies (medical)" was created by aggregating the scores of the introjected regulation and external regulation subscales. The sample item for amotivation includes "Honestly, I don't know; I really feel that I am wasting my time in school (medical)". The internal consistency coefficients for the scales were .92 for autonomous motivation, .80 for controlled motivation, and .75 for amotivation.

2.3. Vigorous engagement

The items were drawn from the Utrecht Work Engagement Scale (UWES) (Schaufeli et al., 2002). The scale comprises three sub-scales: vigor, dedication, and absorption. As these three sub-scales demonstrated a high level of correlation, a single work engagement composite score (e.g., "When I study, I feel like I am bursting with energy") was calculated. The Cronbach's α for the sample in the study was .94.

2.4. Burnout

We used two subscales from the Maslach Burnout inventory: Exhaustion and Cynicism

(Maslach & Jackson, 1981). The exhaustion subscale captures the extent to which students feel tired or used up, while the cynicism subscale taps the extent to which students lose interest in the material and doubt its usefulness. As these two subscales showed high correlation, we calculated a single composite burnout score (e.g., "I feel burned out from my studies"). The Cronbach's α for the sample in the study was .91.

3. Statistical analysis

Descriptive, reliability and correlational analyses were conducted using SPSS version 26.0. We employed path analysis to test the mediational model, utilizing Mplus 5.2 (Muthén & Muthén, 2007). Our study utilized individual mean-centered scores, calculated by subtracting the individual mean of three goals (financial goal, status goal, and communal goal) from each corresponding goal score. This approach considered the inherent nature of goal hierarchy within individuals, offering a nuanced understanding of the role of relative importance assigned to a particular goal in comparison to the importance of the other goals endorsed by each individual.

The Full Information Maximum-Likelihood (FIML) method was applied to address missing values, accounting for less than 2 percent of the dataset. Model fit was assessed following the recommendations of Hu and Bentler (1999), employing multiple fit indices such as the chi-square statistic, Comparative Fit Index (CFI) greater than .90, Tucker Lewis Index (TLI) greater than .90, Root Mean Square Error of Approximation (RMSEA) less than .08, and Standardized Root Mean Square Residual (SRMR) less than .08.

To determine the significance of the indirect effects of future life goals (classroom goal structure, personal goal orientation) on academic engagement and burnout through quality of motivation (autonomous motivation, controlled motivation, and amotivation), bootstrapping methods were employed. Bootstrapping, a resampling technique, facilitated the estimation of confidence intervals (CIs) for indirect effects. The 95% CIs represent a range within which we can be 95% confident that the true indirect effect lies. If the CI excludes zero, it signifies that the indirect effect is significant at the specified confidence level (typically $p<.05$).

Ⅳ. Results

The means and standard deviations, along with the zero-order correlations of the primary variables in the study, are presented in <Table 1>. For the descriptive statistics of the three goals (financial goal, status goal, and communal goal), we employed individual mean-centered scores. Both financial and social status goals showed negative means of -.19 and -.42, respectively, indicating that, on average, elite medical students in China tend to pursue both goals to a lesser extent than their personal mean across all three goals. In contrast, communal goals showed a positive mean of .20, surpassing the overall mean across the three types of life goals.

<Table 1> Descriptive statistics and Pearson's correlation coefficients of the main variables

	M	*SD*	1	2	3	4	5	6	7
1. Financial goal	-.19	.53	1						
2. Status goal	-.42	.53	.19**	1					
3. Communal goal	.20	.48	-.50**	-.45**	1				
4. Autonomous mot	3.18	.80	-.13**	.01	.16**	1			
5. Controlled mot	3.01	.73	.18**	.20**	-.17**	.43**	1		
6. Amotivation	2.07	.81	.12**	.06*	-.14**	-.46**	-.02	1	
7. Engagement	3.15	.74	-.17**	-.07*	.21**	.69**	.23**	-.38**	1
8. Burnout	2.31	.82	.23**	.10**	-.19**	-.42**	.07*	.62**	-.52**

* $p<.05$, ** $p<.01$.
Note. mot=motivation; Engagement=Vigorous Engagement

The correlation patterns among variables aligned consistently with theoretical predictions. First, results on the relationships among the three goals showed that financial goals exhibited a positive correlation with status goals (r=.19, $p<.01$), while communal goals displayed a negative correlation with both financial (r=-.50, $p<.01$) and status goals (r=-.45, $p<.01$). Second, concerning the relationship between future life goals and quality of motivation, autonomous motivation exhibited a negative correlation with financial goals (r=-.13, $p<.01$) but positive correlation with communal goals (r=.16, $p<.01$). Conversely, controlled motivation positively correlated with both financial (r=.18, $p<.01$) and status goals (r=.20, $p<.01$) but negatively correlated with communal goals (r=-.17, $p<.01$). Third, regarding the relationship with engagement and burnout as academic outcomes, engagement demonstrated a negative correlation with financial (r=-.17, $p<.01$) and status

goals (r=-.07, p<.05) as well as amotivation (r=-.38, p<.01), while it showed a positive correlation with communal goals (r=.20, p<.01) and autonomous (r=.69, p<.01) and controlled motivation (r=.23, p<.01). Opposite patterns were observed for burnout.

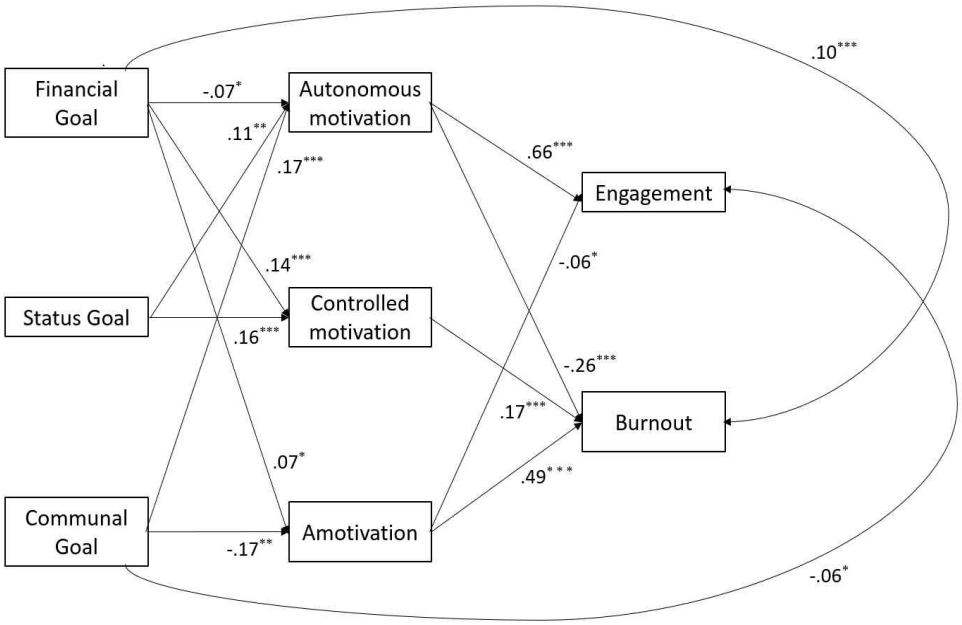
Path analyses were conducted to explore the relationships among future life goals, quality of motivation (i.e., autonomous motivation, controlled motivation, and amotivation), and vigorous engagement and burnout. The path model showed a strong fit to the data with the following fit indices: χ^2 (df=2)= 4.71, p>.05, CFI=.99, TLI=.98, RMSEA=.03, SRMR=.01. The path coefficients are presented in [Figure 1].

Regarding the association between future life goals and quality of motivation, the results revealed that a financial goal had a negative association with students' autonomous motivation (β=-.07, p<.05), while it showed positive associations with controlled motivation (β=.14, p<.001) and amotivation (β=.07, p<.05). In contrast, a social status goal was positively associated with both autonomous motivation (β=.11, p<.01) and controlled motivation (β=.16, p<.001). A communal goal was positively associated with autonomous motivation (β=.17, p<.001), while it was negatively associated with amotivation (β=-.11, p<.01).

As for the relationship between quality of motivation and academic engagement, autonomous motivation displayed a positive association with academic engagement (β=.66, p<.001) but a negative correlation with burnout (β=-.26, p<.001). Conversely, controlled motivation was only positively related to burnout (β=.17, p<.01). Amotivation exhibited a negative association with engagement (β=-.06, p<.05) and a significant positive association with burnout (β=.49, p<.01). Concerning the relationship between life goals and academic engagement, two direct relationships were observed between financial goal and burnout (β=.10, p<.001), and between communal goal and engagement (β=-.06, p<.05).

To assess the indirect effect of the quality of motivation on the relationship between future life goals and academic engagement, bootstrapping analyses with 5,000 bootstrap resamples were conducted. The 95% confidence intervals that do not include zero suggested that the indirect effects were statistically significant. The results indicated significant indirect effects of financial goals on burnout through controlled motivation (β=.02, 95% CI [.005, .03]). Additionally, social status goals demonstrated a significant indirect effect on academic engagement through both autonomous motivation (β=.03, 95% CI [.02, .05]), while it showed a significant indirect effect on burnout through controlled

motivation (β=.02, 95% CI [.02, .04]). Communal goals exhibited an indirect effect on academic engagement through autonomous motivation (β=.03, 95% CI [.01, .05]), while it demonstrated a significant indirect effect on burnout through amotivation (β=-.03, 95% CI [.01, .06]). These findings underscore the nuanced mediating pathways through which the quality of motivation influences the impact of future life goals on academic engagement and burnout.



〔Figure 1〕. Path analysis results on the relationships among future life goals, self-determined motivation and academic engagement

*** p<.001, ** p<.01, * p<.05
Note. Engagement=Vigorous Engagement

Ⅴ. Discussion

Previous research has demonstrated the importance of future life goals on a university student's physical and mental well-being while its implications on academic functioning have remained underexplored. The present study extends the existing research by exploring the influence of future life goals on academic functioning (particularly focusing on the

quality of engagement and burnout) as mediated by the quality of academic motivation (self-determined motivation). The present findings offer valuable insights, especially considering the intense performance expectations placed on medical students, whether imposed externally or self-assumed, within the competitive environment of a medical university. In this discussion section, we will discuss the main findings, their implications, and potential limitations of the study.

1. The relationship between life goals and self-determined motivation

As we proposed, our findings affirms the importance of future life goals for the present motivation and engagement: Future life goals significantly influence the quality of university students' academic motivation, subsequently, academic outcomes. The data showed that financial goals were associated with higher levels of controlled motivation and amotivation, but lower levels of autonomous motivation. These findings suggest that students pursuing financial success tend to be less self-determined in their academic endeavors.

While previous research suggested the similarly maladaptive nature of social status-oriented goals (Kasser, 2016; Kasser & Ryan, 1996), the current data demonstrated a rather complex function of these goals. It is intriguing to find that status goals were positively linked to both autonomous and controlled motivation. Students aspiring for social status, fame, and popularity exhibit a mix of intrinsic and extrinsic motivation. The current results suggest that examining the effects of financial and social status goals separately might be fruitful when examining the individuals from a culture where social relationships and saving face are emphasized.

As we predicted and in line with prior research, communal goals were associated with higher autonomous motivation and diminished amotivation. This suggests that students who prioritize communal goals tend to adopt a more self-determined approach to their academic endeavor. This means that these students are more likely to enjoy learning process for its own sake. Thus, the importance of fostering community-based goals in our students becomes evident. It is imperative that future doctors aspire to contribute to the betterment of the community.

Examining the three distinct types of life goals (financial success, social status, and

communal goals) enabled us to develop a deeper understanding of how individuals' long-term future goals serve as a high level motivation for academic pursuits of university students.

2. The relationship of self-determined motivation with engagement and burnout

Our study highlights the significant impact of academic self-determined motivation on engagement and burnout, supporting the well-established relationship among these variables. Autonomous motivation demonstrated a robust positive association with academic engagement and a negative association with burnout. This implies that students with a higher level of self-determined motivation tend to engage more actively in their academic pursuits without putting them at risk for burnout. On the other hand, students driven by controlled motivation, characterized by external pressures or obligations, tend to be more susceptible to experiencing burnout in their academic endeavors. Moreover, amotivation, characterized by disinterest or lack of motivation, leads to decreased engagement in academic activities and an increased likelihood of experiencing burnout.

Our findings align with existing literature, reinforcing the positive role of autonomous motivation and highlighting the detrimental effects of controlled motivation and amotivation (Deci & Ryan, 2000). These results provide further support for the tenets of the self-determination theory. Consequently, emphasizing the cultivation of autonomous motivation while diminishing controlled motivation and amotivation among students becomes imperative to enhance academic engagement and alleviate burnout. Educators can foster autonomous motivation by emphasizing the value and relevance of the curriculum, encouraging self-directed learning, and providing opportunities for students to explore their interests within the academic context.

3. Examining the mediation model

Examining the mediation path model sheds light on the nuanced relationships that influence academic engagement and burnout. The results of the study reveal that elite medical students driven by financial success might face an increased risk of burnout and these relationship can be explained by the mediating role of controlled motivation in

academic pursuits. This highlights the importance of addressing the unique challenges faced by students pursuing financial success to prevent burnout.

Furthermore, the pursuit of social status goals positively influences academic engagement through heightened autonomous motivation. However, the study also indicates a potential downside, as the pursuit of social status goals may contribute to burnout through increased controlled motivation. This dual influence highlights the complex dynamics within these goals.

In contrast to social status goals, students valuing communal service exhibit increased academic engagement and diminished burnout through the mediating effects of autonomous motivation and amotivation, respectively. This suggests that valuing communal service might enhance academic engagement through increased autonomous motivation while minimizing burnout due to reduced amotivation. Therefore, the mediation model unequivocally illustrates the advantages of fostering prosocial life goals and high quality motivation, manifesting in a sustained and energized pattern of academic engagement and lower levels of burnout.

By identifying mediating pathways, it emphasizes the need for tailored support aligned with students' future life goals. Educators, policy makers, and institutions can benefit from recognizing the diversity of students' future life goals, allowing for targeted interventions that foster autonomous motivation, mitigate burnout, and enhance overall academic engagement. This study serves as a foundation for future research exploring these dynamics across diverse cultural contexts.

4. Implications and limitations

This study enriches the academic motivation literature by emphasizing the significance of individual future life goals. Recognizing these aspirations and their impact on motivation and outcomes allows educational institutions to better support students and reduce burnout risk. Understanding the cognitive and motivational nature of goals is crucial for developing effective educational experiences and interventions. The study aligns with prior research emphasizing the positive implications of intrinsic value for student well-being and academic functioning (Bergin, 2019; Fiorito et al., 2021; King & Mendoza, 2021; Lekes et al., 2010; Ryan et al., 1996).

Despite its contributions, this study has inherent limitations that should be considered. First, the cross-sectional nature of the study does not allow causal relationships to be established between the variables studied. It is necessary to investigate the causal order between these variables through more rigorous study designs, such as longitudinal studies. Second, the sample consisting mainly of Chinese elite medical students limits the generalizability of the results. Future studies should ensure a more diverse sample in terms of culture and degree type. The impact of differing cultural values on students' future life goals should be further investigated, and future work should explore the influence of unexamined variables, such as previous academic performance and socioeconomic status. Acknowledging these limitations, further research can enhance the understanding of these complex relationships among university students.

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