sustainability

MDPI

Article

Effect of Work Values on Miners' Safety Behavior: The Mediating Role of Psychological Empowerment and the Moderating Role of Safety Climate

Tiehua Chen [1], Wenyi Hu [1,*], Jingpin Liu [1] and Hongxia Li [1,2,3,*]

[1] School of Management, Xi'an University of Science and Technology, Xi'an 710054, China; guanli001@xust.edu.cn (T.C.); 19202217022@stu.xust.edu.cn (J.L.)
[2] Institute of Safety Management & Risk Control, School of Safety Science and Engineering, Xi'an University of Science and Technology, Xi'an 710054, China
[3] Institute of Safety & Emergency Management, School of Safety Science and Engineering, Xi'an University of Science and Technology, Xi'an 710054, China
* Correspondence: 20202230101@stu.xust.edu.cn (W.H.); lihx@xust.edu.cn (H.L.); Tel.: +86-157-3601-0778 (W.H.); +86-152-9159-9962 (H.L.)

Abstract: Although numerous studies have confirmed the important influence of values on employees' behavior, less is known about the relationship between work values and miners' safe behavior. Based on self-verification theory and trait activation theory, this study constructed a structural equation model to explore the effect of work values on miners' safety behavior, using psychological empowerment as a mediating variable and safety climate as a moderating variable. Data were collected from 207 miners in three coal mines in China. The model was examined using a hierarchical regression analysis and the bootstrapping method. The results showed that three types of work values significantly and positively predicted miners' safety behavior, and psychological empowerment mediated the relationship between work values and miners' safety behavior. However, the moderating role of safety climate was not supported. The results enrich the boundary conditions under which work values influence miners' safety behavior and provide coal managers with intervention measures such as cultivating miners' work values and psychological empowerment, which can improve miners' safety behavior.

Keywords: work values; safety behavior; psychological empowerment; safety climate

check for updates

Citation: Chen, T.; Hu, W.; Liu, J.; Li, H. Effect of Work Values on Miners' Safety Behavior: The Mediating Role of Psychological Empowerment and the Moderating Role of Safety Climate. *Sustainability* **2022**, *14*, 9553. https://doi.org/10.3390/su14159553

Academic Editor: Ermanno C. Tortia

Received: 10 June 2022
Accepted: 1 August 2022
Published: 3 August 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

According to related studies, mismanagement, defective design, and deliberate violation by miners can cause serious coal mine fatalities and injuries [1]. It is worth noting that the front-line miners' behavior can directly affect coal mine safety production [2]. Previous studies have confirmed that miners' behavior is governed by both external factors (work environment and organizational management) and internal factors (personal traits and psychological state) [3]. Particularly, managers with primary power play a key role in shaping and encouraging miners' behavior. However, external factors often do not directly affect miners' behavior, but rather influence miners' behavior by affecting their psychology [4]. Therefore, it is necessary to explore the factors that influence miners' safety behavior at the individual level to help managers take countermeasures to improve safety behavior.

Personal traits are significant internal factors affecting the behavioral choice of miners [3]. Work values are the personal traits expressed by employees at work, reflecting their inner needs and value orientation, and serving as the value criteria for judging work behaviors [5]. The self-verification theory states that individuals choose behaviors that are aligned with their self-concept in order to maintain self-consistency [6]. Work values belonging to individual self-concept have an impact on miners' work behavior [7–9]. Previous studies

have confirmed the positive effect of some dimensions of new generation miners' work values on safety performance [10]. Additional research on the relationship between other dimensions of work values and miners' safety behavior is to be added. In view of this, this study intends to further explore the in-depth impact mechanisms of work values on miners' safety behaviors.

According to the self-verification theory [6], individuals are more interested in information that is aligned with their self-concept and reinforce it by integrating and extracting such information to enhance their sense of control over the outside world. Psychological empowerment is the employees' positive psychological perception after being empowered at work and is a continuous work motivation [11]. Work values are concerned with comfort, independence, and growth at work [5], and psychological empowerment focuses on self-efficacy, work meaningfulness, autonomy, and the influence of work [11]. There are similarities in terms of content between the two. Therefore, individuals can reinforce psychological empowerment when they integrate and internalize relevant information based on work values, which means that work values can promote psychological empowerment. Similarly, work values can guide individuals' work behavior, and psychological empowerment, which is similar in content to work values, can also influence individuals' work behavioral choices. Previous studies have verified that work values promote employees' psychological cognitions [12–14], and employees are motivated by psychological empowerment to choose behaviors that are beneficial to the organization [15–17]. However, few scholars have explored the mediating role of psychological empowerment between work values and safety behavior. Thus, this study constructs a mediating model based on psychological empowerment, to explore the influence of work values on miners' safety behavior.

Safety climate is a perceptible situational factor that reflects the safety conditions of work environment and the organization's attention to safety [18,19]. According to the trait activation theory, when a situational factor matches a personal trait, it reinforces the influence of that trait on the behavior in question; conversely, it weakens that influence [20–22]. Safety climate has a positive effect on employees' safety behavior [23,24], which is consistent with work values. In view of this, this study explores the moderating role of safety climate in the relationship between work values and miners' safety behavior. Given the similarities in content between work values and psychological empowerment, safety climate is considered to serve as a moderator in the influence of psychological empowerment on miners' safety behavior. Previous research has confirmed that safety climate has an indirect effect on individual behavior through the interaction with individual psychological perceptions [25,26]. At present, little is known about whether the safety climate can moderate the relationship between psychological empowerment and safety behavior. Therefore, it is necessary to explore the moderating role of safety climate between psychological empowerment and miners' safety behavior.

In summary, based on self-verification theory and trait activation theory, this study develops a structural equation model with psychological empowerment as a mediating variable and safety climate as a moderating variable to reveal the impact mechanism of work values on miners' safety behavior, and enrich the related research on work values and miners' safety behavior.

2. Theoretical Background and Hypotheses Formulation

2.1. Work Values and Miners' Safety Behavior

Work values are the inner scale for employees to measure work behaviors and work results, which affect their goal pursuit, attitude tendency and behavior performance at work, including the three dimensions of comfort and security, status and independence, and competence and growth [5,27]. Comfort and security work values mean that employees pay attention to the comfortable working environment and good interpersonal relationships and pursue work balance and job security. Status and independence work values mean that employees hope to receive promotion and salary increases and obtain certain work

power and respect. Competence and growth work values mean that employees focus on the improvement of their work ability and pursue the realization of self-worth [27]. Safety behavior is an important indicator to measure the safety performance of an enterprise, which consists of safety compliance and safety participation [28]. Safety compliance includes employees' compliance with corporate regulations and discipline, operating in accordance with the work requirements and being equipped with protective devices, etc. Safety participation refers to actively helping colleagues, communicating with superiors, and giving suggestions to the organization, etc.

According to the self-verification theory, individual self-concept can predict individual behavior [6]. Work values are the core part of an individual's self-concept, which can guide individual behavior and decision making at work [5,29]. Zhang and Li [8] have proved the negative correlation between work values of the new generation of coal mine employees and unsafe behavior. Taking the new generation of miners as the research subjects, Na and Li [10] have verified that work values have a significant positive impact on safety performance. Therefore, we believe that the three dimensions of work values, comfort and security, status and independence, and competence and growth, have an impact on miners' safety behavior.

Different work values guide different behavior. In general, employees with comfort and security work values usually pursue a comfortable and stable working state, tend to choose defense decisions, do not consider tasks outside their own work scope, and thus inhibit extra-role behaviors [30,31]. However, the coal industry is a high-risk industry, and miners' misconduct and irregularities can cause major accidents, which in turn can affect the steady state that miners expect. Therefore, miners who value comfort and security proactively exhibit more safety behaviors to maintain a safe working environment, such as reducing fluke, concentrating on work, and following safety regulations, etc. Miners with status and independent work values seek respect and autonomy and pay attention to promotion and salary increase, which requires them to perform their duties well and create value for the coal mine, so as to obtain the recognition and favor of leaders. In other words, miners with a strong preference for status and independence tend to choose safety behaviors at work, which is not only conducive to their own development, but also contributes to the organization. High-risk industries require employees not only to pay attention to safety psychologically, but also to maintain safety with their physical behavior. Therefore, miners should have the ability to operate equipment proficiently, solve potential safety hazards in time, and provide effective suggestions. Miners with competency and growth work values focus on development and not only have a more positive mindset, but also consciously enhance safety awareness, invest time and energy in learning safety knowledge and safety skills, and improve their pressure resistance and adaptability. To sum up, good work values help miners to improve their level of safety behavior. Therefore, the following hypotheses are proposed:

Hypothesis 1 (H1). *Work values positively influence miners' safety behavior.*

Hypothesis 1a (H1a). *Comfort and security work values positively influence miners' safety behavior.*

Hypothesis 1b (H1b). *Status and independence work values positively influence miners' safety behavior.*

Hypothesis 1c (H1c). *Competence and growth work values positively influence miners' safety behavior.*

2.2. Work Values and Psychological Empowerment

Psychological empowerment refers to employee's overall perception of work experiences, including the perception of self-efficacy, work meaningfulness, autonomy and the influence of work [32]. Self-efficacy refers to the employee's confidence in their ability

to get the job done; work meaningfulness means that the employee's work is consistent with his or her values; autonomy refers to the employee's power to control their work autonomously; and the influence of work refers to the influence of the employee's working behavior on organizational performance, management and operation.

The self-verification theory holds that individuals are more interested in the information that is unified with their self-concept, and selectively integrate and extract the information, thereby strengthening their self-concept [6]. Psychological empowerment and work values have similarities in structure and content. Thus, psychological empowerment is enhanced when individuals reinforce their work values. Individuals prefer to choose the type of work that is consistent with their work values, and thus are more likely to feel satisfaction and work meaningfulness. In addition, miners with comfort and security work values are concerned about safety measures and, therefore, are familiar with the safety situation in the coal mine and show greater control in their work. To create a comfortable and safe working environment, they will proactively acquire the knowledge and skills, and thus have more ability and confidence to deal with potential hazards. Miners who seek status and independence must produce excellent work results to gain opportunities for development. In the process, miners gradually increase their perceived self-efficacy. Miners who have been successfully promoted can obtain more autonomy and feel more work meaningfulness. Miners who pay attention to competence and growth are willing to make more efforts to improve their working ability and feel work meaningfulness through completing their work. They also have a high sense of self-efficacy [33] and are convinced that their words and deeds can benefit the organization in many ways. Therefore, work values contribute to the improvement of miners' psychological empowerment.

Chen and Yan [34] believed that work values contain three dimensions of comfort and security, status and independence, and competence and growth. Their study with new generation employees confirmed that work values and psychological empowerment are positively related. Generally speaking, individuals with strong work values have a higher level of psychological empowerment and those with weaker work values have a lower level of psychological empowerment [14]. In summary, this study argues that psychological empowerment as a subjective perception is influenced by work values. Therefore, the following hypotheses are proposed:

Hypothesis 2 (H2). *Work values positively influence psychological empowerment.*

Hypothesis 2a (H2a). *Comfort and security work values positively influence psychological empowerment.*

Hypothesis 2b (H2b). *Status and independence work values positively influence psychological empowerment.*

Hypothesis 2c (H2c). *Competence and growth work values positively influence psychological empowerment.*

2.3. Psychological Empowerment and Miners' Safety Behavior

Psychological empowerment is the intrinsic motivation for individuals to work spontaneously and continuously [35]. Shi et al. [36] stated that psychological empowerment positively promotes miners' safety behavior. Bian et al. [17] explored the influence of transactional leadership on safety behavior and found a mediating role of psychological empowerment between them—that is, psychological empowerment was positively related with safety behavior. Ford and Tetrick [37] proposed that psychological empowerment promotes employees' use of personal protective equipment and safety participation. These studies validated that employees' psychological empowerment contributes to their safety behaviors.

The higher the psychological empowerment, the stronger the intrinsic motivation of the employees, and this motivation is the source of their active work [38]. On the one hand, psychological empowerment promotes the safety compliance of miners. Miners with strong psychological empowerment have a strong sense of work meaningfulness and believe that their work behaviors are beneficial to the organization, so they can set an example and consciously follow the rules and regulations [39]. On the other hand, psychological empowerment promotes miners' safety participation. Miners with strong psychological empowerment are confident and motivated to work and take the initiative to contribute to organizational safety, such as learning safety knowledge and skills, attending safety training, and providing safety suggestions. Based on the above analysis, the following hypotheses is proposed:

Hypothesis 3 (H3). *Psychological empowerment has a positive effect on miners' safety behavior.*

2.4. The Mediating Role of Psychological Empowerment

Psychological empowerment is often used as a mediator that plays a critical bonding role. It is an important psychological variable that explains the relationship between leadership and employees' behaviors [40,41]. Shi et al. [36] showed that psychological empowerment has a fully mediating effect between safety culture and safety behavior. Most studies have explored psychological empowerment from an external situational perspective, ignoring the influence of personal traits on psychological empowerment. Work values are defined as the beliefs that individuals develop at work. Employees usually make mental judgments about behaviors, etc., at work based on their work values, and then react accordingly. According to Chen and Yan [34], work values of new generation employees are positively related to psychological empowerment, and psychological empowerment positively affects employees' work performance. Hou et al. [14] verified the mediating role of psychological empowerment in the relationship between new generation employees' work values and their deviant innovation behavior. Therefore, this study speculates that psychological empowerment plays a mediating role between work values and miners' safety behavior.

Different work values of miners lead to different results in judging the work content, which then affects the behavioral performance of miners. Miners who aspire to comfort and security work hard to achieve the desired working conditions, and psychological empowerment is subsequently enhanced, which in turn increases safety behavior. Miners who value status and independence are more invested in their work and receive more in return from the organization. As a result, they have a high level of psychological empowerment that increases safety behaviors. Miners who focus on competency and growth put a lot of time and effort into growing professionally, thus having a high level of psychological empowerment and actively choosing safety behaviors. Combining H2 and H3, this study concludes that positive work values can positively increase miners' safety behavior via psychological empowerment. Based on the above analysis, the following hypotheses are proposed:

Hypothesis 4 (H4). *Psychological empowerment mediates the relationship between work values and miners' safety behavior.*

Hypothesis 4a (H4a). *Psychological empowerment mediates the relationship between comfort and security work values and miners' safety behavior.*

Hypothesis 4b (H4b). *Psychological empowerment mediates the relationship between status and independence work values and miners' safety behavior.*

Hypothesis 4c (H4c). *Psychological empowerment mediates the relationship between competence and growth work values and miners' safety behavior.*

2.5. The Moderating Role of Safety Climate

Safety climate reflects the organizational safety situation and can influence employees' work attitude and behavior [18]. Previous research has confirmed that safety climate often serves as a moderator between psychological perceptions and individual behavior, and personal traits and individual behavior. Xu et al. [42] argued that the civil aviation pilots' calling for work is positively related to their safety citizenship behavior, and safety climate positively reinforces this relationship. Gao et al. [43] confirmed that safety climate significantly moderated the negative relationship between negative emotions and the safety performance of construction workers. Based on social cognitive theory, Sun and Ren [44] confirmed that employees' bottom-line mentality has a significant positive impact on safety behavior and safety climate plays an important moderating role in this relationship. According to Kou and Huang [45], innovative climate positively moderates the relationship between work values (organizational support, relationship) and innovation performance. Zhang and Li [8] explored the impact of work values of new generation miners on unsafe behavior. The results showed that organizational culture plays a moderating role between them. Safety climate is the specific expression of safety culture in a certain period of time, and the two share similarity. Therefore, we conclude that the influence of both psychological empowerment and work values on miners' safety behavior is moderated by the safety climate.

According to trait activation theory, a personal trait is the basis for a particular behavior and the environment is the trigger for that particular behavior [21]. When individuals are exposed to situations that support the formation and expression of personal traits, they are more likely to adopt behaviors that are consistent with these traits; conversely, related behaviors are limited. This means that safety climate, as a perceptible situational factor, influences the relationship between work values and safety behavior. Likewise, because of the similarity in content between psychological empowerment and work values, the relationship between psychological empowerment and safety behavior should be moderated by safety climate.

A good safety climate indicates that the work environment is safe enough and the leaders take safety seriously enough [18]. Such a safety climate ensures that miners feel secure, exercise their abilities and are given the opportunity to develop, which in turn strengthens their work values and psychological empowerment, and stimulates them to demonstrate more safety behaviors. In addition, in the high-level safety climate, miners can develop stronger perceived organizational support and organizational identity, then engage in production with more positive attitudes and behaviors. Even if miners lack positive work values and strong psychological empowerment, they still increase safety behavior [46]. Conversely, a low-level safety climate can diminish the positive impact of work values and psychological empowerment on miners' safety behavior. Miners do not easily feel the support and recognition that is given by the organization in the safety climate and can suffer from negative emotions such as frustration, anxiety and worry, which can interfere with their judgments. Due to being in a team filled with negative emotions for a long time, even if miners have positive work values and strong psychological empowerment, they ignore safety issues and reduce safety behaviors. Therefore, we conclude that both work values and psychological empowerment contribute to the formation of miners' safety behavior, and safety climate moderates these two relationships. Based on the above analysis, the following hypotheses are proposed:

Hypothesis 5 (H5). *Safety climate plays a moderating role between work values and miners' safety behavior.*

Hypothesis 6 (H6). *Safety climate plays a moderating role between psychological empowerment and miners' safety behavior.*

The hypothetical model of this study is shown in Figure 1.

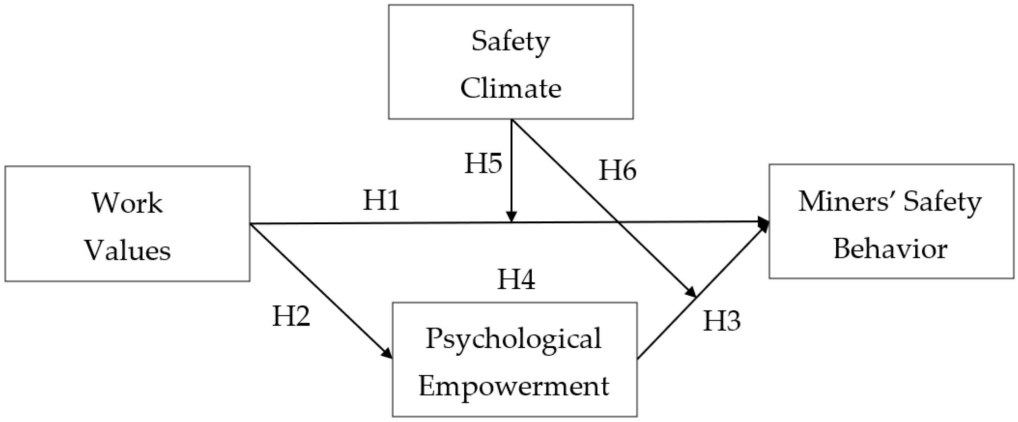


Figure 1. Hypothetical model.

3. Materials and Methods

3.1. Participants and Procedure

Data were collected from front-line miners in coal mines by means of on-site questionnaires. Considering the differences in size and capacity of each coal mine, three representative coal mines located in Yulin City and Xi'an City were selected for this study to reflect the characteristics of most coal miners. A preliminary survey was conducted before the formal survey. A total of 134 questionnaires were collected in the preliminary survey; 126 valid questionnaires were obtained after excluding invalid questionnaires, with the satisfactory response rate of 94.03%. According to the analysis of the preliminary survey data, some items were modified and deleted to obtain a clearer and more reliable formal questionnaire. The formal survey was conducted from September to November in 2021. Before the questionnaire was distributed, the respondents were informed in advance that the research data were for academic research only. To ensure the quality of the data analysis and research results, invalid questionnaires with missing options and more than 10 consecutive same options were excluded. Finally, 207 valid questionnaires were obtained, and the satisfactory response rate was 85.89%. The demographic variable data are shown in Table 1.

Table 1. Demographic characteristics of the respondents (N = 207).

Characteristics	Items	Number	Percentage (%)
Marriage	Married	32	15.5
	Unmarried	163	78.7
	Others	12	5.8
Age (year)	≤25	27	13
	26–30	43	20.8
	31–35	44	21.3
	36–40	43	20.8
	>40	50	24.2
Educational Level	Junior high school or below	39	18.8
	High school or technical secondary school	86	41.5
	Junior college	44	21.3
	Undergraduate or above	38	18.4
Work experience (year)	<1	31	15
	1–5	60	29
	6–10	44	21.3
	>10	72	34.8

3.2. Measures

Except for the control variables, each variable was measured using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2.1. Work Values

To assess the work values of miners, we adopted an 18-item scale from Meyer et al. [27]. The scale consisted of three dimensions: comfort and safety, status and independence, and competence and growth. Sample items included: "Regular working hours and locations" and "Miners have the opportunity to get a pay raise". In order to ensure the reliability of the data, the scale was translated using the "translation-back-translation" method. Cronbach's alpha of the scale was 0.880.

3.2.2. Psychological Empowerment

To more accurately measure the employees' psychological empowerment in the Chinese cultural context, Li et al. [47] adapted the psychological empowerment scale of Spreitzer [32]. The 12-item scale, adapted from Li et al. [47], was used to measure the psychological empowerment of miners in four dimensions: work meaningfulness, autonomy, self-efficacy and the influence of work. Sample items included: "I am very confident in my ability to work" and "My work is significant to the mine and to myself". Cronbach's alpha of the scale was 0.756.

3.2.3. Safety Climate

Safety climate is a perceptible situational factor for individuals. Thus, the 22-item scale that was developed from miners' perspective by Zhuang [48] was used to measure the safety climate. The scale consisted of six dimensions: safety incentive, risk preparedness, safety training, systems and norms, safety communication, and safety awareness, with items such as "Relevant safety training is provided by the mine" and "The mine has developed a detailed counter-measure to unexpected risks". Cronbach's alpha of the scale was 0.883.

3.2.4. Miners' Safety Behavior

To measure miners' safety behavior, we used an 8-item scale from Neal and Griffin [28]. The scale was divided into two dimensions: safety compliance and safety participation. Sample items included: "I will take the initiative to help workers solve problems at work" and "I will abide by the rules and regulations of the mine". Cronbach's alpha of the scale was 0.915.

3.3. Common Method Variance

The study data were obtained by the self-reported survey, which may lead to a common method variance problem [49]. Harman's single-factor analysis was used to test common method variance. An exploratory factor analysis was performed on all variables using SPSS 23.0 software, Chicago, IL, USA. The results showed that the first factor explained 25.132% of the total variance, which was below 40%. Therefore, the common method bias was not serious and the negative impact on the analysis results could be excluded.

3.4. Analysis Strategy

SPSS 23.0 and Amos 22.0 software, Chicago, IL, USA were used to analyze the data. Firstly, Cronbach's alpha coefficients were calculated to assess the internal consistency of each scale, and a Harman single-factor analysis was used to measure the common method bias. In addition, descriptive statistics and a correlation analysis were performed, and a confirmatory factor analysis (CFA) was carried out to assess the validity of the model [50]. Finally, to test the direct and moderating effects, a hierarchical regression analysis was used to estimate the path coefficients of the structural equation model. The

deviation-corrected percentile bootstrap method was also used to test the mediating role of psychological empowerment.

4. Results

4.1. Reliability and Validity Test

To measure the model's goodness of fit, CFI, TLI, RMSEA, and SRMR indices were obtained by four CFAs in MPLUS 8.0 software, and the results were shown in Table 2. All the indices reached acceptable levels, except for the RMSEA value for competence and growth work values and safety behavior, which did not meet the criteria of less than 0.08 (see Table 2). Therefore, the construct validity of the model was good. The construct reliability (CR) and average variance extracted (AVE) were used to examine the convergent validity of the model [51]. As shown in Table 2, the CR values for the three dimensions of work values and the other three variables were all greater than 0.7. The AVE value for status and independent work values was 0.498, slightly less than 0.5, but within the acceptable range. The AVE values for the other two dimensions of work values and the other three variables were all greater than 0.5. Therefore, each variable had good convergent validity.

Table 2. Results of convergent validity test.

Construct		CR	AVE	CFI	TLI	RMSEA	SRMR
WV	C & S	0.867	0.568	0.992	0.984	0.059	0.020
	S & I	0.831	0.498	0.994	0.989	0.043	0.020
	C & G	0.920	0.594	0.900	0.861	0.160	0.052
PE		0.932	0.533	0.972	0.962	0.045	0.043
SC		0.969	0.590	0.925	0.910	0.066	0.056
SB		0.934	0.640	0.953	0.931	0.106	0.046

Note: WV = work values, C & S = comfort and security, S & I = status and independence, C & G = competence and growth, PE = psychological empowerment, SC = safety climate, SB = safety behavior.

Descriptive statistical results, including the means and standard deviations of each variable, and the correlation coefficient among four variables, are presented in Table 3. As shown in Table 3, the three dimensions of work values (comfort and security, status and independence, and competence and growth) were positively related to safety behavior ($r = 0.238$ **, $p < 0.01$; $r = 0.190$ **, $p < 0.01$; $r = 0.410$ **, $p < 0.01$). The three dimensions of work values (comfort and security, status and independence, competence and growth) were positively related to psychological empowerment ($r = 0.347$ **, $p < 0.01$; $r = 0.402$ **, $p < 0.01$; $r = 0.521$ **, $p < 0.01$). The three dimensions of work values (comfort and security, status and independence, competence and growth) were positively related to safety climate ($r = 0.379$ **, $p < 0.01$; $r = 0.255$ **, $p < 0.01$; $r = 0.477$ **, $p < 0.01$). Psychological empowerment was positively related to safety climate ($r = 0.535$ **, $p < 0.01$) and safety behavior ($r = 0.421$ **, $p < 0.01$). Safety climate was positively related to safe behavior ($r = 0.695$ **, $p < 0.01$). Moreover, the three dimensions of work values are related in pairs. Specifically, comfort and security work values were positively related to status and independence work values ($r = 0.256$ **, $p < 0.01$); comfort and security work values were positively related to competence and growth work values ($r = 0.267$ **, $p < 0.01$); status and independence work values were positively related to competence and growth work values ($r = 0.272$ **, $p < 0.01$).

The discriminant validity was tested by comparing the square root of AVE and the correlation coefficient. The results are shown in Table 4. The diagonal values were the square root of AVE, and the remaining values were the correlation coefficients. If each value on the diagonal is greater than the values of the row and column in which it is located, each two-variable has good distinguishing validity. According to Table 4, the square root value of each AVE on the diagonal was more than 0.7, which was higher than all correlation coefficients, indicating that the four variables have good discriminant validity.

Table 3. Results of descriptive statistics and correlation analysis.

Construct	1	2	3	4	5	6
1. C & S	1					
2. S & I	0.256 **	1				
3. C & G	0.267 **	0.272 **	1			
4. PE	0.347 **	0.402 **	0.521 **	1		
5. SC	0.379 **	0.255 **	0.477 **	0.535 **	1	
6. SB	0.238 **	0.190 **	0.410 **	0.421 **	0.695 **	1
Mean	2.416	2.489	2.357	2.403	2.256	2.222
SD	0.896	0.844	0.829	0.537	0.599	0.741

Note: SD = standard deviation; ** $p < 0.01$.

Table 4. Results of discriminant statistics validity test.

Construct	1	2	3	4	5	6
1. C & S	0.745					
2. S & I	0.256	0.706				
3. C & G	0.267	0.272	0.771			
4. PE	0.347	0.402	0.521	0.730		
5. SC	0.379	0.255	0.477	0.535	0.768	
6. SB	0.238	0.190	0.410	0.421	0.695	0.800

4.2. Hypothesis Test

The path analysis method was used to examine the research hypotheses 1–3. The path coefficients are presented in Figure 2. The results showed that all three types of work values had significantly positive effects on miners' safety behavior, supporting H1a–H1c. Specifically, comfort and security work values had significantly positive effects on miners' safety behavior ($\beta = 0.348$, $p < 0.001$). Status and independence work values had significantly positive effects on miners' safety behavior ($\beta = 0.405$, $p < 0.001$). Competence and growth work values had significantly positive effects on miners' safety behavior ($\beta = 0.528$, $p < 0.001$). As showed in Figure 2, comfort and security work values had significantly positive effects on psychological empowerment ($\beta = 0.261$, $p < 0.001$). Status and independence work values had significantly positive effects on psychological empowerment ($\beta = 0.210$, $p < 0.001$). Competence and growth work values had significantly positive effects on psychological empowerment ($\beta = 0.434$, $p < 0.001$). In a word, the three types of work values had significantly positive effects on psychological empowerment, supporting H2a–H2c. Meanwhile, psychological empowerment had significantly positive effects on miners' safety behavior ($\beta = 0.424$, $p < 0.001$). Therefore, hypothesis 3 was supported.

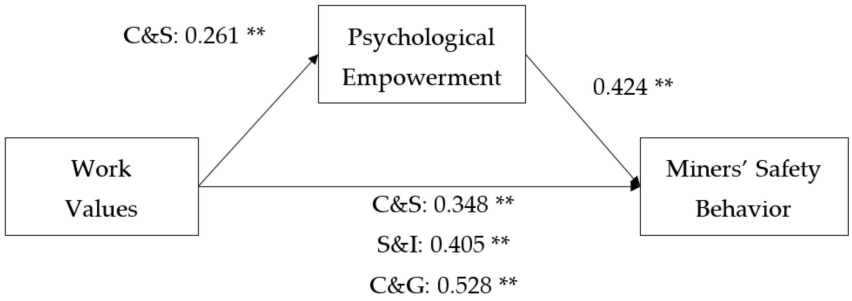


Figure 2. Path coefficients. ** $p < 0.01$.

Considering the better fit to the data, three partial mediation models with direct effects were constructed to examine the mediating role of psychological empowerment between work values and miners' safety behavior, by calculating a 95% bootstrap confidence interval (CI). If the CI did not include the zero value, the mediating effect was supported. The results are shown in Table 5. The mediating effect value of psychological empowerment on safety behavior via comfort and security work values was 0.11, and the CI was [0.048, 0.192], but the direct effect of comfort and security work values on miners' safety behavior was

not significant (CI: [−0.005, 0.217]), indicating that psychological empowerment played a fully mediating role between comfort and security work values and miners' safety behavior. The mediating effect value of psychological empowerment on miners' safety behavior via status and independence work values was 0.144, and the CI was [0.072, 0.238], but the direct effect of status and independence work values on miners' safety behavior was not significant (CI: [−0.080, 0.161]), indicating that psychological empowerment played a fully mediating role between status and independence work values and miners' safety behavior. The mediating effect value of psychological empowerment on miners' safety behavior via competence and growth work values was 0.128 and the CI was [0.049, 0.224]. Moreover, the direct effect of competence and growth work values on miners' safety behavior was significant (CI: [0.132, 0.387]), indicating that psychological empowerment played a partial mediating role between competence and growth work values and miners' safety behavior. Therefore, H4a–H4c was supported.

Table 5. Results of mediating effects test.

Mediation Path	Effect Value	Standard Error	95% CI		Percentage
			Lower	Upper	
C & S→SB	0.106	0.056	−0.005	0.217	49.1%
C & S→PE→SB	0.110	0.037	0.048	0.192	50.9%
S & I→SB	0.041	0.061	−0.080	0.161	22.2%
S & I→PE→SB	0.144	0.043	0.072	0.238	77.8%
C & G→SB	0.260	0.065	0.132	0.387	67.0%
C & G→PE→SB	0.128	0.045	0.049	0.224	33..0%

The hierarchical regression analysis method was used to test the moderating effect of psychological empowerment. The results are shown in Table 6. According to model 2, work values had a positive effect on miners' safety behavior ($\beta = 0.453$, $p < 0.001$). In model 3, both work values and safety climate were included in the regression equation. Model 4 further incorporated the interaction of work values and safety climate into the regression equation. The results showed that the interaction of work values and safety climate did not have a significant effect on miners' safety behavior ($\beta = -0.108$, $p > 0.05$), indicating that hypothesis 5 was not valid. According to model 6 in Table 6, psychological empowerment had a positive effect on miners' safety behavior ($\beta = 0.424$, $p < 0.001$). In model 7, both work values and psychological empowerment were included in the regression equation. Model 8 further incorporated the interaction of work values and psychological empowerment into the regression equation. The results showed that the interaction of work values and psychological empowerment did not have a significant effect on miners' safety behavior ($\beta = -0.066$, $p > 0.05$), indicating that hypothesis 6 was not valid.

Table 6. Results of moderating effects test.

Variables	SB							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Gender	0.071	0.153	0.074	0.071	0.071	0.074	0.058	0.056
Marriage	0.038	0.004	−0.048	−0.051	0.038	−0.006	−0.050	−0.053
Education level	0.119	0.179	0.124	0.126	0.119	0.131	0.114	0.115
Work experience	−0.082	−0.136	−0.066	−0.058	−0.082	−0.073	−0.052	−0.048
WV		0.453 ***	0.093	0.151				
PE						0.424 ***	0.077	0.110
SC			0.646 ***	0.709 ***			0.656 ***	0.697 ***
WV × SC				−0.108				
PE × SC								−0.066
R^2	0.021	0.218	0.505	0.506	0.021	0.199	0.504	0.504
ΔR^2	0.021	0.198	0.287	0.001	0.021	0.178	0.305	0.000
F	1.060	11.214 ***	34.044 ***	29.094 ***	1.060	9.969 ***	33.824 ***	28.867 ***

Note: *** $p < 0.001$.

5. Discussion

In this study, a structural equation model was constructed to explore the causal relationships among work values, miners' safety behavior, psychological empowerment, and safety climate. The results showed that work values not only directly and positively influence miners' safety behavior, but also indirectly promote miners' safety behavior by enhancing miners' psychological empowerment. However, there was no significant moderating effect of safety climate between work values and safety behavior, and between psychological empowerment and safety behavior. The above findings may provide coal mine leaders with effective management insights to improve the coal mine safety situation.

5.1. Theoretical Implications

The results confirmed that work values positively affect miners' safety behavior. Specifically, the most influential effects were competence and growth work values, followed by status and independence work values, and comfort and security work values. The result is consistent with the finding of Na and Li [10], who confirmed that five dimensions of work values (relationship identity, creativity orientation, development orientation, benefit orientation, and independence) enhance the safety compliance and safety participation of new generation miners, while self-orientation negatively affects safety compliance and safety participation. In contrast, this study divided the dimensions of work values in a different way, which is a useful supplement to the study by Na and Li [10] and further affirms the role of work values in promoting safety behavior. Moreover, the expanded scope of the respondents also makes the findings more informative. Self-verification theory also explains the finding that work values positively influence miners' safety behavior [6]. A stable self-concept can affect individuals' behavioral performance. Therefore, miners' work values guide their safety behaviors that are consistent with work values.

This study examined the positive effect of work values on psychological empowerment and the positive effect of psychological empowerment on miners' safety behavior, respectively, which expands the range of individual factors influencing psychological empowerment. Meanwhile, the mediating role of psychological empowerment between work values and miners' safety behavior was confirmed by calculating CI. Specifically, psychological empowerment fully mediated the relationship between comfort and safe work values and safety behavior, between status and independent work values and safety behavior, and played a partial mediating role between competence and growth work values and safety behavior. The result is similar to a previous study [14], which asserted that new generation employees' work values promote their deviant innovation behavior by enhancing their psychological empowerment. Compared to the study by Hou et al. [14], this study was conducted with front-line miners in coal mines, further confirming the result that psychological empowerment mediates the relationship between work values and employees' behavior in the field of coal mine safety. Meanwhile, the self-verification theory was creatively applied to explain the mediating role of psychological empowerment [6]. Miners select and internalize external information based on their own work values. In the process, their work values and psychological empowerment are simultaneously reinforced, prompting them to improve safety behavior.

The results showed that the moderating effect of safety climate was not significant either between work values and safety behavior or between psychological empowerment and safety behavior. In other words, the effects of miners' work values and psychological empowerment on safety behavior are not influenced by the level of safety climate in the coal mine. Although the moderating role is not confirmed, the analysis of the causes can still provide implications for future relevant studies. The possible reasons for this result are twofold. On the one hand, for a high-risk industry such as coal mining, safety is the most basic and important factor. Coal mines attach a high degree of importance to safety and create a safety climate through a series of measures, such as conducting regular safety training, enhancing safety promotion and improving safety norms. As a result, the safety climate in coal mines is generally maintained at a high level and does not change

significantly. Miners who have been in the high-level safety climate for a long time lack sensitivity to changes in the safety climate. On the other hand, miners' work values and psychological empowerment are stable psychological states formed during their daily work and do not change significantly due to changes in the safety climate. In conclusion, the effects of miners' work values and psychological empowerment on safety behavior are not influenced by the level of safety climate in the coal mine.

5.2. Practical Implications

The current study highlights the importance of work values and psychological empowerment in shaping miners' safety behaviors. Organizational management factors have an extremely important impact on miners' psychology and behavior. Therefore, we encourage mine managers to assess miners' work values and psychological empowerment and to develop support strategies to reduce unwanted consequences.

The findings suggest that coal mines should support miners' work values as much as possible. Since safety climate was not found to be broadly linked in this study, more research is needed to understand how organizations and managers shape and influence miners' work values and safety behavior. Therefore, managers may need to experiment with different management methods and strategies and recognize that individual miners may respond differently to different management approaches or strategies. Ensuring that managers and supervisors take the lead in complying with various safety systems, delegate authority appropriately, and take responsibility for decisions, conditions, near misses, and injuries may be basic management measures. A review of incentive mechanisms may also be valuable to ensure that miners are not encouraged to engage in unsafe behaviors and are at the same time recognized and rewarded for their safety contributions at work. Managers can support miners by recognizing their capabilities, encouraging them to participate in safety management, and supporting them with autonomous development. Paying attention to and respecting miners' personal pursuits and career growth, succeeding in identifying miners' strengths, and giving them the right guidance to turn their personal pursuits into positive work values may also help to support miners' safety.

According to the conclusion that psychological empowerment plays a mediating role between work values and miners' safety behavior, miners should enhance the level of safety behavior by enhancing psychological empowerment (self-efficacy, work meaningfulness, autonomy and the influence of work). First, managers should assign jobs to miners according to their personal traits, such as coal mining, transportation, ventilation and so on. Successfully completing tasks within their own capabilities will improve miners' perceived self-efficacy and work meaningfulness, which in turn will enhance their safety behavior. Secondly, managers should recognize and support miners' performance at work, and reward miners for standard production and outstanding operations by holding regular commendation meetings. Material or motivational rewards can enhance miners' work meaningfulness and make them feel that their behavior is influential in the organization, so as to promote them to actively choose safety behaviors, such as complying with safety regulations, reporting safety hazards in a timely manner, and completing target tasks, etc. Finally, coal mines should reduce the concentration of power and ensure that miners have sufficient autonomy in their positions. With greater autonomy at work, miners are more willing to communicate with colleagues on safety issues and share safety resources. The increase in relevant knowledge reserves helps miners to enhance safety behavior in production.

The high-risk characteristics of the coal industry require not only that miners pay psychological attention to safety and implement safety behaviors, but also that managers ensure that the workplace is safe for miners. First, managers should improve safety rules and regulations, which are the foundation of coal mine safety. Furthermore, managers should invest sufficient safety funds to upgrade production equipment and hire excellent technicians to ensure a rational coal mining workflow and reduce safety hazards in the workplace. Next, managers should regularly conduct activities such as safety training and

safety drills, which can contribute to improving the mine's emergency response capabilities so that risks can be controlled in time and unnecessary losses can be reduced. Finally, the manager should have a complete picture of the coal mine safety situation in order to address safety issues at all times. Therefore, managers need to conduct regular safety inspections and maintain effective communication with miners.

5.3. Limitations and Future Research

This study also has some limitations. First, the self-reporting method was used to collect primary data. Miners may tend to exaggerate their own safety behaviors. Although the common method variance was not severe, the reliability of the analysis results was still affected to some extent. Thus, future studies should collect longitudinal data at no less than three time points to more accurately explain the causal relationships among variables. Second, the data were obtained from front-line miners in Chinese coal mines, so the findings may not be applicable to other industries. In the future, we can expand sample diversity by conducting cross-industry research to make the findings more generalizable. Finally, a model with a limited number of variables was constructed. Future research could consider the mediating or moderating role of other variables in the model, such as mental health and job stress, or further explore the effects of work values on other behaviors of miners. In particular, more attention should be paid in the future to the role that is played by organizational factors (e.g., safety leadership, task type, safety culture, etc.) in the model, which may explain the insignificant moderating role of safety climate.

6. Conclusions

Based on self-verification theory and trait activation theory, a structural equation model was established to explore the influence mechanism of work values on miners' safety behavior, and the important role of psychological empowerment and safety climate in the above influence process. The most important finding is that three dimensions of work values promote miners' safety behavior. Furthermore, psychological empowerment played a mediating role between work values and miners' safety behavior. However, the moderating effect of safety climate was not significant. These findings are helpful for mine managers to effectively manage miners' safety behaviors, as well as to ensure workplace safety.

Author Contributions: Conceptualization, T.C. and J.L.; methodology, W.H. and H.L.; software, T.C. and W.H.; validation, J.L. and H.L.; formal analysis, T.C., W.H. and J.L.; investigation, T.C.; resources, H.L.; data curation, W.H. and J.L.; writing—original draft preparation, T.C., W.H. and J.L.; writing—review and editing, T.C. and H.L.; visualization, W.H.; supervision, H.L.; project administration, T.C.; funding acquisition, H.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the National Natural Science Foundation of China, grant number 71273208.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of Xi'an University of Science and Technology (protocol code 2021S007 and date of approval 30 August 2021).

Informed Consent Statement: Not applicable.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Chen, H.; Qi, H.; Long, R.Y.; Zhang, M.L. Research on 10-year tendency of China coal mine accidents and the characteristics of human factors. *Saf. Sci.* **2012**, *50*, 745–750. [CrossRef]
2. Wang, C.; Wang, J.K.; Wang, X.H.; Yu, H.; Bai, L.; Sun, Q. Exploring the impacts of factors contributing to unsafe behavior of coal miners. *Saf. Sci.* **2019**, *115*, 339–348. [CrossRef]
3. Yang, L.; Wang, X.; Zhu, J.Q.; Qin, Z.Y. Influencing factors, formation mechanism, and pre-control methods of coal miners′ unsafe behavior: A systematic literature review. *Front. Public Health.* **2022**, *10*, 792015. [CrossRef] [PubMed]
4. He, C.Q.; Mccabe, B.; Jia, G.S. Effect of leader-member exchange on construction worker safety behavior: Safety climate and psychological capital as the mediators. *Saf. Sci.* **2021**, *142*, 105401. [CrossRef]
5. Elizur, D.; Abraham, S. Facets of personal values: A structural analysis of life and work values. *Appl. Psychol.* **1999**, *48*, 73–87. [CrossRef]
6. Swann, W.B. The trouble with change: Self-verification and allegiance to the self. *Psychol. Sci.* **1997**, *8*, 177–180. [CrossRef]
7. Saito, Y.; Igarashi, A.; Noguchi, W.M.; Takai, Y.; Yamamoto, N. Work values and their association with burnout/work engagement among nurses in long-term care hospitals. *J. Nurs. Manag.* **2018**, *26*, 393–402. [CrossRef]
8. Zhang, Q.; Li, E.P. Influence of work values for new generation miners on unsafe behaviors. *Saf. Coal Min.* **2020**, *51*, 252–256. [CrossRef]
9. Abessolo, M.; Hirschi, A.; Rossier, J. Work values underlying protean and boundaryless career orientations. *Career Dev. Int.* **2017**, *22*, 241–259. [CrossRef]
10. Na, Y.; Li, J.Z. Research on relationship among work values, regulatory focus and safety performance—An empirical analysis based on new generation employees of coal mine enterprises. *J. Saf. Sci. Technol.* **2019**, *15*, 162–167. [CrossRef]
11. Thomas, K.W.; Velthouse, B.A. Cognitive elements of empowerment: An "interpretive" model of intrinsic task motivation. *Aca. Manag. Rev.* **1990**, *15*, 666–681.
12. Liu, K.; Wang, N.; Maoyan, S. Work values and turnover intention among new generation employees in China based on multiple mediator model. *IBIMA Bus. Rev.* **2020**, *2020*, 720865. [CrossRef]
13. Fute, A.; Oubibi, M.; Sun, B.H.; Zhou, Y.L.; Xiao, W.L. Work values predict job satisfaction among Chinese teachers during COVID-19: The mediation role of work engagement. *Sustainability* **2022**, *14*, 1353. [CrossRef]
14. Hou, X.F.; Liu, Y.Q.; Huang, R.; Li, W.Q. Unconventional or duplicity? Influencing mechanism of work values of millennial on bootleg innovation. *Sci. Technol. Pro. Policy* **2021**, *38*, 143–150.
15. Abbasi, S.G.; Shabbir, M.S.; Abbas, M.; Tahir, M.S. HPWS and knowledge sharing behavior: The role of psychological empowerment and organizational identification in public sector banks. *J. Pub. Aff.* **2020**, *21*, e2512. [CrossRef]
16. Lv, M.; Yang, S.; Lv, X.Y.; Zhang, L.; Chen, Z.Q.; Zhang, S.X. Organizational innovation climate and innovation behavior among nurses in China: A mediation model of psychological empowerment. *J. Nurs. Manag.* **2021**, *29*, 2225–2233. [CrossRef]
17. Bian, X.H.; Sun, Y.Y.; Zuo, Z.H.; Xi, J.Z.; Xiao, Y.L.; Wang, D.W.; Xu, G.X. Transactional leadership and employee safety behavior: Impact of safety climate and psychological empowerment. *Soc. Behav. Pers.* **2019**, *47*, 1–9. [CrossRef]
18. Babette, B. Behaving safely under pressure: The effects of job demands, resources, and safety climate on employee physical and psychosocial safety behavior. *J. Saf. Res.* **2015**, *55*, 63–72. [CrossRef]
19. Zohar, D. Safety climate in industrial organizations: Theoretical and applied implications. *J. Appl. Psychol.* **1980**, *65*, 96–102. [CrossRef]
20. Tett, R.P.; Burnett, D.D. A personality trait-based interactionist model of job performance. *J. Appl. Psychol.* **2003**, *88*, 500–517. [CrossRef]
21. Tett, R.P.; Guterman, H.A. Situation trait relevance, trait expression, and cross-situational consistency: Testing a principle of trait activation. *J. Res. Pers.* **2000**, *34*, 397–423. [CrossRef]
22. Ren, H.L.; Yang, D.T.; Peng, Z.A. The impact of competence and growth work value on innovative behavior: The moderating role of innovation climate and work autonomy. *Chin. J. Manag.* **2015**, *12*, 1450–1456. [CrossRef]
23. Wang, L.K.; Wang, X.Q.; He, Y.R.; Li, H.Z. Research on safety atmosphere and the coal miners' safety behavior model. *China Min. Maga.* **2016**, *25*, 22–25+52.
24. Lee, Y.H.; Lu, T.E.; Yang, C.C.; Chang, G. A multilevel approach on empowering leadership and safety behavior in the medical industry: The mediating effects of knowledge sharing and safety climate. *Saf. Sci.* **2019**, *117*, 1–9. [CrossRef]
25. Yang, Z.H.; Li, P.; Wang, W.J. Impact or lessons of the accidents on the miners' reckless behaviors based on the social cognition theory. *J. Saf. Environ.* **2021**, *21*, 1607–1614. [CrossRef]
26. Sun, J.; He, X.L.; Lu, Y. Impact of tunnel workers' psychological capital on safety behavior—Cross-level moderating of safety climate. *J. Civ. Eng. Manag.* **2019**, *36*, 7–12+18. [CrossRef]
27. Meyer, J.P.; Irving, P.G.; Allen, N.J. Examination of the combined effects of work values and early work experiences on organizational commitment. *J. Organ. Behav.* **1998**, *19*, 29–52. [CrossRef]
28. Griffin, M.A.; Neal, A. Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge, and motivation. *J. Occup. Health Psychol.* **2000**, *5*, 347. [CrossRef] [PubMed]
29. Arciniega, L.M.; Stanley, L.J.; Méndez, D.P.; Schael, D.O.; Salame, I.P. The relationship between individual work values and unethical decision-making and behavior at work. *J. Bus. Ethics* **2019**, *158*, 1133–1148. [CrossRef]

30. Zhan, X.H.; Yang, D.T.; Luan, Z.Z. The relationship between work values and employee voice behavior: The moderating effect of perceived organizational support. *Chin. J. Manag.* **2016**, *13*, 1330–1338. [CrossRef]
31. Ren, H.L.; Yang, D.T.; Li, Q. The relationship between work values and job engagement: Based on the moderating effect of performance monitoring. *Bus. Manag. J.* **2014**, 75–85. [CrossRef]
32. Spreitzer, G.M. Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Acad. Manag. J.* **1995**, *38*, 1442–1465. [CrossRef]
33. Chen, H.M.; Xi, L.; Zhao, J.L. Work values, satisfaction and self-efficacy of college student voluntourists in southern China. *Inter. J. Mark. Stud.* **2018**, *10*, 86. [CrossRef]
34. Chen, H.; Yan, S.F. The effect of work values of new generation employees and the psychological empowerment on job performance—The empirical research based on the knowledge-based enterprises. *Sci. Technol. Ecol.* **2014**, *27*, 71–75. [CrossRef]
35. Huang, J.T. The relationship between employee psychological empowerment and proactive behavior: Sale-efficacy as mediator. *Soc. Behav. Pers.* **2017**, *45*, 1157–1165. [CrossRef]
36. Shi, X.Z.; Ding, C.S.; Qin, Y.G. Research on the effect mechanism of safety culture on employee safety behavior in metal mines. *Gold Sci. Technol.* **2021**, *29*, 593–601.
37. Ford, M.T.; Tetrick, L.E. Relations among occupational hazards, attitudes, and safety performance. *J. Occup. Health Psychol.* **2011**, *16*, 48–66. [CrossRef]
38. Liu, J.J.; Xi, Y.P. Employee's perceived overqualification and work withdrawal behavior: The moderating effect of psychological empowerment. *Hum. Res. Dev. China* **2016**, 73–78+96.
39. Yang, M.M.; Wang, J.R. Participation and support, psychological empowerment and returnees' organizational loyalty. *J. Manag.* **2020**, *33*, 61–71.
40. Fong, K.H.; Snape, E. Empowering leadership, psychological empowerment and employee outcomes: Testing a multi-level mediating model. *Br. J. Manag.* **2015**, *26*, 126–138. [CrossRef]
41. Stanescu, D.F.; Zbuchea, A.; Pinzaru, F. Transformational leadership and innovative work behaviour: The mediating role of psychological empowerment. *Kybernetes* **2020**, *50*, 1041–1057. [CrossRef]
42. Xu, H.J.; Song, K.L.; Wang, H.H. Effect mechanism of the civil aviation pilots' calling for work on the safety citizenship behaviors. *J. Saf. Environ.* **2021**, *21*, 688–694. [CrossRef]
43. Gao, J.; Wang, C.J.; Li, F.B.; Feng, T. Mechanism study of construction workers negative emotions and organizational safety performance based on safety climate. *Constru. Technol.* **2018**, *47*, 127–132.
44. Sun, S.W.; Ren, H. Employees' bottom line mentality and safety behaviors: The moderating role of safety climate. *E3S Web Confer.* **2021**, *257*, 02064. [CrossRef]
45. Kou, Y.Y.; Huang, X.T. Work values and innovation performance: The moderating effect of innovation climate. *J. South. Univer. (Soc. Sci. Ed.)* **2013**, *39*, 94–99+174–175. [CrossRef]
46. Liu, M.; Yu, J.L.; Huang, Y. How does feeling trusted from supervisors promote employees' voice behavior: The role of psychological safety, self-efficacy and power distance. *Hum. Res. Dev. China* **2018**, *35*, 18–27. [CrossRef]
47. Li, C.P.; Li, X.X.; Shi, K.; Chen, X.F. Psychological empowerment: Measurement and its effect on employee work attitude in China. *Acta Psychol. Sin.* **2006**, *38*, 99–106.
48. Zhuang, L.L. Study on the Impact of Coal Mine Safety Climate on Safety Performance. Master's Thesis, AnHui University of Science and Technology, Anhui, China, 2019.
49. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [CrossRef]
50. Hair, J.; Black, B.; Babin, B.; Anderson, R.; Tatham, R. *Multivariate Data Analysis*, 6th ed.; Prentice-Hall: Hoboken, NJ, USA, 2006.
51. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]