



Life Satisfaction Among Chinese Aged Workers: Interplay of Organizational Justice, Workplace Emotions, and Subjective Age Perception

Minqiao Hu ¹, Xiongfu Wu¹, Shuang Qiu ²

¹Business School, Sichuan University, Chengdu, People's Republic of China; ²School of Foreign Languages, Chengdu University of Traditional Chinese Medicine, Chengdu, People's Republic of China

Correspondence: Shuang Qiu, Email qiushuang@cducm.edu.cn

Introduction: Organizational justice, as a multifaceted construct, plays an essential role in shaping organizational behaviors vital for boosting productivity. Previous research has underlined its influential role in both task performance and organizational citizenship behaviors. Importantly, positive emotions stemming from perceptions of both distributive and procedural justice have been associated with heightened levels of life satisfaction. This study aimed to elucidate the mediating role of these emotions in the connection between organizational justice perceptions and life satisfaction.

Methods: Participants (N= 588) in two waves of multisource data from fifteen private firms in China, have been aged workers from 40 to 60 years old.

Results: The findings revealed a significant mediation effect of positive emotions linking employees' perceptions of justice and their overall life satisfaction.

Discussion: In alignment with the Spill-over hypothesis, our findings underscore the importance of cultivating an equitable work environment. Such an environment does not only drive job-specific outcomes but also deeply influences employees' broader well-being and happiness. By grasping the intricacies of organizational justice and its myriad effects on employee satisfaction, organizations can devise precise interventions, thereby elevating both employee well-being and overall productivity.

Keywords: ageing, China, equity perceptions, work environment, psychological well-being, organizational behavior, distributive fairness, procedural fairness, emotional outcomes

Introduction

Justice is a fundamental concern throughout the lifespan of individuals. While there are professions and activities specifically dedicated to the defense, application, and practice of justice, its perceptions transcend legal and judicial realms. This influence seeps into various areas of life, carrying tangible repercussions on physical and mental health, particularly among specific demographics.¹

In the context of Chinese workers aged between 40 and 60, organizational justice plays a pivotal role in determining employees' cognitive, emotional, and behavioral responses. It's not just about job satisfaction; the ramifications extend to their overall satisfaction with life.² According to the Spillover Theory, events within the workplace can influence the broader quality of life, especially when considering that this age range marks significant milestones and transitions in many adults' lives.

Life satisfaction, in this context, is more than just an individual's cognitive assessment of their current circumstances; it's deeply intertwined with cultural, societal, and age-specific factors. While there's a wealth of studies associating organizational justice with various outcomes,³ few delve into its relationship with life satisfaction, particularly among middle-aged Chinese workers.

High perceptions of organizational justice can foster positive emotions, whereas negative perceptions might precipitate feelings of frustration, anger, and resentment.⁴⁻⁷ But the dynamics become more intricate when considering subjective age, which

can moderate the relationships between organizational justice and life satisfaction. Specifically, how one feels about their age, younger or older than their chronological age, can influence how they internalize and react to organizational justice.

Drawing on the Socioemotional Selectivity Theory,⁸ as individuals advance in age, their goals, and emotional responses shift, emphasizing meaningful, positive experiences.^{9,10} Therefore, the interaction between organizational justice, subjective age, and emotions (both positive and negative) becomes a crucial nexus to understand their collective influence on life satisfaction.

This study seeks to address existing gaps: firstly, to provide evidence on the relationships between organizational justice and life satisfaction among middle-aged Chinese employees and secondly, to explore the mediating role of both positive and negative emotions. Furthermore, it will delve into the moderating role of subjective age in these relationships. Given the intricate weave of these variables, especially in the context of a specific age bracket, it becomes imperative to present this evidence, ultimately assisting in formulating targeted interventions to bolster satisfaction in this demographic.

Literature Review

Life Satisfaction Among Aged Chinese Workers

Life satisfaction, a cornerstone of subjective well-being, refers to an individual's holistic assessment of their life as a whole, rather than a focus on specific domains such as health or finances. It reflects a cognitive-evaluative judgment of one's life based on self-set criteria.¹¹ In essence, it represents how the realities of one's life align with their expectations and desires. Life satisfaction's role in overall well-being cannot be understated. Numerous studies have established its association with various health outcomes, including mental health and longevity. As an essential barometer of subjective well-being, life satisfaction offers insights into an individual's perception of their life quality, thereby making it a critical focal point for health, psychological, and societal research.¹²

Recent years have seen dramatic societal changes in China, each leaving its mark on the life satisfaction of its workers, especially those in the aged category. Positive developments such as improved educational statuses and heightened social incomes, especially in urban environments, have ostensibly contributed to enhanced life satisfaction among this demographic.¹³ Additionally, the rapid urbanization process, with its modern amenities and broader job opportunities, suggests a brighter outlook and potentially elevated life satisfaction for older citizens.¹⁴

However, these benefits come with their challenges. The evolving Hukou system, a household registration mechanism, has been indicated to influence life satisfaction due to its effect on social securities and benefits.¹⁵ As cities expand, increased urban density has raised concerns about housing affordability and environmental quality, elements that could offset life satisfaction gains.¹⁶ Moreover, with China's internal migration surge, family separations and altered structures might pose challenges to the life satisfaction of the elderly left behind.¹⁷ The Hukou system, originally devised as a household registration system, has undergone transformations that sometimes result in disparities in social benefits.¹⁸ Changes in this system have inadvertently affected the social securities, leading to disparities in life satisfaction among urban and rural populations.¹⁹

With China's meteoric rise on the global stage, understanding the life satisfaction of its workforce, particularly aged workers, becomes paramount. As the backbone of society and a link between past traditions and an evolving modernity, the well-being of these older workers serves as an indicator of societal health. Moreover, as China grapples with the implications of a rapidly aging population, insights into the life satisfaction of older workers will be crucial for shaping policies and interventions to ensure a harmonious, content, and productive society. Recognizing the dual impact of positive and negative societal changes on life satisfaction ensures a holistic, nuanced perspective, paving the way for effective, evidence-based strategies to bolster well-being.²⁰

Organizational Justice Under the Spillover Theory

Organizational justice refers to the perception of fairness within a work environment, encompassing a range of employee evaluations regarding processes, outcomes, and interpersonal relationships within the workplace.²¹ It is pivotal in influencing a myriad of employee attitudes, behaviors, and outcomes. According to Colquitt,²² organizational justice can be dissected into four main dimensions. Distributive Justice: This refers to the perceived fairness of outcome distributions or allocations. Employees assess this based on the equity, equality, and need of resources or rewards they receive, such as pay, promotions, or opportunities. Procedural Justice: This dimension pertains to the fairness of the processes that lead to outcomes. When employees deem these processes as consistent, unbiased, accurate, correctable,

and representative, they perceive a higher sense of procedural justice. Interpersonal Justice: Recognizing the significance of quality interpersonal treatment, this dimension deals with the degree of respect, propriety, and dignity in interactions. Fair and dignified treatment from superiors or peers underscores this facet of justice. Informational Justice: This dimension is centered around the explanations provided regarding decisions made. It focuses on the perceived fairness of the information shared and the candidness and timeliness of its communication.

The Spillover Theory posits that experiences in one domain or context can transfer or “spillover” into another, influencing attitudes and behaviors in that secondary domain (Staines, 1980). When applied to organizational justice, the theory suggests that employees’ perceptions of justice within their workplace can transcend the organizational boundaries, influencing aspects of their personal lives, including their overall life satisfaction. Such perceptions of justice, whether positive or negative, can resonate beyond the work environment and affect employees’ broader psychological and emotional well-being. Recent research has begun to explore the direct link between the dimensions of organizational justice and workers’ life satisfaction. Findings consistently indicate that perceptions of fairness in the workplace directly correlate with overall life satisfaction. Specifically, employees who perceive higher distributive and procedural justice often report increased life satisfaction.²³ Respectful interpersonal interactions and transparent communication, underpinned by interpersonal and informational justice, respectively, have also been linked with enhanced overall well-being and satisfaction with life outside the work environment.²⁴

Based on the literature reviewed, the following hypothesis is proposed:

H1: Organizational justice dimensions (Distributive H1a, Procedural H1b, Interpersonal H1c, Informational H1d) directly and positively impact on workers’ Life Satisfaction.

Mediating Role of Emotions in the Relationships Between Organizational Justice and Life Satisfaction

Emotions can be conceptualized as complex psychological states, often short-lived but intense, resulting from one’s interpretation and response to specific events or situations. They encompass a range of feelings, physiological responses, and expressions and play a central role in influencing an individual’s cognition, behavior, and overall well-being.²⁵

The Affective Events Theory²⁶ provides a comprehensive framework for understanding the link between workplace events and workers’ emotional responses. At its core, Affective Events Theory posits that work events lead to emotional reactions, which in turn influence attitudes and behaviors in the workplace. It underscores the importance of affective experiences in shaping employees’ job satisfaction, performance, and general work-related well-being. Affective Events Theory suggests that distinct work events, like instances of perceived fairness or injustice, can elicit specific emotional reactions. Over time, these emotional reactions aggregate to form broader mood and attitudinal tendencies, thereby playing a pivotal role in shaping employees’ job-related attitudes and behaviors. Essentially, according to Affective Events Theory, it’s not just the objective nature of work events that matter, but the emotional responses they trigger.

Drawing on the foundations of Affective Events Theory, there’s a plausible argument to be made for the mediating role of emotions in the relationship between organizational justice and life satisfaction. Given that perceptions of justice or injustice in the workplace can be powerful elicitors of emotional responses,²⁶ these emotions may act as intermediary variables that influence broader life satisfaction. For instance, perceptions of fairness might engender positive emotions like happiness, pride, or relief, whereas perceptions of injustice could spur negative emotions like anger, sadness, or resentment. Over time, these emotional responses to perceived organizational justice can cascade into an individual’s overall life satisfaction. Furthermore, the dual role of positive and negative emotions emphasized in Affective Events Theory can illuminate the nuanced pathways through which organizational justice impacts life satisfaction. Positive emotions resulting from perceived fairness might directly enhance life satisfaction, while negative emotions, stemming from perceived injustice, could detract from it.²⁷

Based on the literature reviewed, the following hypothesis is proposed:

H2: Positive and negative Emotions will mediate the relationships between Organizational justice dimensions (Distributive H2a, Procedural H2b, Interpersonal H2c, Informational H2d) and workers’ Life Satisfaction.

Moderating Role of Subjective Age in the Relationships Between Positive and Negative Emotions and Life Satisfaction

Subjective age, distinct from chronological age, encapsulates an individual's personal experience and internal perception of their own age. This subjective sense of age can diverge significantly from one's actual age, with individuals sometimes feeling younger or older than their calendar years suggest. Such perceptions of age influence an array of psychosocial and health outcomes, highlighting its significance in understanding individual differences in well-being and life satisfaction. The influence of subjective age on well-being has garnered attention from both lifespan developmental psychology and organizational psychology. Research by Kotter-Grühn, Kornadt, and Stephan²⁸ and Mock & Eibach²⁹ has underscored the predictive power of subjective age in determining various measures of well-being across the life span. Their findings suggest that feeling younger than one's chronological age is typically associated with greater life satisfaction, reduced risk of mortality, and better mental and physical health. Parallely, organizational psychology literature has further explored the implications of subjective age within the work domain. For instance, studies by Barnes-Farrell et al,³⁰ and Kunze et al³¹ reveal that employees' subjective age can influence their job satisfaction, motivation, and overall engagement. Particularly, employees who feel younger often display greater adaptability, learning capacity, and optimism, factors that collectively enhance their job satisfaction. In contrast, those who feel older than their chronological age might exhibit a decline in these capacities, impacting their overall job performance and satisfaction.³²

Rooting this in the Socioemotional Selectivity Theory, which posits that people prioritize emotionally meaningful goals as they perceive their time horizons to be limited, provides further insights.³³ This theory suggests that as individuals age, they increasingly value and prioritize emotionally positive experiences and relationships.³⁴ Consequently, older workers, given their finite perceived time, are more likely to experience and savor positive emotions as compared to their younger counterparts.³⁵ This differential emotional experience, rooted in subjective age perceptions, can play a pivotal role in determining the relationship between emotions and life satisfaction.³⁶ To sum up, subjective age emerges as a potential moderator in the relationships between emotions and life satisfaction.³⁷ It holds the promise of contextualizing the way positive and negative emotions influence life satisfaction across different age perceptions. Whether in the context of life's broader journey or within the confines of an organization, understanding the subtle nuances of subjective age provides a richer, more layered understanding of the intricate interplay between emotions and life satisfaction. Based in the literature reviewed, the following hypothesis is proposed:

H3: Workers' Subjective Age will moderate the relationships between Organizational justice dimensions (Distributive H3a, Procedural H3b, Interpersonal H3c, Informational H3d) and workers' Life Satisfaction mediated by Positive and negative Emotions. In addition, the magnitude of the relationships hypothesized in H2 is expected to be altered by workers' subjective age, being greater in older workers than in younger workers for Positive emotions, while being the opposite for Negative emotions.

The research model for the present study is displayed in [Figure 1](#).

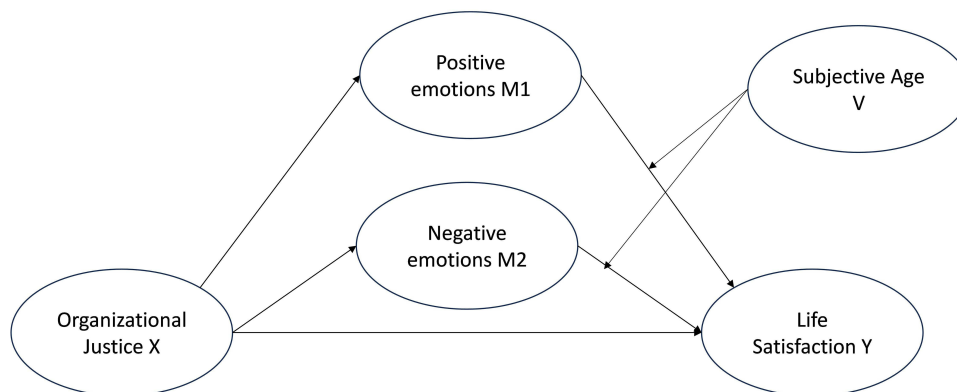


Figure 1 Research Model.

Method

Participants and Procedure

The sample involved active employees (N= 588) from private sector companies in China aged from 40 to 60 years old, who answered the survey at two different moments (T1, and T2) with a lag of four weeks between each data collection time. The study received approval from the Ethics Committee of Sichuan University. The research team approached a variety of organizations, including SMEs (Small and Medium-sized Enterprises) from the private sector in China, inviting them via email to participate in an extensive study on Human Resource Management. Organizations that responded were further briefed on the study's objectives through videoconferencing by the research team. Of those approached, only 15 agreed to collaborate. A total of 1834 employees from these organizations, who were actively working at the time, received an email explaining the study's purpose, data collection methods, and a link to the survey hosted on Qualtrics. The email emphasized participants' anonymity, the voluntary nature of their participation, and the freedom to withdraw from the study at any time without repercussions. An informed consent form was included for those willing to provide data. All the study conducted complies with the Declaration of Helsinki. From the total distributed questionnaires, 992 were completed and returned, reflecting a response rate of 54%. In this initial questionnaire, participants willing to engage in the study's subsequent phase provided their personal email addresses to facilitate future communication. Four weeks later, a second survey was dispatched to these participants via email, achieving a response rate of 59.3% with 588 completed responses. In the final sample 50.6% were male. The average age of participants was 47.87 years with a standard deviation of 5.90 years. Educational attainment varied among the participants: the majority (45.2%) held a bachelor's degree, 16.5% had completed Post Secondary School, 19.2% had finished either Junior Secondary or Senior Secondary School, and 19.2% had a Primary School education. A significant majority (82.1%) of the participants were employed full-time, and 50.9% worked in companies with fewer than 200 employees.

Instruments

Life Satisfaction (Time 2): The participants' life satisfaction was assessed using the Brief Satisfaction with Life Scale,¹² a widely recognized measure in scientific literature, fundamentally offering a cognitive evaluation pertaining to an individual's global life experience. This version consists solely of five items, with the advantages of brevity and intelligibility for all adult respondents. Example items include: "In most ways, my life is close to my ideal" and "The conditions of my life are excellent". A 5-point Likert response scale was used, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Reliability has been tested using JASP and values are adequate both for Cronbach's Alpha ($\alpha=0.766$, 95% CI [0.736; 0.793]), and for McDonald's ($\omega=0.769$, 95% CI [0.741; 0.797]).

Organizational Justice (Time 1): The Organizational Justice Scale by Colquitt²² was employed. This scale comprises 20 items, encompassing the four dimensions of justice: distributive (four items), procedural (seven items), interpersonal (four items), and informational (five items). Respondents indicated their agreement using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Sample items include: "Do your rewards reflect the effort you have put into your work?", "Have you been treated with respect?", and "Has your supervisor been truthful with you?". In the present study, reliability for the global scale was adequate both for Cronbach's Alpha ($\alpha=0.932$, 95% CI [0.925; 0.940]), and for McDonald's ($\omega=0.938$, 95% CI [0.930; 0.945]). Distributive justice showed adequate values both for Cronbach's Alpha ($\alpha=0.843$, 95% CI [0.822; 0.862]), and for McDonald's ($\omega=0.844$, 95% CI [0.824; 0.864]), as well as Procedural Justice ($\alpha=0.613$, 95% CI [0.567; 0.656], $\omega=0.846$, 95% CI [0.826; 0.866]), Interpersonal Justice ($\alpha=0.923$, 95% CI [0.913; 0.933], $\omega=0.925$, 95% CI [0.915; 0.935]), and Informational Justice ($\alpha=0.913$, 95% CI [0.900; 0.924], $\omega=0.916$, 95% CI [0.905; 0.927]).

Positive and Negative Emotions (Time 1): The Job Emotion Scale³⁸ was used. This comprehensive questionnaire consists of 16 items, listing both positive and negative emotions. Participants were asked to assess their experience of these emotions in their workplace over the past week, using a 5-point Likert scale, ranging from 1 (Never) to 5 (Always). In the theoretical model, emotions are categorized into two subscales based on their positive or negative valence. In the original English study, the reliability indicator was $\alpha=0.95$ for negative emotions (ten items) and $\alpha=0.90$ for positive emotions, which only included six items. Sample items encompass: "joyful", "enthusiastic", "proud", and "optimistic" for positive emotions, and "angry", "frustrated", "worried", and "depressed" for negative emotions. In the present study, reliability for Positive emotions scale was adequate both for

Cronbach's Alpha ($\alpha=0.907$, 95% CI [0.895; 0.918]), and for McDonald's ($\omega=0.909$, 95% CI [0.897; 0.920]), and for Negative Emotions ($\alpha=0.882$, 95% CI [0.867; 0.896], $\omega=0.888$, 95% CI [0.874; 0.901]).

Subjective Age (Time 1): The subjective age of the participants was gauged using a four-item scale developed by Shore et al.³⁹ This scale prompts respondents to select, from a 5-point scale, the age bracket that most closely aligns with various aspects of their identity:

- (a) The age they feel most closely represents their internal sense of age.
- (b) The age they believe they appear to be.
- (c) The age group of individuals whose interests and activities align most with their own.
- (d) The age they would most prefer to be.

The age brackets on the 5-point scale were defined as: 1=16–25, 2=26–35, 3=36–45, 4=46–55, and 5=56–75. The scale demonstrated satisfactory reliability with a Cronbach's alpha (α) of 0.70.

Data Analyses

Data were analyzed using SPSS version 24,⁴⁰ JASP version 0.17.3.⁴¹ PROCESS 4.2 macro by Hayes⁴² has been used for examining Moderated mediation. Initially, relationships between variables were determined through Pearson's correlation. Next, we tested a mediational analysis using JASP where Positive and Negative emotions mediated the link between Organizational Justice dimensions and Life Satisfaction. The model was then broken down further by the components of Organizational Justice (Distributive, Procedural, Interpersonal, Informational), due that JASP admits more than one predictor variable. Finally, we used Model 14 to test the moderated mediation, with Subjective age moderating effect in the relationships between Organizational Justice and Life satisfaction mediated by Positive and negative Emotions. While the JASP Mediation model estimates the indirect effect of X (T1 Organizational justice, Distributive, Procedural, Interpersonal, Informational) on Y (T2 Life Satisfaction) through M1 (T1 Positive Emotions), and M2 (T1 Negative Emotions), the PROCESS Model included the moderating role played by V (T1 Subjective Age) in the $M \rightarrow Y$ relationship (T1 Organizational justice, Distributive, Procedural, Interpersonal, Informational \rightarrow T2 Life Satisfaction). Both the mediation hypotheses and the moderated mediation hypotheses are supported when zero is not included in the 95% bias-corrected confidence interval, and it may be concluded that the parameter is significantly different from zero at $p < 0.05$. Moreover, regarding moderated mediation, it was expected that the mediation process varies in line with the different values taken by the moderating variable. This procedure was based on 5000 bootstrap re-samples and provided a moderated mediation index, as well as estimates of the indirect effect and associated confidence intervals conditional on the specific levels of the moderator (Mean and ± 1 SD from Mean).

Results

Confirmatory Factor Analyses have been conducted for multiscale instruments using JASP, and descriptive statistics and Pearson's correlation analyses have been conducted with SPSS.

Confirmatory Factor Analyses (CFA)

For the Organizational Justice scale, CFA was conducted using JASP. The Kaiser-Meyer-Olkin = 0.928, and the Bartlett's sphericity test (Chi Square = 8699.775, d. f. = 171, $p < 0.001$) showed adequate values. The model with only one factor showed unacceptable values (Chi-Square = 3076.032, d.f. = 152.000, $p = 0.000$, RMSEA = 0.181, SRMR = 0.094). The model with four related factors showed better fit (Chi Square = 836.076, d.f. = 146, $p < 0.001$). The Average Extracted variance was for Distributive Justice (0.500), Procedural Justice (0.711), Interactional Justice (0.720) and Informational Justice (0.738). The factorial loadings showed adequate values for all the factors, as Table 1 showed.

For the Positive and Negative Emotions scale, CFA was conducted also using JASP. The Kaiser-Meyer-Olkin = 0.918, and the Bartlett's sphericity test (Chi Square = 5319.539, d. f. = 120, $p < 0.001$) showed adequate values. The only one factor model displayed inadequate values (Chi-Square = 2102.086, d.f. = 104, $p = 0.000$,

Table 1 Factor Loadings for Items of the Organizational Justice Scale

						95% Confidence Interval	
Factor	Indicator	Estimate	Std. Error	z-value	p	Lower	Upper
Distributive Justice	Item 1	0.823	0.045	18.408	< 0.001	0.735	0.911
	Item 2	0.791	0.044	18.188	< 0.001	0.706	0.877
	Item 3	0.864	0.038	22.732	< 0.001	0.789	0.938
	Item 4	0.593	0.040	14.727	< 0.001	0.514	0.672
	Item 5	0.733	0.043	17.178	< 0.001	0.650	0.817
	Item 6	0.845	0.050	16.800	< 0.001	0.746	0.944
Procedural Justice	Item 7	0.948	0.034	28.174	< 0.001	0.882	1.013
	Item 8	1.036	0.032	32.269	< 0.001	0.973	1.099
	Item 9	0.961	0.035	27.447	< 0.001	0.893	1.030
	Item 10	0.366	0.037	9.787	< 0.001	0.293	0.439
Interactional Justice	Item 11	0.812	0.042	19.557	< 0.001	0.731	0.893
	Item 12	1.110	0.040	27.450	< 0.001	1.031	1.189
	Item 13	1.106	0.038	28.852	< 0.001	1.031	1.181
	Item 14	1.036	0.039	26.695	< 0.001	0.960	1.112
	Item 15	0.931	0.040	23.234	< 0.001	0.852	1.009
Informational Justice	Item 16	0.893	0.043	20.876	< 0.001	0.809	0.977
	Item 17	1.181	0.045	26.466	< 0.001	1.094	1.269
	Item 18	1.156	0.043	27.074	< 0.001	1.072	1.239
	Item 19	1.087	0.041	26.542	< 0.001	1.007	1.167

RMSEA= 0.181, SRMR = 0.166). The Average Extracted variance was for Positive emotions 0.557, and for Negative emotions 0.506, while the correlation among factors was $r = -0.433$.

The factorial loadings showed adequate values both for Factor 1 (Positive emotions) and for Factor 2 (Negative emotions), as Table 2 showed.

Table 2 Factor Loadings for Items of the Job Emotion Scale

						95% Confidence Interval	
Factor	Indicator	Estimate	Std. Error	z-value	p	Lower	Upper
Positive Emotions	Item 1 JES	0.569	0.043	13.277	< 0.001	0.485	0.653
	Item 2 JES	0.723	0.030	24.138	< 0.001	0.664	0.782
	Item 3 JES	0.771	0.031	24.987	< 0.001	0.711	0.832
	Item 4 JES	0.783	0.038	20.789	< 0.001	0.710	0.857
	Item 5 JES	0.595	0.035	16.772	< 0.001	0.525	0.664
	Item 6 JES	0.699	0.032	22.059	< 0.001	0.637	0.761
	Item 7 JES	0.765	0.032	24.234	< 0.001	0.703	0.827
	Item 8 JES	0.723	0.031	23.054	< 0.001	0.662	0.785
Negative Emotions	Item 9 JES	0.559	0.036	15.337	< 0.001	0.488	0.631
	Item 10 JES	0.797	0.036	21.897	< 0.001	0.726	0.868
	Item 11 JES	0.798	0.038	21.275	< 0.001	0.725	0.872
	Item 12 JES	0.703	0.033	21.247	< 0.001	0.638	0.768
	Item 13 JES	0.501	0.039	12.805	< 0.001	0.424	0.578
	Item 14 JES	0.479	0.038	12.713	< 0.001	0.405	0.553
	Item 15 JES	0.834	0.037	22.406	< 0.001	0.761	0.907
	Item 16 JES	0.797	0.034	23.537	< 0.001	0.730	0.863

Abbreviation: JES, Job Emotion Scale.

Descriptive Statistics and Correlation Analyses

As Table 3 showed, the mean value for the majority of variables is medium and Negative emotions exhibit the lowest mean value. Standard deviation was higher for Distributive justice and for Informational justice. Age is negatively related both to Positive emotions (significant) and Negative emotions (non-significant) and with Life satisfaction, but it is positively and significantly related to Subjective Age. The Distributive justice is negatively and significantly related to Negative emotions, as well as all the other Organizational justice dimensions.

Mediational Analyses

The mediation model tested the indirect effects of Organizational Justice at T1 (comprising Distributive, Procedural, Interpersonal, and Informational facets) on Life Satisfaction at T2 using JASP. This model examined the mediation roles of both Positive Emotions (M1) and Negative Emotions (M2) at T1. The global model predicted 12% of the variance on Life Satisfaction ($R^2 = 0.123$). On the one hand, the total direct effects of the Organizational Justice dimensions were only significant for Procedural Justice, as Table 4 showed, providing support for H1b. On the other, the total indirect effects were significant for all the dimensions, providing support for the hypotheses H2a, H2b, H2c, and H2d, despite that for Informational Justice the significance was only marginal, as can be seen in Table 4.

When the indirect effects are considered separately, the majority of the indirect effects of Organizational Justice on Life satisfaction through Positive and Negative emotions were significant, except for Procedural Justice through Negative emotions, and Informational Justice through Positive and Negative emotions, as Table 5 showed.

Moderated Mediation Analyses

Using Hayes' Model 14, we probed the moderation effect of Subjective Age (V) at T1 in the mediation path from Positive Emotions (M1) and Negative Emotions (M2) at T1 to Life Satisfaction at T2.

For the Distributive Justice dimension at T1, the model demonstrated significance ($F(7580) = 10.82, p < 0.001, R^2 = 0.115$). The interaction between Positive Emotions (M1) and Subjective Age (V) indicated a marginally positive

Table 3 Mean Values, Standard Deviations, and Correlations Between Study Variables (N = 588)

Variables	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. Chronological Age (T1)	47.87	5.90	I							
2. Distributive Justice (T1)	3.18	1.25	0.025	I						
3. Procedural Justice (T1)	2.96	0.84	0.018	0.558**	I					
4. Interpersonal Justice (T1)	3.40	0.70	-0.003	0.514**	0.463**	I				
5. Informational Justice (T1)	3.09	1.06	0.011	0.724**	0.574**	0.627**	I			
6. Positive Emotions (T1)	3.36	0.73	-0.109**	0.428**	0.379**	0.370**	0.399**	I		
7. Negative Emotions (T1)	2.33	0.74	-0.010	-0.359**	-0.248**	-0.330**	-0.374**	-0.366**	I	
8. Life Satisfaction (T2)	3.54	0.57	-0.026	0.196**	0.211**	0.175**	0.159**	0.312**	-0.232**	I
9. Subjective Age (T1)	3.19	0.79	0.589**	-0.018	-0.040	0.011	-0.009	-0.093*	0.035	-0.032

Notes: * $p < 0.05$; ** $p < 0.01$.

Table 4 Total Indirect Effects

Variables						95% Confidence Interval	
Predictor	Criterion	Estimate	S.E.	z-value	p	Lower	Upper
Distributive Justice	LS	0.067	0.017	3.858	<0.001	0.033	0.102
Procedural Justice	LS	0.040	0.018	2.172	0.030	0.004	0.076
Informational Justice	LS	0.066	0.021	3.173	0.002	0.025	0.106
Informational Justice	LS	0.029	0.018	1.651	0.099	-0.005	0.064

Abbreviation: LS, Life Satisfaction.

Table 5 Estimations for Indirect Effects

Variables							95% Confidence Interval	
Predictor	Mediator	Criterion	Estimate	S.E.	z-value	p	Lower	Upper
Distributive Justice	PE	LS	0.048	0.015	3.278	0.001	0.019	0.077
Distributive Justice	NE	LS	0.019	0.009	2.105	0.035	0.001	0.037
Procedural Justice	PE	LS	0.044	0.015	2.842	0.004	0.014	0.074
Procedural Justice	NE	LS	-0.004	0.007	-0.506	0.613	-0.018	0.011
Interactional Justice	PE	LS	0.027	0.014	1.934	0.053	-0.0004	0.054
Interactional Justice	NE	LS	0.039	0.015	2.588	0.010	0.009	0.069
Informational Justice	PE	LS	0.017	0.014	1.222	0.222	-0.010	0.045
Informational Justice	NE	LS	0.012	0.009	1.383	0.167	-0.005	0.029

Notes: Delta method standard errors, normal theory confidence intervals. Maximum Likelihood estimation method.

Abbreviations: LS, Life Satisfaction; PE, Positive Emotions; NE, Negative Emotions; S.E., Standard Error.

influence on T2 Life Satisfaction ($B=0.078$, $SE=0.041$, 95% CI $[-0.002; 0.158]$, $p=0.059$), hinting at a partial validation of hypothesis H3a. However, the interaction of Negative Emotions (M2) with Subjective Age (V) was not statistically significant for T2 Life Satisfaction ($B=0.022$, $SE=0.041$, 95% CI $[-0.059; 0.105]$, $p=0.586$). As Subjective Age increased, the connection between T1 Positive Emotions and T2 Life Satisfaction evolved, intensifying at +1SD ($B=0.058$, $SE=0.015$, $p<0.001$), while the relationship with Negative Emotions (M2) weakened.

As an example, the moderation graph for the interaction between Positive emotions and subjective age is displayed in Figure 2a and b.

Turning to the Procedural Justice dimension at T1, the model was significant ($F(7580)=11.70$, $p<0.001$, $R^2=0.124$). Positive Emotions (M1) interacting with Subjective Age (V) had a marginally significant positive effect on T2 Life Satisfaction ($B=0.075$, $SE=0.041$, 95% CI $[-0.005; 0.154]$, $p=0.068$), suggesting tentative support for hypothesis H3b. In contrast, the interaction between Negative Emotions (M2) and Subjective Age (V) was not statistically significant ($B=0.028$, $SE=0.041$, 95% CI $[-0.053; 0.110]$, $p=0.499$). As Subjective Age rose, the association of T1 Positive Emotions with T2 Life Satisfaction attenuated, becoming more notable at +1SD ($B=0.073$, $SE=0.018$, $p<0.001$). Conversely, the impact of Negative Emotions (M2) on T2 Life Satisfaction diminished with a higher Subjective Age.

When considering Interactional Justice at T1, the model was significant ($F(7580)=11.05$, $p<0.001$, $R^2=0.117$). The interaction of Positive Emotions (M1) with Subjective Age (V) showed a marginally positive effect on T2 Life Satisfaction ($B=0.079$, $SE=0.041$, 95% CI $[-0.0007; 0.159]$, $p=0.052$), indicating a potential confirmation of hypothesis H3c. Yet, the interaction between Negative Emotions (M2) and Subjective Age (V) was not statistically significant for T2 Life Satisfaction ($B=0.024$, $SE=0.041$, 95% CI $[-0.057; 0.106]$, $p=0.499$). With increasing Subjective Age, the influence of T1 Positive Emotions on T2 Life Satisfaction decreased but became more pronounced at +1SD ($B=0.093$, $SE=0.018$, $p<0.001$). For Negative Emotions (M2), the relationship with T2 Life Satisfaction decreased with higher Subjective Age levels.

Lastly, for Informational Justice, the model was significant ($F(7580)=10.77$, $p<0.001$, $R^2=0.115$). Positive Emotions (M1) and Subjective Age (V) interaction had a marginally positive impact on T2 Life Satisfaction ($B=0.079$, $SE=0.041$, 95% CI $[-0.009; 0.159]$, $p=0.052$), providing some evidence in favor of hypothesis H3d. However, the interaction between Negative Emotions (M2) and Subjective Age (V) did not achieve statistical significance ($B=0.022$, $SE=0.041$, 95% CI $[-0.059; 0.105]$, $p=0.588$). As Subjective Age grew, the relationship between T1 Positive Emotions and T2 Life Satisfaction waned, but heightened at +1SD ($B=0.077$, $SE=0.015$, $p<0.001$). The relationship between Negative Emotions (M2) and T2 Life Satisfaction showed a decrease with an increase in Subjective Age.

The moderated mediation graphs for the four dimensions of Organizational Justice are displayed in Figure 3a–d.

Discussion

In the modern organizational landscape, the question of life satisfaction remains a pivotal concern, especially when considering aged workers. The study at hand embarks on a journey to understand the confluence of organizational justice, workplace emotions, and subjective age perception in shaping life satisfaction among aged Chinese workers.

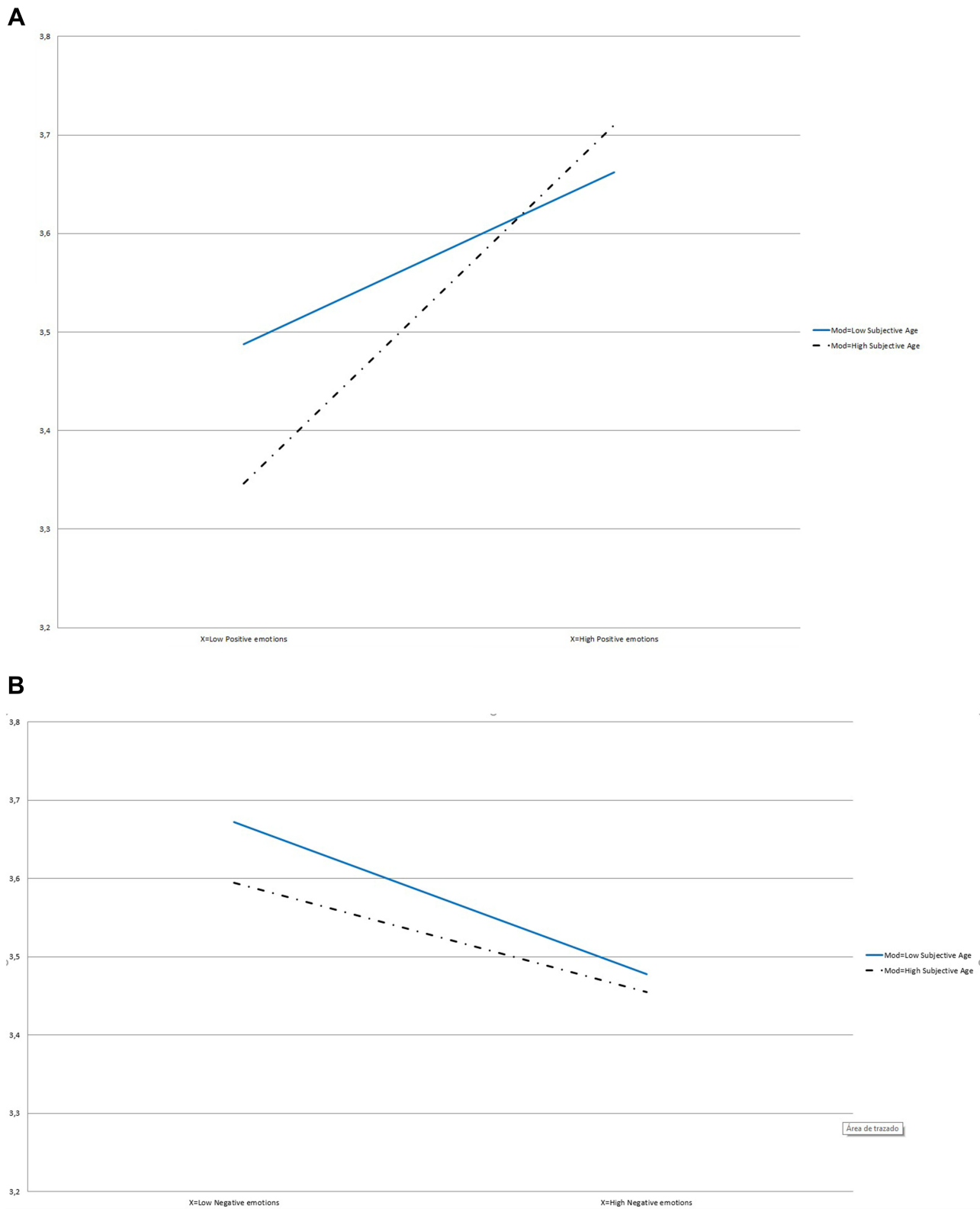


Figure 2 (a) Moderation graph for the interaction between Positive emotions and Subjective Age in the relationships between Distributive Justice and Life satisfaction. (b) Moderation graph for the interaction between Negative emotions and Subjective Age in the relationships between Distributive Justice and Life satisfaction.

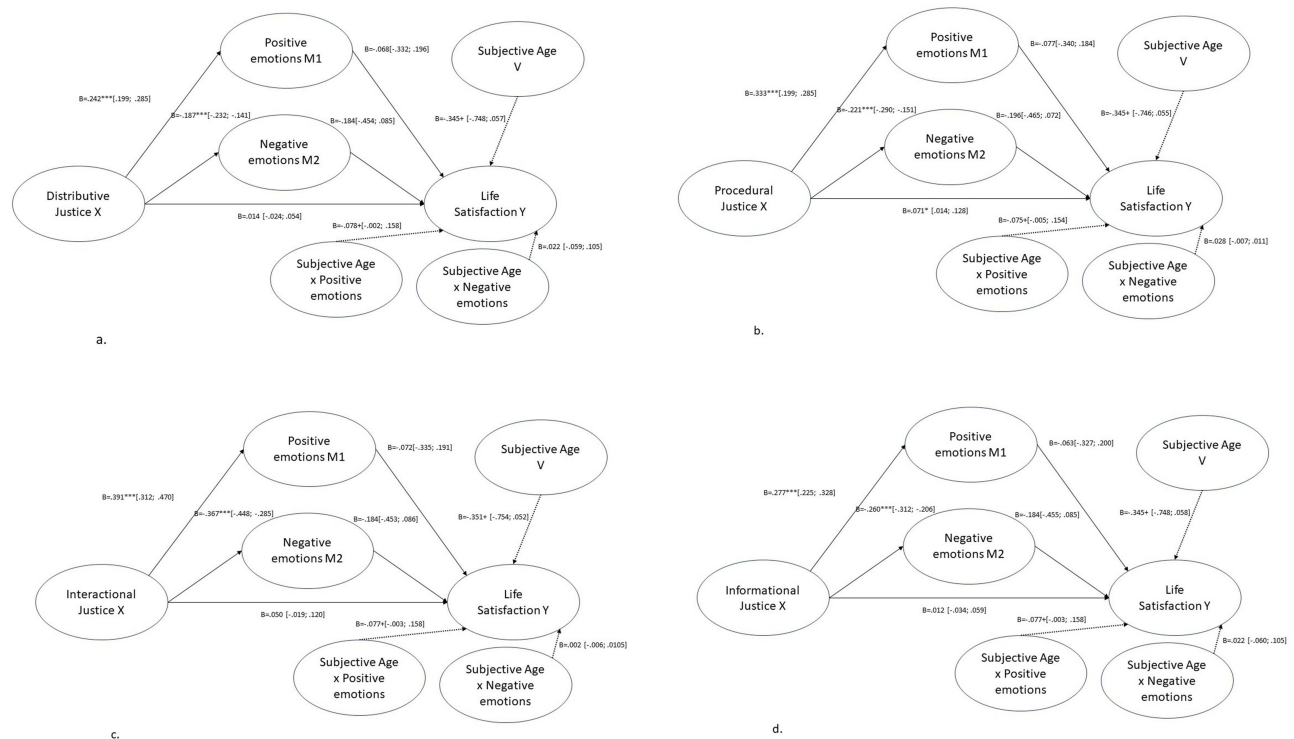


Figure 3 (a) Moderated mediation graph for the relationships between Distributive Justice and Life Satisfaction. (b) Moderated mediation graph for the relationships between Procedural Justice and Life Satisfaction. (c) Moderated mediation graph for the relationships between Interactional Justice and Life Satisfaction. (d) Moderated mediation graph for the relationships between Informational Justice and Life Satisfaction.

Notes: *Marginal significance; *** $p < 0.001$. * $p < 0.05$.

A primary outcome from the empirical results indicates the nuanced roles of different facets of organizational justice in life satisfaction. Our findings foreground the significant role of procedural justice as a direct predictor of life satisfaction, reinforcing H1b. This underscores the importance Chinese aged workers place on the fairness of the processes used by organizations to arrive at decisions. It resonates with Confucian values that stress the importance of righteousness and propriety in decision-making, which might be especially salient for the older Chinese generation. The presented results are consistent with extant literature which has established a connection between organizational justice and favorable outcomes such as workplace learning.⁴³ This association is, in part, due to the fact that perceptions of justice often involve a process of social comparison. Research has demonstrated that positive outcomes of upward social comparisons can extend to workplace learning. Concurrently, the perception of error tolerance within an organization has been linked to organizational justice, influencing the distribution of rewards and penalties. Further empirical evidence suggests that error tolerance can enhance organizational citizenship behaviors through the psychological empowerment of employees.⁴⁴ This bolsters the argument put forth in our hypotheses.

The aforementioned studies collectively underscore the beneficial effects of organizational justice perceptions on desirable outcomes, within the professional environment and beyond. The Spillover theory posits that rewarding experiences, such as those derived from perceptions of justice, may have a comprehensive impact that transcends the confines of organizational outcomes, potentially influencing broader aspects of life.

However, when we dive deeper into the indirect effects, the other dimensions of organizational justice—distributive, interpersonal, and informational—emerge as significant contributors, albeit through mediating variables. This suggests that while the immediate perceptions of fairness in processes (procedural justice) are crucial, the fairness in outcomes, interpersonal treatment, and transparency of information (respectively from distributive, interpersonal, and informational justice) play an indirect but equally salient role in shaping aged workers' life satisfaction. Though, it's worth noting the marginal significance for informational justice, which could be due to varied reasons, such as cultural nuances or organizational contexts not captured in this study. The mediating role of positive and negative emotions provides an

enlightening perspective on how organizational justice perceptions translate into life satisfaction. Positive emotions seem to serve as a bridge, channeling the positive aspects of organizational justice into heightened life satisfaction. Conversely, negative emotions appear to suppress life satisfaction, even when perceptions of organizational justice are favorable. This suggests the emotional response to workplace fairness can magnify or diminish its impact on life satisfaction. Our findings align with those of other scholars who have investigated the mediating role of positive and negative affect in the relationship between mindfulness and life satisfaction in elderly Chinese populations.⁴⁵ Corroborating our results, these studies have identified a significant indirect effect of mindfulness on life satisfaction, which is mediated through positive affect. The importance of emotions and their effect on performance has been examined in related research as well. This body of work has illuminated the influence of emotional intelligence—a non-cognitive measure of intelligence—on organizational performance within higher education institutions in China.⁴⁶

Our study introduces an intriguing dimension to the discourse: subjective age, despite the fact that some criticism arises on the influences of subjective age in older workers' outcomes.⁴⁷ Hayes' Model 14 allowed us to disentangle its moderating influence. Remarkably, as subjective age increased, the positive relationship between positive emotions at T1 and life satisfaction at T2 became more pronounced. On the flip side, negative emotions' detrimental impact on life satisfaction weakened with a heightened subjective age. These findings hint at the evolving role of age perception in dictating how emotions derived from workplace fairness perceptions impact life satisfaction. It is necessary to acknowledge that the present findings regarding hypotheses H3a, H3b, H3c and H3d are still tentative and, despite they may be of interest, should deserve further investigation. In a similar vein, previous studies that proved the mediating role of positive emotions into the relationships between mindfulness and life satisfaction, also provided evidence on the moderator role of Chinese retirees' age.⁴⁵

In essence, as aged Chinese workers felt younger, their positive emotions had a more potent effect on enhancing life satisfaction, and their negative emotions had a somewhat muted effect. This can be interpreted as the "young at heart" phenomenon where those who perceive themselves as younger than their chronological age might possess more resilience or optimism, modulating the effects of workplace emotions on their well-being.⁴⁸ The Socioemotional Selectivity theory suggests that as individuals age, they tend to focus more on the positive aspects of life rather than the negative ones.⁹ Nevertheless, the majority of empirical studies have examined these processes through the lens of chronological age. Our findings, however, highlight the significance of perceived and subjective age, suggesting that the sensation of feeling younger is also instrumental in augmenting the positive dimensions of life's meaning. This indicates a potentially valuable perspective that extends beyond mere chronological metrics, offering a more nuanced understanding of the aging process.

Limitations of the Present Study

The research conducted, while thorough and detailed, bears inherent limitations that merit consideration when interpreting the findings. Firstly, the sample predominantly focused on active employees from the private sector in China, aged between 40 and 60. This specific focus, although intentional, might limit the generalizability of our findings to younger employees, those from the public sector, or individuals outside this age range.

Secondly, our data collection strategy brought about a response rate of 54% for the initial questionnaire and 59.3% for the subsequent phase. Although these rates are comparatively commendable in the realm of survey research, they suggest a considerable proportion of non-respondents. It's plausible that these non-respondents might harbor perspectives distinct from our participants, potentially introducing a non-response bias.

Furthermore, concerning organizational collaboration, we approached a multitude of entities, yet only 15 consented to participate. The non-participation of the majority raises questions; perhaps these organizations had different workplace dynamics, policies, or concerns that could have offered additional insights. The reasons for their decline were not captured, leaving an information gap. Additionally, the study used a temporal lag of four weeks between T1 and T2 data collection. While this interval was deemed appropriate for the research objectives, it's worth pondering whether different insights would have emerged with a longer or shorter duration between surveys.

Lastly, the distribution of educational backgrounds and company sizes within our sample, notably the dominance of those holding bachelor's degrees and those working in smaller companies, may also constrain the breadth of our conclusions, as it might not fully represent the diverse workforce landscape in China.

Avenues for Future Research and Suggestions for Practitioners

Our findings open several intriguing avenues for future exploration. Firstly, while the present study has centered on active employees aged between 40 and 60 in China's private sector, researchers might consider broadening the demographic scope.⁴⁹ Investigating younger cohorts or those in public sectors could unveil different nuances in the interplay of organizational justice, workplace emotions, and subjective age perception.⁵⁰

Another promising direction would involve a cross-cultural perspective.⁵¹ By contrasting the Chinese work environment with other cultural backgrounds,^{52–54} we could better discern the universality or specificity of our findings.⁵⁵ This comparative approach might reveal the extent to which cultural values shape the dynamics of life satisfaction among aged workers.

Furthermore, the study employed a lag of only four weeks between two data collection points. Future studies might benefit from a more extended time frame, allowing researchers to capture potential long-term shifts in life satisfaction and its predictors.⁵⁶ An exploration into the possible non-linear relationships between the variables might also offer added depth to our understanding.

Suggestions for Practitioners

For HR professionals and organizational leaders, the findings of this research bring several actionable insights. Recognizing the paramount role of organizational justice in influencing aged workers' life satisfaction is imperative. As our study shows, procedural justice stands out in its direct impact. Therefore, organizations might consider investing in training programs that emphasize fair procedures in decision-making processes.

Moreover, given the significance of workplace emotions in determining life satisfaction, workplaces should strive for a positive and supportive environment. As our results suggest, the perception of subjective age can modulate the influence of these emotions. This means organizations should be wary of inadvertently fostering environments where older workers might feel marginalized or out of place. Age-inclusive policies, promoting intergenerational collaborations, and celebrating the value of experience can counteract such sentiments.

Lastly, organizations should not underestimate the value of timely feedback. By understanding and addressing the emotional well-being of their aged workers, they can not only enhance life satisfaction but potentially boost overall productivity and loyalty. The link between positive emotions and life satisfaction, especially when modulated by subjective age perceptions, underscores the need for a holistic approach to employee well-being.

Conclusion

This study has unveiled the complex tapestry of factors shaping life satisfaction among aged Chinese workers. It reiterates the importance of fostering a fair organizational environment, not just in terms of outcomes but also processes, interpersonal relations, and transparency. The emotional aftermath of these perceptions plays a pivotal role in determining life satisfaction, a role further nuanced by personal perceptions of age. As organizations continue to grapple with an aging workforce, understanding these dynamics will be paramount in creating conducive environments that foster well-being and satisfaction.

Disclosure

No potential conflict of interest was reported by the authors.

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