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Organizational Ethical Rewards and Team-Level Dynamics in Chinese Public Hospitals: A Multilevel Examination of Leadership, Climate, and Individual Behavior

CHEN Zheying

Doctor of Management

Supervisor:
PhD Nelson Ramalho, Associate Professor,
ISCTE University Institute of Lisbon

December, 2025

BUSINESS
SCHOOL

Marketing, Operations and General Management Department

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Jury:

PhD Elisabeth de Azevedo Reis, Full Professor,
Iscte - Instituto Universitário de Lisboa
PhD Maria Teresa Silva Féria de Almeida, Assistant Professor,
Universidade Católica Portuguesa
PhD Sandra Cristina Pereira Costa Camacho, Assistant Professor,
Iscte – Instituto Universitário de Lisboa
PhD Zhang Chichen, Professor,
SMU – Southern Medical University (China)
PhD Nelson Jorge Campos Ramalho, Associate Professor with Habilitation,
Iscte – Instituto Universitário de Lisboa

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Abstract

Research on ethics in healthcare settings has extensively covered ethical leadership, team processes, and individual behavior. However, few studies have examined how organizational ethical rewards drive these known processes, specifically their role in shaping ethical leadership and ethical climate at the team level. Additionally, the effect of ethically based constructs such as moral distress at the team level remains underexplored.

To address these gaps, we conducted a series of three studies. In Study 1, based on a sample of 303 healthcare professionals, we tested the psychometric quality and team-level aggregability of a novel ethical climate measure against an established one. Both measures demonstrated acceptable validity, reliability, and supported aggregation at the team level. However, they have differential advantages in explaining motivational outcomes (work engagement) and attitudinal outcomes (job embeddedness). In Study 2, we tested a team-level moderated mediation model, using a time-lagged sample of 474 physicians and nurses. The findings showed that a team clan ethical climate had a detrimental indirect effect on team work engagement, which was more strongly felt in nursing teams. In Study 3, guided by the social exchange theory, we employed a multilevel 3-2-2-1 model based on a nested sample of 31 hospitals, 157 medical teams, and 704 physicians who responded to a three-wave time-lagged survey. Using a novel measure of organizational ethical rewards, the model tested a cross-level indirect sequential effect, linking these rewards to team ethical leadership, team ethical climate, and finally to individual job embeddedness and unethical behavior. The MSEM results revealed that organizational ethical rewards foster job embeddedness at the individual level and inhibit unethical pro-organizational behavior, but not self-serving unethical behavior.

Keywords: Ethical rewards; Ethical climate; Work engagement; Job embeddedness
JEL: I18; M14

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Resumo

A investigação ética em contextos de cuidados de saúde tem exaustivamente coberto a liderança ética, os processos de equipa e o comportamento individual. No entanto, há poucas estudos que examinam como as recompensas éticas organizacionais promovem os processos conhecidos, nomeadamente o seu papel na formação da liderança ética e do clima ético ao nível da equipa. Além disso, o efeito de conceitos baseados na ética, como o stress moral ao nível da equipa, continua pouco estudado.

Para colmatar estas lacunas na pesquisa, foram realizados três estudos sequenciais. Com uma amostra de 303 profissionais de saúde, o primeiro estudo testou a qualidade psicométrica e a agregabilidade ao nível da equipa de uma nova medida de clima ético face a uma medida estabelecida. Ambas são válidas, fiáveis e agregáveis ao nível da equipa, embora tenham vantagens diferenciais na explicação de resultados motivacionais (envolvimento no trabalho) e atitudinais (job embeddedness). O segundo estudo parte de uma amostra com desfasagem temporal de 474 médicos e enfermeiros para testar um modelo de mediação moderada ao nível da equipa. Os resultados mostram que o clima ético do clã da equipa exerce um efeito indireto prejudicial no empenho no trabalho em equipa, que é mais pronunciado em equipas de enfermagem. Um terceiro estudo, orientado pela teoria da troca social, testou um modelo multinível 3-2-2-1 com uma amostra de 31 hospitais, 157 equipas médicas e 704 médicos. que responderam a um questionário em três tempos. Com base numa nova medida de recompensa ética organizacional, este modelo testou um efeito sequencial indireto entre níveis, ligando-a à liderança ética da equipa, ao clima ético da equipa e, finalmente, ao job embeddedness individual e ao comportamento antiético. Os resultados do MSEM revelaram que as recompensas éticas organizacionais promovem o job embeddedness a nível individual, inibem o comportamento antiético pró-organizacional, mas não o comportamento antiético egoísta.

Palavras-chave: Recompensa ética; Clima ético; Envolvimento no trabalho; Job embeddedness

JEL: I18; M14

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摘 要

医疗场景中的伦理相关研究已广泛覆盖伦理型领导力、团队运作过程及个体行为。然而，鲜有研究探讨组织伦理奖励如何驱动上述既定机制，尤其是其在团队层面塑造伦理型领导力与伦理氛围的作用。此外，团队层面的伦理相关构念如道德困扰的影响效应，仍未得到充分探索。

为弥补上述研究不足，共开展了三项系列研究。研究一以303名医护专业人员为样本，对比检验了一项新的伦理氛围测量工具与一项成熟测量工具的心理测量质量和在团队层面的可聚合性。两项测量工具均显示出良好的信度和效度，并可在团队层面聚合，仅在解释动机类结果（工作投入）、态度类结果（工作嵌入）方面存在差异化优势。研究二采用474名医生和护士的时滞样本，检验团队层面的有调节中介模型。结果表明，团队氏族型伦理氛围对团队工作投入具有负面间接效应，且在护士团队中这种效应更为显著。研究三基于社会交换理论，采用31家医院、157个医疗团队、704名医生的嵌套样本，通过三波时滞调研数据，检验了多层次3-2-2-1模型。本研究采用新型组织伦理奖励测量工具，探究了跨层次间接序贯效应，即组织伦理奖励依次作用于团队伦理型领导力、团队伦理氛围，最终影响个体工作嵌入与不道德行为。多层结构方程模型（MSEM）结果显示，组织伦理奖励能够提升个体层面的工作嵌入水平，抑制个体亲组织不道德行为，但对自利型不道德行为无抑制作用。

关键词：伦理奖励；伦理氛围；工作投入；工作嵌入

JEL: I18; M14

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List of Abbreviations

AVE	Average Variance Extracted
CEC	Caring Ethical Climate
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
COR	Conservation of Resources
CR	Composite Reliability
df	Degree of Freedom
ECQ	Ethical Climate Questionnaire
ECQ 2.0	Ethical Climate Questionnaire 2.0
EFA	Exploratory Factor Analysis
HTMT	Hetero Trait Mono Trait
IEC	Instrumental Ethical Climate
ICC	Intraclass Correlation Coefficient
KMO	Kaiser-Meyer-Olkin
LMX	Leader-Member Exchange
MD	Moral Distress
MMD-HP	Measure of Moral Distress for Healthcare Professionals
MSEM	Multilevel Structural Equation Modeling
PCA	Principal Component Analysis
RMSEA	Root Mean Square Error of Approximation
RSB	Spearman-Brown Reliability
RWG	Rater Agreement Within Groups
SEM	Structural Equation Modelling
SET	Social Exchange Theory
SRMR	Standardized Root Mean Square Residual
TLI	Tucker-Lewis Index
TMT	Top Management Team
UBSS	Self-Serving Unethical Behavior
UPB	Unethical Pro-Organizational Behavior
UWES	Utrecht Work Engagement Scale
VIF	Variance Inflation Factor

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Chapter 1: Introduction

1.1 Research background

Under the current Chinese healthcare system, public hospitals are the main providers of medical services. In recent years, the government has prioritized the high-quality development of public hospitals as a key task in deepening the reform of the medical and healthcare system, of which the management reform of public hospitals is an important link. Improving the quality and efficiency of medical services is an inevitable path for the development of China's public hospitals. At present, the common problem of insufficient work engagement among physicians in public hospitals has adverse implications at individual, hospital, and national levels. Therefore, this issue must be taken seriously in public hospital management.

1.1.1 Current development of Chinese public hospitals

The Chinese healthcare system is currently dominated by public hospitals. According to the Statistical Bulletin on the Development of China's Health and Wellness Sector published by the National Health Commission of China, as of the end of 2023, there were 11,772 public hospitals nationwide, with public hospital beds accounting for 69.2% of all hospital beds. Furthermore, public hospitals handle 83.5% of patient visits and employ 76.85% of the medical staff nationwide (National Health Commission of China, 2024). These data highlight the core position of public hospitals in China's medical system.

The development of public hospitals in China can be divided into several stages: From the 1950s to the 1980s, under the planned economy, public hospitals were administratively run by the government, with little consideration for economic efficiency. All expenses were covered by the government, and all revenue was state-owned. Physicians were not evaluated based on economic indicators (Yao, 2014). From the late 1980s to 2000s, public hospitals adopted a market-oriented approach through the implementation of the "full management, fixed subsidies, and surplus retention" system. This shift granted hospitals greater financial autonomy, which in turn led to a rise in individual medical expenses (Gao et al., 2016). The third phase spans from around 2002 to the present. China has implemented a new round of healthcare reform, aiming to address the issues of "difficult and expensive access to medical care" for the public, eliminate

the drawbacks of the "pharmaceutical-reliant medical care" model, and push the reform into a deeper phase. The government has vigorously promoted reform measures such as centralized drug procurement, adjustment of medical service prices, and advancement of medical insurance payment method reforms, with the goal of reducing the negative impacts caused by the excessive profit-driven orientation of public hospitals and promoting their return to public welfare. Meanwhile, the regulations have been further relaxed on the establishment of private hospitals (Zhu et al., 2018). However, the current structure of China's medical service market has not undergone fundamental changes.

In 2021, the State Council proposed promoting the high-quality development of public hospitals as a key task in deepening the reform of the medical and healthcare system. Chinese public hospitals are required to transition from a development model primarily focused on expansion in scale over the past several decades to one that prioritizes quality and efficiency. This calls for urgent management reforms and a transition to more refined practices to ultimately enhance the quality and efficiency of medical care.

1.1.2 Current working conditions of physicians in Chinese public hospitals

People are at the center of management. Schultz (1961) proposed the theory of human capital, highlighting human resources as the key driver of productivity growth. The development of disciplines such as organizational behavior has spurred deeper research into individuals in management. Consequently, human nature, needs, and behavioral motivations have increasingly garnered managers' attention (Robbins & Judge, 2019). Given their pivotal role as the primary providers of medical services, physicians in public hospitals represent a critical human resource that deserves substantial attention in hospital management.

However, the current working environment for physicians in China's public hospitals is not optimistic. Physicians in public hospitals generally face heavy workloads and long working hours. According to the 2021 Physician Survey Report released by Tsinghua University and the Chinese Medical Physician Association in April 2021, physicians work an average of 9.17 hours per day on outpatient services and research, with an average of 5.77 working days per week (T. Wang et al., 2021). A survey on general practitioners by Feng et al. (2022) showed that 71.08% of general practitioners often feel fatigued and have low job satisfaction.

In terms of interpersonal relationships in the workplace, survey reports indicate that the problem of physician-patient conflicts in China is relatively prominent, with 80% of physicians having experienced physician-patient conflicts to varying degrees (T. Wang et al., 2021). Due to asymmetric information between physicians and patients, some patients lack a thorough

understanding of proposed treatment plans. Some physicians may select higher-priced examinations and treatments in order to increase medical revenues. The gap in medical knowledge between the two parties also contributes to tensions in physician-patient relationship. Some patients believe hospitals are obligated to restore their health once they have paid for medical services, while physicians see their responsibility limited to medical procedures, not necessarily curing patients (Wang, 2022). Given the specialized nature of medical knowledge, patients usually have a limited understanding of their medical conditions. Insufficient communication may lead to distrust of physicians, potentially resulting in physician-patient conflicts. When conflicts escalate, they may lead to incidents of violence against physicians. In the current practice environment, physician-patient conflicts remain prevalent in public hospitals in China (T. Wang et al., 2021; Zhao et al., 2019).

Regarding career development, personnel matters in public hospitals in China fall under the management of government administrative departments, as these hospitals are public institutions. Physicians employed in public hospitals are considered staff members of these public institutions and are categorized into different levels based on their professional titles. These titles, which are evaluated and granted by government agencies, typically range from primary, middle to senior levels. The titles are intricately linked to physicians' positions, incomes, professional standing and benefits, serving as a vital pathway for their career development within public hospitals. Obtaining senior titles in public hospitals depends not only on years of service but also on academic research achievements. Therefore, aside from their clinical duties, physicians in public hospitals are required to publish papers and engage in research activities to attain higher professional titles, placing additional strain on their already limited time to relax stress.

The development of Chinese public hospitals cannot be promoted without an efficient, dedicated, and stable team of physicians. With policies prioritizing the promotion of the high-quality development of public hospitals, the level of work engagement of physicians is a crucial factor that must be considered in the management of public hospitals. Their work engagement affects the quality, efficiency, and outcomes of the medical services they deliver as well as their sense of well-being, job satisfaction, and turnover intention (Prenestini et al., 2023). As incentive theories have evolved, it has become apparent that medical staff are motivated not only by material rewards but also by psychological factors such as fairness, respect, and a sense of belonging (Karaferis et al., 2022). However, hospital managers face challenges in providing substantial material incentives to physicians due to policies prioritizing the public nature of hospitals over profitability. While increasing material incentives may temporarily boost

physicians' commitment to work, sustaining long-term high-incentive rewards is questionable given the current financial state of public hospitals. Moreover, considering the limited medical resources and uneven distribution within China's public hospitals, it is anticipated that these institutions will continue to operate under significant workloads. This emphasizes the necessity to explore sustainable strategies for enhancing physicians' work engagement and retention. Despite the global attention and research on physicians' work engagement, there remains a lack of studies exploring the relationship between team ethical climate and physicians' work engagement. Thus, further research in this area is necessary (Perreira et al., 2018).

1.1.3 The roots of medical ethics in China

Traditional Chinese culture has developed a unique system of ethical values, which deeply influences social and individual value orientations as well as interpersonal interaction patterns. Confucianism is at the core of traditional Chinese ethical values (Hu, 2024). The main features of traditional Chinese ethical values can be summarized as the Three Cardinal Guides and Five Constant Virtues.

The Five Constant Virtues consist of five characters. Benevolence (Ren) denotes compassion and love for others. Righteousness (Yi) means upholding justice and moral duty. Propriety (Li) refers to adhering to the social order based on hierarchies such as age and status. Wisdom (Zhi) entails understanding how universal ethical principles ought to guide one's behavior and thoughts. Fidelity (Xin) implies integrity, trustworthiness, and keeping one's word (Dai & Wang, 2019).

Traditional Chinese ethical concepts operate through a mechanism that extends from family ethics to social ethics. As the basic unit of society, the family's ethical norms play a fundamental role in shaping an individual's moral concepts. For example, respect for elders within the family, filial piety, is regarded as one of the important qualities in a person's morality. In social relationships, people are also widely required to respect and treat elderly individuals with no blood ties to them kindly, which is achieved through empathy and feeling of extending one's own care to others.

Confucian moral education emphasizes the moral cultivation of individuals. It requires people to internalize moral norms into their own values through learning moral theories and imitating the good behaviors of moral role models. When evaluating a person's moral level, great importance is attached to their contributions to the family, the country, and society. The pursuit of cultivating one's moral character, managing the family, governing the state, and bringing peace to the world closely links personal moral cultivation with the governance of the

family and the country. Only when an individual fulfills their ethical responsibilities within the family and makes positive contributions to the country and others in society can they be regarded as a person of noble morality (Hu, 2024). Leaders are also required to continuously improve their own moral cultivation. Only by first rectifying their own behaviors and thoughts can they influence others.

The Three Cardinal Guides of Confucian culture holds that the three types of social relationships between father and son, monarch and minister, and husband and wife, are the most fundamental interpersonal relationships in society. Based on these, principles for other interpersonal relationships such as those between relatives and friends are established. It emphasizes that interpersonal interactions within families and society should abide by established order, with distinct differences in the intimacy and distance between different individuals. The "Guanxi" (relationships) within the pattern of differential order constitutes an important part of ethical rules (Zhou, 2021).

In modern Chinese social life, although the Three Cardinal Guides no longer exist in their traditional feudal form, their ideological legacy persists. In the workplace, this is reflected in the values that advocate individuals obeying collective decisions and employees obeying leadership decisions, with leaders playing a dominant role in decision-making.

The relationship-based society is also manifested in physician-patient relationships. Patients may place greater trust in physicians with whom they have a "Guanxi". For example, those introduced by relatives or friends. Such trust makes patients more willing to cooperate with treatment during medical visits, and leads them to hold higher expectations for treatment outcomes (Dong et al., 2014).

Medicine respects human life and the pursuit of health, which inherently embodies ethical and moral requirements. Traditional Chinese ethical concepts regard benevolence as an important value orientation. In the medical field, it advocates values such as "Medicine is the art of benevolence" and "Physician should have the heart of a parent", with the view that noble medical ethics are a basic requirement for engaging in the medical profession. Physicians are required to have a spirit of fraternity and kindness toward patients, put patients' life and health first, and possess a sense of social responsibility (Zhou & Zhang, 2013). Therefore, the traditional ethical concept of the healthcare profession as a noble image of devotion continues to profoundly influence physicians' professional ethical values to this day.

1.1.4 Development of modern medical ethics in China

Chinese professional medical associations have established standardized professional ethical

guidelines. In 2014, the Chinese Medical Doctor Association introduced the Code of Ethics for Chinese Physicians, outlining ethical principles. The basic principles include taking patients' interests as the highest standard of conduct, upholding humanitarianism, and fulfilling social responsibilities at work (Chinese Medical Doctor Association, 2014).

In order to solve new ethical issues emerging in medical practice, in 2016 China issued the Ethical Review Measures for Medical Science and Research Involving Human. This regulation requires hospitals to establish ethics committees to conduct ethical reviews of experimental research involving humans (Zhou et al., 2024). In 2022, the Guidelines on Strengthening Governance over Ethics in Science and Technology was issued, further standardizing ethical governance in these fields (Wang, 2023). Currently, most Chinese hospitals have established medical ethics committees. However, there are still deficiencies regarding the independence of reviews and the expertise of committee members (Guo et al., 2023).

Physicians in public hospitals still face many obstacles to practicing ethical principles. Under the current management system of public hospitals in China, the financial support provided by the government is limited, while expenditures such as equipment, housing, and labor costs are relatively fixed. To cover operating costs and ensure their long-term survival, public hospitals need to generate higher revenues. In addition, since hospital rating and performance evaluation involve hospital revenue indicators, they are incentivized to increase their income to obtain higher scores. Evaluations of physicians' performance often revolve around the economic benefits they bring to the hospital, with the performance evaluation system primarily focusing on professional competencies and research achievements while overlooking medical ethics. In goal-oriented work environments, physicians lack incentives from organization to uphold high moral standards (Yao, 2017). These conflict with the patient-centered ethical principles emphasized in physicians' education, resulting in ethical dilemmas and ethical conflicts.

1.2 Research motivation

For public hospital managers, the quality of medical services is closely related to patients' interests, and such quality directly depends on the professional competence of physicians and other healthcare professionals (J. Li et al., 2022). Hospitals typically improve the professional competence of healthcare professionals through methods such as refined recruitment, continuous investment in education, and improvement of salary and welfare systems, but most of these measures fall into the category of extrinsic incentives. To achieve higher-quality

medical services, intrinsic incentives can make the healthcare team more cohesive and reliable, without relying on existing material resources (Rigby & Ryan, 2018; Veenstra et al., 2022). When employees lack sufficient intrinsic motivation, they may struggle to maintain the drive to provide high-quality medical services. During times of material resource scarcity, extrinsic incentives may be difficult to obtain, yet high-quality service is precisely the key to resolving their operational challenges.

In motivating healthcare professionals and within all clinical domains, ethics is key to fostering a high-quality healthcare service (Fumincelli et al., 2019; Kossaify et al., 2017). Professional ethics, as a collective phenomenon, is shaped not only through educational experiences but also through interactions among healthcare professionals, who collectively build and share a sense of ethical climate at the team level. This shared ethical sense is crucial for positive work outcomes within organizations (Fumincelli et al., 2019). For organizations to achieve high-quality services centered on ethics, they must not only practice ethical leadership but also attach importance to rewarding ethical behaviors at the highest level. However, current research on how ethical rewards affect team ethical leadership and ethical climate remains insufficient. In addition, there is a lack of exploration into the role of ethics-based constructs (such as moral distress) at the team level. Rewarding ethically compliant behaviors may help hospitals foster a positive team ethical climate, which further translates into positive behaviors of healthcare personnel in their daily work, bringing benefits to hospitals.

1.3 Research questions

In the management of public hospitals in China, the work performance and conduct of healthcare professionals are closely tied to the quality of medical services and the hospitals' long-term sustainability. Among various factors, as the core embodiment of the ethical environment, team ethical climate has attracted significant attention for its influence on healthcare professionals' work attitudes (such as work engagement and job embeddedness) and behavioral decisions (such as unethical behavior). However, existing research still has deficiencies in exploring the relationship between ethical climate measured at team level and healthcare professionals' work-related outcomes, as well as the organizational-level antecedents of ethical climate. This is especially true in the Chinese context. The intertwining of traditional ethical culture and the modern medical ethical system makes the mechanism of team ethical climate unique, highlighting the urgent need for deeper empirical exploration in this area.

Grounded on the context of Chinese public hospitals, this study focuses on team ethical

climate among healthcare professionals as a hinge for cross-level ethical transmission from the organization to the team and then to the individual, proposing the following research questions:

1.How does team ethical climate influence work-related attitudinal and behavioral variables such as work engagement, job embeddedness, and unethical behaviors of healthcare professionals in Chinese public hospitals?

2.What is the mechanism through which team ethical climate affects healthcare professionals' work-related outcomes?

3. How do organizational-level ethics-related variables, such as ethical rewards, influence team ethical leadership and team ethical climate, and subsequently affect individual work attitudes and behaviors?

Three studies together form a research continuum encompassing "Measurement tool validation, team-level mechanism analysis, and multilevel mechanism analysis", aiming to provide theoretical underpinnings and practical guidance for ethical management in the medical sector.

1.4 Purpose and significance of the study

1.4.1 Research purpose

This study explores the applicability of team-level ethical climate measurement in the context of Chinese public hospitals, laying a foundation for the scientific measurement of ethical climate at the genuine team level in the healthcare sector.

From a team-level perspective, this study examines how the team ethical climate influences team work engagement through the mediating role of team moral distress. By comparing physicians and nurses, this study seeks to enhance the understanding of the operational mechanisms of team ethical climate.

Furthermore, adopting an organizational-team-individual multilevel perspective, this study explores how organizational ethical rewards affect physicians' individual job embeddedness and unethical behaviors, mediated by team ethical leadership and team ethical climate, revealing the nuanced, multi-level effects of ethical transmission within the healthcare environment.

1.4.2 Theoretical significance

This study enriches research on ethical climate measurement tools. It tests the application of

the new ethical climate instrument, Ethical Climate Questionnaire 2.0 (ECQ 2.0) by Weber and Opoku-Dakwa (2022), in the context of Chinese public hospitals. ECQ 2.0 is compared with the original Ethical Climate Questionnaire (ECQ) by Victor and Cullen (1988) to explore differences in their predictive power over outcome variables such as job embeddedness and work engagement, thereby providing empirical evidence for the cross-cultural adaptability of such tools.

From a team-level perspective, the study reveals the mechanism by which team ethical climate influences team work engagement through the mediating role of team moral distress, and explores potential professional differences between physicians and nurses in this process, thereby deepening the understanding of the dynamic transmission path of team ethics, enriching the localized application of moral distress theory in the medical field, and offering a new theoretical perspective for understanding the ethical behaviors of healthcare professionals in the Chinese context.

The study constructs a three-level model, systematically investigating the cross-level effects of organizational-level ethical rewards on individual attitudes (job embeddedness) and behaviors (unethical behaviors) through team ethical leadership and team ethical climate, thereby filling the gap in existing research regarding insufficient attention to the cross-level transmission chain of ethical mechanisms.

1.4.3 Practical significance

This study offers targeted insights for the practices of ethical management in Chinese public hospitals. Given the differences in how healthcare professionals of different occupations are affected by the ethical climate, as well as variations in the sources of moral distress they encounter, hospitals should develop tailored ethical training for groups such as physicians and nurses. These programs aim to help healthcare professionals in different roles better handle moral distress and ethical conflicts.

Regarding the regulation of professional behaviors, the study focuses on key elements including organizational ethical rewards, team ethical leadership and ethical climate, providing directions for hospitals to refine their ethical management systems. Hospitals can leverage this to explore the establishment of a more scientific ethical reward mechanism, integrate ethical dimensions into daily management and assessment, and guide medical staff to develop awareness of valuing and consciously adhering to ethical and moral standards, thereby reducing unethical behaviors by strengthening the ethical literacy of team leaders.

This study investigates the cross-level impact of ethical factors at the organizational level

on individual behaviors, which provides a reference for public hospitals to formulate systematic ethical strategies. Hospitals can incorporate ethical development into their overall development plans, improve ethics-related institutional structures through top-level design, and facilitate the integration of ethical concepts from the organizational level to team operations and individual practices.

1.5 Research content and methods

Because this research is mainly focused on ethical climate and its antecedents and consequences, the first focus was on the measurement issues specific to ethical climate in a healthcare setting and in China. Although ECQ by Victor and Cullen (1988) is widely used, Weber and Opoku-Dakwa (2022) introduced a new proposal aimed at overcoming some issues in the previous ECQ measure. Thus, Study 1 was designed to comparatively test the psychometric properties of both versions within a Chinese healthcare setting measured at the true team level. The predictive validity concerned two key individual psychological states, namely job embeddedness and work engagement (Mitchell et al., 2001; Schaufeli et al., 2002). Findings were expected to inform further empirical studies on the differential advantage of using each ECQ version in this setting and also in differentiating the informative value of job embeddedness and work engagement as intermediate work outcomes.

Building on the findings from the first study, Study 2 aimed to explain a critical issue in healthcare ethics research, moral distress. It was grounded in a conceptual model that treated ethical climate as a predictor, moral distress as a mediator and work engagement as an outcome, all assessed at the team level. It also examined whether this model applies equally to physicians and nurses, as there is indication that their proximity to patients is relevant to gauge moral distress. This study was intended to uncover the team-level processes as ethical climate is truly a construct that should be measured at the collective level.

Drawing from the insights of the first and second study, a third study was designed to incorporate higher-level constructs, namely an underexplored predictor of ethical climate, ethical rewards. This construct has not been empirically studied at its true measurement level, the organizational level. Therefore, the study is built on a three-layered multi-level model, covering organizational, team and individual levels. It incorporates previous findings from Study 1 and 2 by targeting ethical leadership and team ethical climate as sequential mediators to explain how higher-level ethical rewards foster job embeddedness and simultaneously prevent unethical behaviors among individual healthcare professionals.

The methods adopted in these studies varied according to their nature and conceptual model. The first study is mainly a psychometric validation study and therefore it deployed a quantitative data analysis focused on validity and reliability. For construct validity we used confirmatory factor analysis (CFA), for within-construct convergent validity we used Fornell and Larcker's (1981) average extracted variance (AVE), and for discriminant validity we used Henseler's (2015) Hetero Trait Mono Trait (HTMT). Because the constructs should be tested at team level, we applied aggregation indicators r_{wg} (Rater Agreement Within Groups), and intraclass correlation coefficients ICC(1) and ICC(2) (James et al., 1993; Woehr et al., 2015). Lastly, as a novel measurement was being compared with a long established one, we also tested predictive and incremental validity based on a hierarchical regression analysis on job embeddedness and work engagement as outcomes. Reliability was calculated using Cronbach's α. As per Study 2, the reflective constructs were all tested with CFA as well as the stated validation indicators (AVE, HTMT) together with reliability (composite reliability by Jöreskog (1971)) and aggregation indicators (r_{wg}, ICC(1) and ICC(2) as mentioned above). The team level model was tested with path analysis. Study 3 involved a three-level conceptual model and again the constructs were tested for validity and reliability in the exact way as the previous one, and the within and between effects were tested with MSEM using MPLUS software.

1.6 The thesis structure

Chapter 1: Introduction. This chapter delves into the research background, including the contemporary evolution of public hospitals and the working environment of physicians. It traces the origins of Chinese medical ethics and charts the development of modern medical ethics. Then we introduce the research motivation, research questions, research purposes and significance, and the research methods.

Chapter 2: Literature Review. The chapter begins by highlighting the significance of ethics in physicians' clinical practice, followed by an overview of work engagement as a variable. It then analyzes ethical conflicts and their impacts, further reviewing relevant literature on team ethical climate, moral distress, and job embeddedness, thereby establishing a groundwork for subsequent studies.

Chapter 3: Study 1. This chapter centers on ethical climate measurement tools, comparing and testing the ECQ developed by Victor and Cullen (1988) against the ECQ 2.0 developed by Weber and Opoku-Dakwa (2022). Data are collected through online questionnaires, with CFA employed to assess construct validity, and hierarchical regression analysis utilized to probe

predictive validity and incremental validity, thereby furnishing empirical evidence for the cross-cultural adaptability of ethical climate measurement tools.

Chapter 4: Study 2. Building on the outcomes of Study 1, this chapter constructs a team-level conceptual model with ethical climate as the predictor, moral distress as the mediator, and work engagement as the outcome variable. It investigates the mechanism through which team ethical climate influences team work engagement via team moral distress and compares the model's applicability across physicians and nurses. Data are collected through online questionnaires, and path analysis is executed to derive research results and conclusions.

Chapter 5: Study 3. This chapter formulates a multi-level model encompassing organizational (31 hospitals), team (157 healthcare teams), and individual (704 physicians) levels to explore the impact of organizational ethical rewards on individual job embeddedness and unethical behaviors among physicians in public hospitals, mediated by team ethical leadership and team ethical climate. Data are collected through online questionnaires, and the multilevel structural equation model is tested to yield research results and conclusions.

Chapter 6: General Conclusions. This chapter provides a comprehensive discussion of the findings from the three studies, summarizes the theoretical contributions and managerial implications, identifies research limitations, and proposes avenues for future research.

1.7 Empirical research overview

For clarity's sake, the full empirical research overview is presented in Table 1.1 that summarizes the key points for each study and offers a view on how they are integrated.

Table 1.1 Research summary

Study 1	Study 2	Study 3
Research problem		
A revision of ethical climate measurement has been proposed, and there is a shortage of studies that test its psychometric quality in Chinese healthcare settings and at the team level.	Existing studies have insufficiently explored the team-level ethics-related antecedent variables of work engagement, especially in the field of Chinese healthcare.	Although leaders play a core role in organizational ethical development, their own ethical behaviors are influenced by organizational-level ethical rewards. However, this aspect and its chain effects on work teams and employees have not been thoroughly studied.
Research questions		
What is the differential psychometric quality of Victor and Cullen's (1988) ECQ compared to the novel Weber and Opoku-Dakwa's (2022) ECQ 2.0? What is the differential appropriateness for a Chinese healthcare and team-level analysis?	How does the team-level ethical climate affect team work engagement through team moral distress? What are the differences in the impacts of different types of ethical climates? And what variations exist between the physician and nurse occupations in this process?	How do an organization's ethical rewards affect team ethical leadership and instrumental ethical climate, thereby influencing physicians' unethical behavior and job embeddedness?
Research purpose		
To test the validity, reliability, and aggregability at the team level of ECQ versus ECQ2.0.	From a Conservation of Resources Theory perspective, this study tests the association between the four types of team ethical climates (ECQ 2.0) identified in Study 1 and team work engagement, analyzing the mediating role of team moral distress, and the moderation of occupation (physician vs. nurse).	Departing from a Social Exchange Theory viewpoint, this study focuses on how organizational-level ethical rewards act on team ethical leadership and instrumental ethical climate, as well as individuals' job embeddedness and their unethical behaviors of physicians.
Theoretical and practical implications		
To gauge the psychometric quality of ECQ measures and to strengthen the use of ECQ measurement at the team level in healthcare settings in China.	It enriches research on team-level ethical climate, verifies the differential impact mechanisms of ethical climate on work engagement, and provides evidence for the positive effect of team moral distress on healthcare professionals.	A novel organizational-level construct measure of ethical rewards is proposed and added to the organizational ethics literature as the driver of the multi-level path down to individual behavior via team ethical leadership and climate.
Research design		
303 valid answers were obtained through questionnaire surveys. Psychometric validation methods using quantitative data analysis: CFA, hierarchical regression, and aggregability indicators.	A total of 474 valid answers were obtained through questionnaire surveys. Psychometric validation methods with quantitative data analysis were adopted. The model was tested using path analysis via the Smart-PLS program.	704 valid answers were obtained through questionnaire surveys, nested in 157 teams, nested in 31 hospitals. We used psychometric validation methods with quantitative data analysis. The analysis used MPLUS through MSEM.

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Chapter 2: Literature Review

Work engagement, ethical climate, moral distress, and job embeddedness are the core variables of the thesis. The literature review systematically summarizes existing research findings and progress, focusing on the definitions, dimensions, measurements, antecedent variables, and outcome variables of these four variables, as well as studies on the significance of ethics in clinical work and ethical conflicts.

2.1 Significance of ethics in physicians' clinical work

Physicians often need to make ethical considerations in clinical work, which not only involve issues about how to protect patients' interests but also may be complex problems related to the team and organizational levels, such as how to work with colleagues who have deficient clinical skills (Fritz & Cox, 2020). Since ancient Greece, ethics has been the core of medicine, guiding physicians and other medical workers to identify and resolve ethical dilemmas in clinical practice. Medical ethical principles based on the Hippocratic Oath generally hold that physicians have an obligation to act in the best interests of patients (British Medical Association, 2012).

The English term "ethics" originates from the Greek word "ethos", which refers to customs and conventions that vary significantly across different groups. Over time, the meaning of ethics evolved to encompass notions of "disposition" and "habit" (Dewey & Tufts, 2019). Sulmasy (2001) defines ethics as a systematic, logical framework of rules about right and wrong that guides human analysis and judgment. Beauchamp and Childress (2013) view ethics as the study of moral principles and standards used to assess, evaluate, and interpret human behavior. Varkey (2021) holds that ethics includes not only the study of the nature of morality but also the study of specific behavioral decisions.

Beauchamp and Childress (2013) put forward four basic principles of medical ethics: beneficence, nonmaleficence, autonomy, and justice. These four basic principles are widely applied in the field of clinical work as guiding principles for resolving ethical dilemmas (Varkey, 2021). The principle of beneficence means that physicians must take patients' interests as the criterion for judgment. The principle of nonmaleficence requires physicians to avoid causing unnecessary harm to patients. The principle of respect for autonomy dictates that physicians

must respect patients' right to autonomously decide whether to receive treatment and which treatment method to choose. The principle of justice stipulates that in resource allocation, physicians' judgment should not be influenced by patients' economic and social status, race, or other factors (Beauchamp & Childress, 2013).

In the traditional fabric of Chinese society, Confucianism stands as the bedrock of ethical principles. It praises virtues such as "benevolence", "righteousness", and "ritual", advocating for individuals to integrate inner self-discipline with social norms to foster harmony between individuals and society (Wong, 2020). Under the Confucian ideological framework, physicians are required to adhere to universal moral standards as human beings, including possessing noble character, behaving properly, showing extensive care for all individuals, prioritizing moral pursuit over economic interests, and avoiding greed for wealth (Fan, 2006). Under the philosophical tenets of Confucianism, Chinese traditional medicine has cultivated a distinguished tradition of medical ethics. The ancient medical work Huangdi Neijing, also known as the Yellow Emperor's Inner Classic, emphasizes the importance of valuing basic medical principles and analyzing disease causes comprehensively, while also aiming to alleviate patients' suffering during treatment (Wu, 2021). Dating back to the 7th century BC, "Qian Jin Yao Fang", literally "Essential Formulas Worth a Thousand in Gold for Emergencies", authored by Sun Simiao of the Tang Dynasty, stands as one of the earliest works on medical ethics. This book champions "excellence" and "sincerity" as moral imperatives for physicians. "Excellence" entails continual learning and refinement of medical techniques, while "sincerity" implies treating patients equally, being conscientious, and maintaining a sincere attitude (Yao & Li, 2021). Tsai (1999) summarized traditional Chinese medical ethics as follows: cherishing the value of life, showing sympathy and kindness towards patients, attaining a requisite moral foundation before pursuing medical studies, engaging in thorough and persistent learning, along with the perpetual honing of skills, shunning the pursuit of wealth and fame; treating all patients equitably and with familial care, approaching patient care with sincerity and selflessness; upholding the privacy and dignity of patients, maintaining humility and respect towards colleagues, while also recognizing the esteemed status and societal contributions of the medical profession. Zeng (2020) holds that western concepts of medical ethics are consistent with traditional Chinese medical ethics. Traditional Chinese medical ethics require physicians to treat patients with the same care and attention as they would give themselves, and also demand that physicians maintain kindness and possess a compassionate heart to relieve patients' sufferings. Therefore, traditional Chinese medical ethics mainly provide guidance in shaping physicians' good moral qualities and noble spiritual pursuits, embodying the emphasis on health

and life, as well as the requirements of care, respect, and equality for patients, and they still have a profound impact on Chinese physicians to this day (Wu, 2021).

Although both Chinese and western traditional medical ethics have high ethical expectations for the medical profession, incidents of ethical misconduct still occur from time to time. In 1946, the Nuremberg Code was passed by the International Military Tribunal in Nuremberg, which outlined ten fundamental principles regarding human experimentation and is considered a significant milestone in the field of medical ethics (Ghooi, 2011). In 1948, based on the Hippocratic Oath, the World Medical Association formulated the Geneva Declaration, summarizing the professional ethical principles and responsibilities of physicians, with a focus on the health and welfare of patients (Wiesing, 2020; World Medical Association, 2017). In 1949, the World Medical Association issued the International Code of Medical Ethics, based on the Geneva Declaration, as the universal standard for international medical ethics (Parsa-Parsi et al., 2023; World Medical Association, 2022). In 1964, building upon the principles of the Nuremberg Code, the World Medical Association developed the Helsinki Declaration. Its concepts of risk-benefit assessment and proxy consent further standardize ethical standards for biomedical research involving human subjects, exerting a profound impact (Carlson et al., 2004; World Medical Association, 2013). In October 2022, the World Medical Association released the latest revised International Code of Medical Ethics to reflect the latest changes in medical ethics. This code requires physicians to hold responsibility not only to patients but also to the public and society, including the health and interests of future generations (World Medical Association, 2022).

2.2 Work engagement

At the end of the 20th century, scholars like Seligman and Csikszentmihalyi (2000) pioneered research in positive psychology, focusing on the study of positive psychological experiences in individuals and emphasizing the cultivation of positive personality traits and a sense of well-being. Work engagement describes one such positive psychological experience (Schaufeli et al., 2002). Work engagement can have a positive impact on various aspects of employees, including their health, job satisfaction, work performance, organizational citizenship behavior, and turnover intention (Lesener et al., 2020; Mazzetti et al., 2023; Rich et al., 2010; Saks, 2019). Consequently, the management field has garnered considerable attention towards strategies for promoting work engagement.

2.2.1 Concept and dimensions of work engagement

Based on different scholars' perspectives on work engagement, there are also many different views on the definition and dimensions of work engagement.

Kahn (1990) based on Work Role Theory, suggested that individual work engagement involves actively investing personal resources into work, presenting one's best self at work, building connections with colleagues and others around, and demonstrating positive role behavior. Kahn (1990) identified three dimensions of work engagement: physiological, cognitive, and emotional. The physiological dimension involves investing time and physical energy into work tasks, the cognitive dimension pertains to the utilization of concentration and judgment abilities in one's work role, and the emotional dimension entails maintaining relationships with colleagues, supervisors, clients, and others involved in the work, as well as experiencing emotions in relation to them.

Building upon Kahn's (1990, 1992) research, Rothbard (2001) proposed a two-dimensional structure for work engagement: attention and absorption. She posited that these two dimensions are interrelated rather than independent. The attention dimension pertains to the allocation of cognitive resources, such as time, to work-related tasks, while the absorption dimension refers to the intensity of focus on one's work and the neglect of other distractions, thus emphasizing an internal form of attention. Therefore, Rothbard's conceptualization of work engagement primarily emphasizes the cognitive dimension outlined in Kahn's (1990) definition.

Maslach and Leiter (2000) revealed the positive aspects of burnout and proposed that work engagement is a state of energy, involvement, and effectiveness in work, which stands in contrast to burnout. Its three dimensions correspond to the three dimensions of burnout: exhaustion, cynicism, and inefficacy. Maslach et al. (2001) also analyzed the concept from the perspective of job demands and resources, suggesting that while burnout pertains to job demand factors such as workload and emotional needs, work engagement relates to work resources such as job control, feedback availability, and learning opportunities.

Schaufeli et al. (2002) studied work engagement from another perspective, believing that work engagement should be defined based on the stimulation of work satisfaction and recognition. They defined work engagement as a positive, enjoyable, work-related state comprising three dimensions: vigor, dedication, and absorption. Vigor involves maintaining high energy and psychological resilience in work, being willing to exert effort for work, and facing difficulties encountered. Dedication involves sustaining a high degree of commitment to work, coupled with enthusiasm and pride. Absorption refers to being deeply engrossed in work,

experiencing a sense of time passing quickly, and reluctance to disengage from work. Among these dimensions, vigor and dedication are regarded as the core components of work engagement (Mazzetti et al., 2023). Schaufeli et al. (2002) also contended that work engagement is not a transient experience or confined to specific circumstances but rather a persistent and pervasive state, independent of specific stimuli, events, individuals, or behaviors.

Other researchers have also discussed the concept and dimensions of work engagement. Saks (2006) endeavored to explain why employees exhibit varying levels of work engagement through the perspective of social exchange theory. He categorized work engagement into two types: work engagement and organizational engagement. Building upon Schlenker et al.'s (1994) three-dimensional model of responsibility, Britt et al. (2007) defined work engagement as a combination of responsibility and commitment to work performance. They viewed work engagement as a state motivated by performance, contrasting with Schaufeli et al.'s (2002) definition which emphasizes vigor, dedication, and absorption as outcomes of work engagement. Macey and Schneider (2008) conceptualized work engagement as the recurrent experience of motivation and adaptive behavior in the workplace, which is both a psychological state and observable behavior. They categorized work engagement into three dimensions: trait engagement, psychological state engagement, and behavioral engagement. Compared to the definition by Schaufeli et al. (2002), the definition of work engagement by Macey and Schneider (2008) encompasses a broader range of components.

2.2.2 Measurement of work engagement

Maslach and Leiter (2000) considered work engagement as the opposite of burnout. They proposed that the Maslach Burnout Inventory could be used to measure work engagement with reverse scoring.

Schaufeli et al. (2002) held a different view, contending that work engagement is an independent concept that requires its own dedicated measurement tool, rather than being assessed through the reverse scoring of the Maslach Burnout Inventory. Instead, a dedicated measurement tool should be used. Research conducted by González-Romá et al. (2006) also indicated that burnout and work engagement are negatively correlated but not completely related.

Schaufeli et al. (2002) developed the Utrecht Work Engagement Scale (UWES), which includes three dimensions: vigor, dedication, and absorption, with a total of 17 items. Later, they also developed a short version with 9 items (UWES-9), with 3 items for each of the three

dimensions, followed by an even shorter version with 3 items (UWES-3), with 1 item for each dimension (Schaufeli et al., 2017).

In summary, scholars have used various methods and perspectives to interpret the definition and dimensions of work engagement. Currently, the definition of work engagement by Schaufeli et al. (2002) and their developed UWES scale are widely used in multiple countries and occupational sectors globally (Decuypere & Schaufeli, 2020; Domínguez-Salas et al., 2022; Giménez-Espert et al., 2020).

2.2.3 Work engagement in the medical field

In hospital settings, where physicians play vital roles as healthcare providers, their work engagement is of paramount importance. Work engagement empowers physicians not only to participate actively in organizational decision-making processes but also to take responsibility for achieving organizational objectives (Prenestini et al., 2023). A growing number of scholars are acknowledging the pivotal role of organizational initiatives in sustaining and bolstering physicians' work engagement (Shanafelt & Noseworthy, 2017). Shanafelt (2021) suggested that research on physicians' well-being has evolved into a new phase termed 2.0, shifting its focus from individual-centric studies towards examining systemic, procedural, team-based, and organizational factors. This new phase places a heightened emphasis on factors that contribute to enhancing physicians' well-being and reducing occupational distress, particularly addressing their emotional and psychological needs. Additionally, there is increased attention on the influence of organizational and team environments, as well as interpersonal relationships, on physicians.

Scholars have explored both antecedents and outcomes of physicians' work engagement. In terms of antecedents of work engagement among physicians, researchers have examined individual psychological traits and organizational and team-related factors. Research conducted by Zhang et al. (2021) in China suggests that optimism enhances physicians' work engagement. Furthermore, team support has been identified as a crucial factor in promoting physicians' work engagement. The sense of meaning derived from helping others can inspire physicians to engage in their work (Yanchus et al., 2020).

Regarding outcomes of physicians' work engagement, work engagement impacts variables related to physicians themselves such as job satisfaction and turnover intention, and variables related to work outcomes such as the quality of care (Yanchus et al., 2020). Rao et al. (2020) suggested that physicians with low work engagement reported lower job satisfaction and a

higher turnover intention than their highly-engaged counterparts.

Through case studies, Shanafelt and Noseworthy (2017) proposed that organizational strategies to promote physicians' work engagement should include leveraging the power of leadership and fostering solidarity in the workplace. Prenestini et al. (2023), based on literature review, suggested that future research on physicians' work engagement should focus on providing organizations with reliable tools for its enhancement.

2.2.4 Antecedents of work engagement

Boccoli et al. (2023) analyzed 138 articles and classified antecedents of work engagement into two main groups: intrinsic variables and extrinsic variables. Intrinsic variables affect work engagement through individual perception, while extrinsic variables influence work engagement through situational factors. Intrinsic variables primarily include personal resources, positive emotions, recovery and relief activities, and work engagement (self or others). Extrinsic variables mainly consist of job characteristics, social relationships, and organizational resources.

Employees' positive personality traits have been universally recognized and empirically proven to exert a positive impact on work engagement, such as optimism, hopefulness, initiative, and psychological resilience (Chong et al., 2021; Ojo et al., 2021; Ozyilmaz, 2020; Zhang & Zhang et al., 2021). In addition, employees' perceptions of themselves and their work are also crucial factors. Self-efficacy, job crafting, and the understanding of work meaning all play a positive role in work engagement (Chan et al., 2020; Frederick & VanderWeele, 2020; Kuijpers et al., 2020; Letona-Ibañez et al., 2021). Research conducted by Sonnentag et al. (2020) indicated that employees' positive emotions directly promote work engagement.

Likewise, rest and relaxation have proven to have a positive impact on work engagement. Interactions with colleagues during lunch breaks can alleviate stress and fatigue, thus exerting a positive effect on work engagement (Sianoja et al., 2018). Engaging in leisure activities during the workday is beneficial for employees to reduce stress, foster positive emotions, and consequently promote work engagement (Chong et al., 2020).

Alongside these factors, some empirical studies suggest that individuals' work engagement is influenced by the engagement of others. Hakanen et al. (2008), through their study on Finnish dentists, suggested that there is a cross-lagged relationship between work resources and work engagement. They found that work resources positively affect work engagement, which, in turn, facilitates the subsequent preservation and acquisition of new work resources. Similarly,

Laguna et al. (2017), in a longitudinal study on entrepreneurs, observed a positive correlation among levels of work engagement across different time periods. They noted that enthusiasm for work and self-efficacy not only affect work engagement but are also impacted by it. Empirical research by Gutermann et al. (2017) indicated that leaders' work engagement can impact employees' work engagement.

Among the predictors, literature has also highlighted the role of the characteristics of the job itself. It has been confirmed by many studies to impact work engagement. For example, a study on nurses that found that workload and job pressure have a negative impact on work engagement (Clark et al., 2021). Conversely, job autonomy, job control, and job diversity positively influence work engagement (Hakanen et al., 2019; Van De Voorde et al., 2016; Zhang et al., 2020).

In their model, which includes the dimension of social relations, Schaufeli and Bakker (2004) suggested that leadership support as a job resource can motivate employees, thus increasing their work engagement. Leaders influence employees' work engagement through emotional contagion, social exchange, and role modeling (Decuypere & Schaufeli, 2020). Recent research conducted among nurses in Egyptian public hospitals suggests that ethical leadership contributes positively to work engagement (Mostafa & Abed El-Motalib, 2020). Ree and Wiig (2020) suggested, based on their study on family caregivers, that transformational leadership has a positive effect on work engagement. Based on a large-sample cross-sectional study, Hakanen et al. (2021) concluded that performance feedback is important for enhancing employees' work engagement. Khattak et al. (2022) revealed in their study on Chinese hotel staff that ethical leadership directly impacts work engagement positively and also influences work engagement through the mediating effect of job embeddedness.

In terms of colleague relationships, unfriendly behaviors such as harassment, bullying, exclusion among colleagues, and workplace violence are likely to have a negative impact on work engagement (Rasool et al., 2021; Saleem et al., 2020). Conversely, colleague support has been confirmed to enhance work engagement (Ginbeto et al., 2023). In terms of broader social relationships, social support can have a positive effect on work engagement by alleviating the adverse effects of high job demands and low job control (Wu et al., 2023).

Among the extrinsic antecedents, organizational climate is also a significant factor. Yener et al. (2012) found in their study on employees of a Turkish automobile manufacturing company that ethical climate has a positive impact on work engagement. Positive organizational safety climate and organizational innovation climate have also been substantiated to have a positive effect on employee work engagement (Nahrgang et al., 2011; Seppälä et al., 2015).

In terms of organizational culture, positive organizational culture has been affirmed to promote employee work engagement (Saleem et al., 2020). Perceived ethical culture positively influences work engagement (Huhtala et al., 2015). Research by Mitonga-Monga et al. (2016) indicated that ethical workplace culture has a positive effect on work engagement, with ethical leadership playing a mediating role. Family-supportive organizational culture has a positive effect on employee work engagement (Rofcanin et al., 2017).

Organizational support, organizational justice and transparent employee feedback systems have all been confirmed to have a positive impact on work engagement, while low organizational support can lead employees to perceive a decrease in job resources and benefits, resulting in reduced work engagement (Brunetto et al., 2023; Conway et al., 2016; Robijn et al., 2020).

In summary, scholars have conducted theoretical and empirical research on the antecedent variables of work engagement from multiple perspectives, laying a foundation for this study. However, we found that research on ethics-related antecedent variables of work engagement remains insufficient.

2.2.5 Outcome variables of work engagement

Work engagement has been consistently shown to influence various job and organizational outcomes. Research by Gemeda and Lee (2020) showed that work engagement has a positive effect on task performance and innovative work behavior. Ozyilmaz (2020) suggested that work engagement can affect employees' organizational citizenship behavior. Furthermore, work engagement has a positive effect on employee job satisfaction (Rai & Maheshwari, 2020). According to research by Wang et al. (2020) on Chinese hotel employees, work engagement has a negative impact on turnover intention. Soyer et al. (2022) employed self-determination theory to explore how autonomous motivation influences work engagement and job performance. The results of their empirical study showed that when employees have high autonomous motivation, they may show more attention and sense of responsibility to their work, and also form more emotional connections with their work, thus achieving higher job performance. Studies on nurses showed that work engagement improves the quality of care they deliver (Slåtten et al., 2022).

2.3 Ethical conflict

2.3.1 Definition of ethical conflict

Ethical conflict refers to a subjective feeling, which mainly arises when an individual's ethical values formed through long-term social learning do not match the ethical values of their environment. When one needs to make behavioral choices based on two different ethical perspectives, a sense of psychological conflict emerges (Kammeyer-Mueller et al., 2012; Schwepker et al., 1997).

Medical work is inherently ethical, as its primary purpose is to safeguard people's physical and mental health and well-being. Consequently, medical care is fundamentally a social endeavor. Medical services inherently entail humanistic requirements, requiring frequent subjective value judgments in work and placing strict ethical and moral demands on practitioners (Różyńska et al., 2024). However, there may be a mismatch between the ethical perceptions of healthcare professionals and those of their organizations (usually hospitals). Healthcare professionals may also be influenced by culture, policies, economy, resource constraints, as well as relationships among patients, their families, and colleagues. The factors above make healthcare professionals prone to facing complex ethical dilemmas (Dzeng & Curtis, 2018; Z. Wang et al., 2021). Therefore, healthcare professionals are likely to experience ethical conflicts in their medical work. A survey conducted by Czarkowski et al. (2021) in Poland revealed that 76.6% of physicians reported experiencing ethical conflicts in their medical practice.

2.3.2 Common ethical conflicts encountered in clinical work

2.3.2.1 Shortage of work resources

The shortage of work resources is one of the common ethical conflicts encountered in medical settings (Sabone et al., 2020). Common scenarios involve physicians being tasked with caring for an excessive number of patients due to understaffing, which creates overwhelming workloads that prevent them from allocating the necessary time and energy to each patient, a situation that conflicts with their ethical beliefs, thereby leading to ethical conflicts (Miljeteig et al., 2021). Junior physicians often experience significant pressure from constant demands to perform various tasks, requiring them to rush between different departments, wards, and operating rooms (Sabone et al., 2020). Furthermore, restrictions imposed by medical insurance policies on treatment expenses may hinder physicians from accessing adequate resources to

provide patients with the most essential or optimal care (Ulrich et al., 2006).

2.3.2.2 Conflicts of interest

Physicians often confront conflicts of interest when deliberating treatment options, particularly in striking a delicate balance between prolonging a patient's life and maintaining their present quality of life. A recurring dilemma is whether to proceed with surgeries that may extend life at the potential cost of quality of life and physical risk (Heidenreich et al., 2023).

When a patient's autonomous choice clashes with clinical guidelines, a conflict arises between a physician's obligation to provide treatment and a patient's autonomous right to decide on their treatment. Whether physicians should respect the patient's choice or, from the perspective of medical outcome probabilities, adopt the best treatment for the patient is also one of the common dilemmas of interest conflict (Tian et al., 2020).

In the Chinese context, physicians sometimes encounter requests from family members who hope that the diagnosis of a terminal illness will be concealed from the patient. Hahne et al. (2020) found that when physicians choose to cooperate with family members in concealing the illness, their main considerations are fear that the patient cannot withstand the psychological pressure, which may affect the treatment effect, and avoidance of potential interpersonal conflicts. This reflects an ethical conflict in which a choice must be made between ensuring the patient's right to information, protecting the patient, and protecting oneself.

2.3.2.3 Patient informed consent

Upholding patients' right to informed consent is a fundamental principle outlined in medical ethics guidelines. However, in actual clinical treatment, patients sometimes refuse to accept the optimal treatment plan due to a lack of medical knowledge or existing prejudices (Li & Ding, 2019). This puts physicians in a conflict between safeguarding patients' right to informed consent and acting in the best interests of patients. If physicians fully respect patients' decisions, they may be unable to provide optimal treatment for patients.

2.3.2.4 Over-medicalization

Over-medicalization refers to treatments where the burdens and risks borne by patients outweigh the benefits, such as excessive examinations and medication usage (Yu, 2020). Reasons for this include the belief among some physicians that more treatments lead to better outcomes, or that patients will be more satisfied after receiving more extensive treatment. Additionally, some physicians, considering the high uncertainty in disease diagnosis and management, tend to opt for over-treatment rather than undertreatment to reduce misdiagnosis

(Ouyang, 2022). Over-medicalization is a widespread global issue, exacerbating the shortage of medical resources and leading to inefficient resource utilization (Ooi, 2020). From an ethical standpoint, over-medicalization fails to prioritize maximizing patient benefits and may even subject patients to unnecessary suffering.

2.3.3 Impact of ethical conflicts

When faced with ethical conflicts and compelled to act against their intrinsic ethical values, individuals experience psychological distress, which is considered a common and significant factor contributing to work stress and burnout (Maslach et al., 2001). Schwepker Jr's (2019) study on sales personnel indicated that both individual and organizational ethical conflicts adversely affect commitments to delivering excellent value to customers and trust in leadership. These conflicts also diminish employees' job satisfaction and psychological well-being (Raja et al., 2020). Miljeteig et al. (2021) suggested that ethical conflicts result in decreased work performance among nurses and hinder organizational operational efficiency due to the increased costs associated with inefficient work. Z. Wang et al. (2021) suggested that ethical conflicts deplete employees' psychological resources, generating pressure that prompts psychological distancing from the organization and consequently diminishes organizational commitment.

2.4 Ethical climate

2.4.1 Definition of ethical climate

In the 1970s, scholars turned their attention to the organizational climate variable and conducted extensive research (Schneider, 1975; Schneider et al., 2013). Organizational climate refers to the shared perception of formal and informal rules, expectations, and characteristics held by members of an organization, significantly influencing their behavior (Beus et al., 2023). From various strategic perspectives, organizational climate can be categorized into different dimensions, with ethical climate being one of them. Ethical climate is an organizational attribute that underscores ethical considerations within the organization (Olson, 2018). Victor and Cullen (1988) defined ethical climate as a consensus of what constitutes appropriate behavior according to the organization's ethical standards, and this climate profoundly influences the ethical decisions of organizational members. Cullen et al. (2003) further elaborated on the definition of ethical climate, describing it as a set of normative climates that reflect the organization's ethical orientation. Martin and Cullen (2006) suggested that ethical

climate not only shapes organizational members' perceptions of ethically appropriate behavior but also provides ethical judgment criteria for interpreting, balancing, and resolving ethical issues or dilemmas.

Other scholars have further refined the understanding of ethical climate. Wimbush and Shepard (1994) proposed that ethical climate represents employees' general perception of the ethical procedures and policies within the organization. They considered the ethical climate to be stable. Hansen et al. (2016) contended that ethical climate is not only influenced by work situations but is also an inherent component of such situations. Olson (2018) also proposed that ethical climate involves how organizational members perceive the support and channels available for discussing ethical matters in the workplace.

2.4.2 Dimensions of ethical climate

Victor and Cullen (1988) developed a foundational theoretical framework for ethical climate based on two dimensions: ethical criteria and locus of analysis. Their model proposed that organizations could exhibit up to nine possible ethical climate types. Ethical criteria comprise three fundamental types of ethical considerations used in decision-making: egoism, benevolence, and principle. Egoism prioritizes one's own interests for ethical decisions. Benevolence focuses on the welfare of others and aims to maximize benefits for the greatest number of people. Principle emphasizes adherence to rules, laws, and norms as crucial factors in ethical analysis. The locus of analysis dimension denotes the level of reference used in ethical evaluation: individual, local, or cosmopolitan. The individual perspective relies on personal ethical reasoning, the local perspective refers to the ethical standards of the immediate group or organization, and the cosmopolitan perspective adopts broader societal or universal ethical standards.

Five types of ethical climate have been empirically supported, including instrumental, independence, caring, rules, and law and code (Kuenzi et al., 2020; Weber & Opoku-Dakwa, 2022). Instrumental ethical climate is often considered negative, whereas caring ethical climate is typically seen as positive (Parboteeah et al., 2024). Empirical studies indicate that instrumental and caring ethical climates exert the strongest influence on cognitive and influence-related outcomes (Kuenzi et al., 2020).

2.4.3 Measurement tools of ethical climate

Victor and Cullen (1988) developed the Ethical Climate Questionnaire (ECQ), a 26-item

instrument designed to measure five ethical climate subscales: instrumental, independence, caring, rules, and law and code. Despite its widespread use, ECQ has been criticized for certain limitations. For instance, Weber and Opoku-Dakwa (2022) suggested that the ECQ is structured to assess ethical climate descriptively rather than normatively, which may lead to misinterpretations when the instrument is used to inform management practices.

To address the shortcomings of the ECQ, Weber and Opoku-Dakwa (2022) introduced a revised version called the Ethical Climate Questionnaire 2.0 (ECQ 2.0), drawing upon Kohlberg and Hersh's (1977) theory of moral development. The ECQ 2.0 measures two dimensions: ethical criteria and locus of analysis. The ethical criteria dimension consists of three subscales: egoism, conventional, and principled, comprising 18 items. The dimension of locus of analysis encompasses individual, local, and cosmopolitan subscales, with a total of 12 items.

2.4.4 Outcome variables of ethical climate

Existing research has examined how ethical climate influences individuals' ethical tendencies and behaviors, job attitudes, psychological states, and job performance (Newman et al., 2017). With regard to individuals' ethical tendencies and behaviors, ethical climate directly influences employees' ethical behavior (Al Halbusi et al., 2022). Otaye-Ebede et al. (2020) found that ethical climate positively influences employees' individual moral judgment and pro-social motivation. Regarding job attitudes, a study of Korean nurses by Jang and Oh (2019) found that hospital ethical climate is positively correlated with job satisfaction. Teresi et al. (2019) revealed that a supportive ethical climate fosters organizational commitment. Simha and Pandey (2021) demonstrated that organizational ethical climate influences employees' turnover intentions. Lythreatis et al. (2022) suggested that ethical climate is positively associated with employees' perceived responsibility for innovation. In terms of psychological states, studies involving nurses from China, Finland, and Turkey have consistently found a negative relationship between ethical climate and moral distress (Hou et al., 2021; Küçükkelepçe et al., 2022; Ventovaara et al., 2021). This indicates that a more negative ethical climate is associated with higher levels and frequency of moral distress. In their research on Italian healthcare workers, Maffoni et al. (2020) found that ethical climate not only directly influences burnout but also affects it indirectly through moral distress. Ethical climate influences team moral efficacy, thus affecting team organizational citizenship behavior (Kim & Vandenberghe, 2020). With respect to job performance, research on Chinese nurses indicated that ethical climate can significantly predict in-role and extra-role service behaviors (Zhang & Li et al., 2021). Ethical

climate can influence employees' organizational citizenship behavior and counterproductive work behavior through the mediating role of leadership efficacy (Fein et al., 2023).

Some scholars have focused on the influence of specific types of ethical climates. A meta-analysis by Parboteeah et al. (2024) revealed that the instrumental ethical climate is typically perceived as a negative type, adversely affecting organizational commitment and job satisfaction. This effect is particularly pronounced in East Asian countries influenced by Confucianism. Conversely, independence, caring, rules, and law and code ethical climates are typically viewed as positive, contributing to organizational commitment and job satisfaction. Simha and Pandey (2021) found that caring and rules ethical climates negatively affect nurses' turnover intentions through the mediating role of organizational trust. Zhang and Li (2021) demonstrated that various types of ethical climates have varying degrees or directions of effects on employees' in-role and extra-role service behaviors. The caring ethical climate has positive effect on both in-role and extra-role service behaviors, while instrumental ethical climate has negative effect on extra-role service behaviors.

2.5 Moral distress

2.5.1 Definition of moral distress

Jameton (1984) first proposed the definition of moral distress as the psychological anguish individuals experience when they are unable to do what they consider right according to their own moral standards due to institutional constraints. He further suggested that moral distress can be divided into two types: initial distress, which arises from feelings of frustration and anger when confronting an ethical obstacle, and reactive distress, which occurs when one fails to address the initial distressing event (Jameton, 1993). Corley (1995) described moral distress as a painful psychological state, caused by institutional constraints, such as lack of time, leadership support, treatment outcomes, institutional policies, or legal regulations.

Some scholars held differing views on the definition of moral distress. Epstein and Hamric (2009) proposed that moral distress can also arise from individuals' internal constraints that restrict their moral behavior, such as self-doubt or habitual obedience to others. Fourie (2015) argued that Jameton's (1993) definition of moral distress was overly restrictive and that moral constraints should not be considered a prerequisite for experiencing moral distress. Fourie (2015) reconceptualized moral distress as a psychological response to moral challenges, which may or may not involve constraints or ethical conflicts. Barlem and Ramos (2015) further

extended the concept, suggesting that moral distress arises from a sense of powerlessness in workplace struggles. This powerlessness makes individuals reluctant to act morally, resulting in various psychological, physical, and behavioral symptoms.

2.5.2 Measurement of moral distress

Based on Jameton's (1993) definition of moral distress, Corley et al. (2001) developed the 38-item Moral Distress Scale (MDS) to measure nurses' moral distress. Three factors of moral distress were identified: individual responsibility, not in the patient's best interest, and deception. The scale was later condensed by Hamric and Blackhall (2007) into a shorter version with 21 items, specifically tailored to measure moral distress among physicians and nurses in intensive care units.

Hamric (2012) revised the MDS to create the Moral Distress Scale-Revised (MDS-R). This revision aimed to broaden the scale's applicability to various healthcare settings and retained 21 items. The MDS-R comprises six versions tailored to different roles, such as nurses, physicians, and other healthcare professionals in both adult and pediatric settings. Both the original MDS and the revised MDS-R are widely used tools for measuring moral distress (Quek et al., 2022).

However, studies indicated that the MDS and MDS-R failed to capture all relevant factors contributing to moral distress. Furthermore, the existence of six different MDS-R versions was seen as pragmatically challenging. To improve practicality, a single, standardized version was recommended (Epstein et al., 2019; Henrich et al., 2016). Epstein et al. (2019) developed the Measure of Moral Distress for Healthcare Professionals (MMD-HP) with 27 items based on MDS-R. MMD-HP reflects recent factors contributing to moral distress and places greater emphasis on the impact of team and systemic factors on moral distress. Through factor analysis, Epstein et al. (2019) identified four sources of moral distress: patient, team-patient, team-colleague, and system.

Epstein et al. (2019) outlined five key characteristics of situations that provoke moral distress. Firstly, complicity in wrongdoing, where individuals feel powerless to change the situation and feel compelled to engage in unethical behavior. Secondly, a perceived lack of voice, stemming from the knowledge that even if concerns are raised, they will likely be ignored or dismissed. Thirdly, wrongdoing involves breaches of professional ethical standards rather than personal moral standards. Fourthly, moral distress tends to recur, and its impact cumulates over time. Fifthly, the sources of moral distress lie across three levels: patient-related factors,

unit/team-related factors, and systemic factors. Patient-related factors encompass issues with patients and their families, such as excessive treatment demands. Unit/team-related factors include inadequate support among team members and inconsistent information provided to patients by the team. Systemic factors involve pressures from administrative management to cut hospital costs and shortages of beds, among others.

2.5.3 Factors influencing moral distress

Hamric (2012) identified three main causes of moral distress among healthcare professionals. The first category involves clinical factors, such as providing unnecessary treatment or ignoring patients' demands. The second category comprises internal constraints, such as a sense of powerlessness, self-doubt, or a lack of holistic perspective. The third category consists of external constraints, such as insufficient staffing or poor collegial relationship.

A survey of British physicians revealed the top five causes of moral distress. These included: insufficient staffing, mental fatigue, inadequate time to provide emotional support to patients, an inability to deliver time-consuming treatments, and challenges in patient prioritization (British Medical Association, 2021).

Job specialization in hospitals may also affect the level of moral distress. Studies in the United States by Epstein et al. (2019) and Hamric (2012) suggested that nurses generally experience higher levels of moral distress than physicians.

2.5.4 Outcome variables of moral distress

Moral distress typically exerts detrimental effects on individuals. Research has shown that moral distress negatively affects employees' physical and mental well-being (Prompahakul & Epstein, 2020). Long-term exposure to moral distress leads healthcare professionals to reduce their professional commitment and integrity (Epstein & Hamric, 2009). Moral distress impairs healthcare professionals' core values, impeding the development of their professional ethics (Hamric, 2012). When employees experience moral distress, they may avoid confronting problems directly (McAndrew et al., 2018). Ando and Kawano (2018) found that moral distress was negatively correlated with job satisfaction and sense of congruence. Moral distress is positively correlated with occupational burnout and fatigue among physicians (Dodek et al., 2021; Maffoni et al., 2020). Surveys of healthcare professionals by Silverman et al. (2022) showed a positive correlation between the level of moral distress and intention to leave their jobs. Moral distress is also positively correlated with medical errors. For instance, physicians'

levels of moral distress have been linked to a higher incidence of medication errors (Dodek et al., 2019).

However, some studies have suggested that moral distress can have positive effects. Tigard (2019) suggested that experiences of moral distress could, in some cases, promote a deeper understanding of moral values, foster moral courage, and contribute to character development. Moral distress may also lead nurses to provide better care, heighten empathy, and engage in moral reflection (Cooke et al., 2022).

2.6 Job embeddedness

2.6.1 Definition of job embeddedness

Mitchell et al. (2001) proposed the concept of job embeddedness based on Lewin's (1951) field theory. Job embeddedness refers to the intricate web of relationships that employees develop with organizations, fellow members, family, and the community across social, psychological, and economic dimensions. It is a collection of forces that influence employee retention in organizations (Mitchell et al., 2001). Initially developed to explain voluntary turnover, job embeddedness theory offers a perspective that differs from traditional models, which primarily emphasize attitudinal factors like job satisfaction and organizational commitment. Mitchell et al. (2001) identified several factors influencing turnover decisions that had been relatively overlooked. Firstly, non-work-related factors such as the conflict between family and work roles may lead employees to leave their current jobs to care for their families (Lee & Maurer, 1999). Secondly, other organization-related non-attitudinal factors, such as a preference for working with the existing team, bolster the connection between employees and the organization (Reichers, 1985). Thirdly, according to the new turnover theory, events that lead previously contented and engaged employees to suddenly decide to quit often occur for non-work reasons, such as a spouse's decision to relocate (Lee et al., 1999). Therefore, employees' emotions and attitudes towards work and the organization are not the sole determinants of their turnover decisions. The job embeddedness theory overcomes the limitations of traditional turnover models, offering a more holistic understanding of employees' behaviors related to turnover.

According to Mitchell et al.'s (2001) definition, job embeddedness has three key components: links, fit, and sacrifice, each manifesting in both on-the-job and off-the-job dimensions. Links refer to the ties individuals establish with others, including relationships forged at work, with friends, and within the community. The more links an individual has, the

stronger their embeddedness in the current organization and community, potentially necessitating rebuilding these ties upon leaving. Links are considered the most central aspect of job embeddedness (Mitchell et al., 2001). Fit is the perceived compatibility and comfort employees feel with the organization. The closer employees' personal values, career aspirations, and future plans align with the organization, the higher their level of professional commitment and emotional attachment to the organization. The fit with the community is similar, while the fit with the community is independent of work factors (Mitchell et al., 2001). The higher the perceived fit with the organization, the higher the level of embeddedness, and the less willing employees are to leave (Lee et al., 2004; Mitchell et al., 2001). Sacrifice refers to the perceived material and psychological losses employees would experience if they were to leave their current job. These include tangible resources and intangible resources such as the potential loss of existing friends, costs of changing jobs, loss of stock options, loss of community resources due to relocation, or changes in commuting routes and duration even without relocation. In terms of work, employees may lose the unique advantages they have in their current work and team. The more losses there are, the harder it is for employees to make the decision to leave (Lee et al., 2004; Mitchell et al., 2001). Therefore, the scope of factors influencing employees' turnover covered by job embeddedness theory is extensive, including both emotional and non-emotional attitude factors, as well as some objective environmental factors. These factors collectively contribute to the overall strength of retaining employees in the organization. Whether employees decide to leave or stay depends on the degree of links and fit dimensions within job embeddedness, as well as the degree of sacrifice due to turnover.

Holtom and O'Neill (2004) suggested that job embeddedness theory provides a valuable framework for examining the links between employees and organizations, offering a fresh perspective to explore the factors that retain employees in organizations. This theory explains how different types of job embeddedness affect work-related outcome variables and interact with non-work variables (Kiazad et al., 2015). It provides a more practical path for understanding how non-work variables influence employee turnover and other behaviors (Fasbender et al., 2019).

Kiazad et al. (2015) interpreted job embeddedness from the perspective of the Conservation of Resources (COR) theory. The COR theory suggests that individuals strive to obtain, preserve, and maintain resources (Hobfoll, 1989). Kiazad et al. (2015) proposed that employees' retention comes from the motivation to acquire and protect resources, and factors like links, fit, and sacrifice serve as means to protect resources, enhancing employees' job performance. Hobfoll et al. (2018) argued that job embeddedness can be seen as a resource to mitigate resource loss.

2.6.2 Measurement of job embeddedness

Mitchell et al. (2001) developed the Job Embeddedness Composite Scale, which measures on-the-job and off-the-job embeddedness separately. It includes six dimensions: links, fit, and sacrifice within the organization, as well as links, fit, and sacrifice within the community, totaling 40 items. Lee et al. (2004) revised Mitchell et al.'s (2001) Job Embeddedness Composite Scale, developing a 32-item version. However, Mitchell et al.'s (2001) job embeddedness scale has faced scrutiny regarding the cultural specificity of its items and their cross-national applicability (Halvorsen et al., 2020).

In response to these concerns and to enhance the measurement of job embeddedness, Crossley et al. (2007) developed a 7-item Job Embeddedness Global Scale that can be used universally. Unlike previous scales, it measures job embeddedness holistically rather than assessing on-the-job and off-the-job dimensions separately. This scale has been widely used in international research (Qian et al., 2022; Rahimnia et al., 2022).

Mitchell et al.'s (2001) Job Embeddedness Composite Scale and Crossley et al.'s (2007) Job Embeddedness Global Scale each has their own strengths and weaknesses. Mitchell et al.'s (2001) composite scale aligns well with the theoretical dimensions but assigns them equal weight, which may not capture individual differences in their importance. Crossley et al.'s (2007) global scale has strong advantages in statistical applications, using a reflective measurement approach suitable for research based on structural equation modeling (SEM). However, a drawback of the scale is its inability to distinctly differentiate between on-the-job and off-the-job embeddedness. Therefore, researchers should select the appropriate scale according to the needs of the study (Zhang et al., 2012).

2.6.3 Antecedents of job embeddedness

Job embeddedness is influenced by individual-level variables. Teng et al. (2021) found that passion for work has a positive impact on job embeddedness. Conversely, job insecurity negatively impacts job embeddedness (Elshaer & Azazz, 2021). Ali et al. (2022) suggested that employees' psychological capital strengthens employees' connection to the organization and increases job embeddedness. Psychological capital includes traits like optimism, psychological resilience, hopefulness, and self-efficacy.

Job embeddedness is also influenced by variables at the team and organizational levels. Chan et al. (2019) suggested that three factors have a positive impact: team-member exchange, empowering leadership, and perceived organizational support. For instance, team-member

exchange promotes mutual feedback and assistance, thereby fostering a positive work atmosphere. This helps shape a positive work atmosphere. Empowering leadership motivates employees by granting them greater autonomy and responsibility, which improves their perceived fit with the organization. Organizational support makes employees feel their skills and professional knowledge are valued by the organization. Karatepe and Avci (2019) reached similar conclusions. They found that both colleague support and leadership support can enhance job embeddedness.

2.6.4 Outcome variables of job embeddedness

Job embeddedness theory was initially used to explain employee turnover. Mitchell et al. (2001) revealed that employees with higher levels of job embeddedness have lower intention to leave, meaning the higher the job embeddedness, the less willing employees are to leave their current jobs. Additionally, all six dimensions of job embeddedness are significantly correlated with turnover intention, indicating that the degree of off-the-job embeddedness also affected employees' turnover intention. Lee et al. (2004) suggested that job embeddedness affects voluntary turnover, organizational citizenship behavior, and job performance.

As the theory has developed, research on job embeddedness has expanded beyond turnover to include other organizational and job-related outcomes. Ng and Feldman (2014) found that changes in off-the-job embeddedness affect job motivation, social behavior, and organizational identification through the mediating effect of on-the-job embeddedness. The robust links and fit of job embeddedness stimulate employees' proactive engagement in job responsibilities to obtain more resources (Kiazad et al., 2015). Rubenstein et al. (2020) found that off-the-job embeddedness increases work-family conflict and turnover intentions, whereas on-the-job embeddedness mitigated these effects. Based on the COR theory, they believed that when employees experience work-family role conflict, they tend to invest personal resources in the area with higher embeddedness. J. J. Li et al. (2022) used force theory and social identity theory to explore the essence of job embeddedness. They believe that job embeddedness, driven by the motivating force of organizational identity, promotes employees' positive behaviors. Job embeddedness increases organizational identification and employee initiative over time.

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Chapter 3: Contrasting Measures of Ethical Climate at Team Level in Healthcare Settings in China: A Psychometric Study

Abstract: Ethical climate is a central construct in organizational ethics research. The traditional measure ECQ proposed by Victor and Cullen in 1988 has been extensively used in empirical studies, yet its limitations have become increasingly apparent over the years, often due to contextual differences such as those found in China. A novel measure of ethical climate, ECQ 2.0, was recently proposed by Weber and Opoku-Dakwa (2022) to overcome these limitations. This provides an opportunity to test whether this new measure performs better psychometrically in a Chinese context compared to the traditional one. This study uses a time-lagged sample of 303 healthcare professionals and tests the validity (construct, convergent, discriminant, predictive and incremental) of both measures with both job embeddedness and work engagement as outcomes. The study also tests the aggregability of both measures at team level. The findings indicate that ECQ is more effective in predicting job embeddedness, while ECQ 2.0 is more effective in predicting work engagement.

3.1 Introduction

Although the study of ethics has long and deep roots in human science, particularly as a branch in philosophy both in eastern and western, its modern connotation in the context of business and organizations is more recent, and newer ethics-based constructs have been proposed to explain the processes that lead to ethical or unethical behaviors. Ethical climate is one such construct, which gained prominence following the seminal work of Victor and Cullen (1988) over three decades ago.

Ethics has intrinsic cultural specificity (Fraser, 2001). It was therefore to be expected that both the theoretical underpinnings of their framework and the measure itself underwent critical analysis. Regarding the measure itself, it has undergone extensive empirical testing concerning its psychometric properties, namely validity and reliability.

As with any novel measure, early studies focus heavily on its validity and reliability. The study by Cullen et al. (1993) suggested that ECQ by Victor and Cullen (1988) was subjected to modifications by its own original authors. Still, with the exception of an increase in the number

of items per dimension, the overall theoretical framework built upon ethical criteria combined with the locus of analysis held. The only remaining issue is that while measurement at the individual level (psychological ethical climate) is adequate, the sample size is insufficient to gauge the scale's psychometric quality at the organizational level. In a study purposely designed to test the quality of ECQ at the subunit level (e.g., department), Wimbush et al. (1997) reported divergent structure and many cases of low factor loadings. In a meta-analysis on ethical climate theory, Martin and Cullen (2006) opted to focus on the five most recurrent types of ethical climate, namely instrumental, caring, independence, rules, law and code. Nevertheless, calls have been made for a revision of the ECQ to maintain its validity and relevance, due to inconsistent factor structures reported over the years (Smith et al., 2009).

Alongside efforts to refine ethical climate theory and reconcile its nine possible types, a novel measure, Ethical Climate Questionnaire 2.0 (ECQ 2.0) emerged in a study published by Weber and Opoku-Dakwa (2022). This proposal revised Victor and Cullen's (1988) original model, and provided hierarchical preference based on Kohlberg and Hersh's (1977) theory of moral development. Albeit promising, it has yet to be replicated regarding its psychometric qualities. Addressing this gap is the objective of this study.

This chapter will first briefly review the ethical climate construct, then introduce the original ECQ, followed by a detailed examination of Weber and Opoku-Dakwa's (2022) theoretical reasoning and measure. Next, it will describe the method and present results concerning the various dimensions involved in the comparison of the scales. Finally, the chapter will discuss the findings and conclude with an evaluation of the relative merits of the ECQ 2.0 compared to the original ECQ.

3.2 Literature review

3.2.1 Team ethical climate

3.2.1.1 Definition of team ethical climate

Victor and Cullen (1988) defined ethical climate as a consensus on what constitutes appropriate behavior according to the organization's ethical standards, and this climate profoundly influences employees' ethical decisions. Martin and Cullen (2006) further suggested that ethical climate also provides ethical judgment criteria for interpreting and resolving such behaviors.

Different teams within the same organization may develop distinct ethical rules and objectives, leading to variations in their ethical climates (Vardi, 2001). Malloy and Agarwal

(2001) suggested that team ethical climate can serve as a factor to distinguish different teams, with each team having its unique framework for ethical behaviors and decisions, significantly influenced by team leadership. Mayer et al. (2013) found that employees' ethical choices are influenced by the ethical behaviors of colleagues within the team. Given that this study explores variables such as individual work engagement and job embeddedness, examining team ethical climate is particularly relevant.

Therefore, this study considers team ethical climate as one of its central research variables. Drawing on the definition of organizational ethical climate, team ethical climate is defined as the shared understanding among team members regarding what constitutes appropriate behavior in line with the team's ethical norms (Cheng & Wang, 2015).

3.2.1.2 Dimensions of team ethical climate

Victor and Cullen (1988) developed a theoretical model of ethical climate based on two dimensions: ethical criteria and locus of analysis, and proposed that organizational ethical climates could manifest in nine possible types. Among these, ethical criteria comprise three fundamental types of ethical considerations used in decision-making: egoism, benevolence, and principle. Egoism prioritizes one's own interests as the primary criterion for ethical decision-making, which matches Kohlberg and Kramer's (1969) pre-conventional stage of moral reasoning. Benevolence focuses on the welfare of others and aims to maximize benefits for the greatest number of people, which matches the conventional stage of moral reasoning. Lastly, principle emphasizes adherence to rules, laws, and norms as crucial factors in ethical analysis, whether with the objective of being seen as a good person by others or simply to avoid disobeying the law; this matched a conventional stage. Principle also comprehends the acceptance of universal ethical principles such as fairness and social welfare that go beyond obeying the law and rules, which matches the post-conventional stage of moral reasoning.

Locus of analysis refers to the perspective from which ethical issues are examined, including individual perspective, local perspective, and cosmopolitan perspective. The individual perspective involves ethical decision-making based on an individual's ethical reasoning, the local perspective involves ethical decision-making guided by internal ethical standards and guidelines within the group, and the cosmopolitan perspective involves ethical decision-making based on societal ethical standards. Because the post-conventional stage in moral development is rarely reached by individuals, only in rare cases will one witness a shared principled or cosmopolitan ethical climate (Arnaud & Schminke, 2012).

Five types of ethical climate have been identified, including instrumental, independence,

caring, rules, and law and code (Kuenzi et al., 2020; Weber & Opoku-Dakwa, 2022). Instrumental ethical climate is often considered more negative, whereas caring ethical climate is typically seen as more positive (Parboteeah et al., 2024). Empirical studies have shown that instrumental and caring ethical climates have the most significant predictive effects on cognitive and influence-related variables. This finding aligns with perspectives on human evolutionary behavior, wherein altruism is posited as a driving force for group survival (Hardy & Van Vugt, 2006; Kuenzi et al., 2020).

Although Victor and Cullen's (1988) ethical climate model has been widely applied, some scholars in recent years argue that it requires enhancements to accommodate changes in social environments and research methods (Parboteeah et al., 2024). Based on an analysis of the literature, Kuenzi et al. (2020) argued that Victor and Cullen's (1988) ethical climate framework exhibits discontinuity and instability in academic usage. Weber and Opoku-Dakwa (2022) suggested that Victor and Cullen's (1988) division of dimensions of ethical climate is redundant, with some dimensions overlapping and resembling each other, suggesting that they can be merged. Additionally, they argued that their definition of ethical rules is too narrow, as it lacks consideration of universally applicable ethical principles.

To address potential issues in Victor and Cullen's (1988) original framework, Weber and Opoku-Dakwa (2022) revised it. They maintained the categorization of ethical climate into two dimensions: ethical criteria and locus of analysis, as Victor and Cullen (1988) had done. These dimensions were considered independent of each other, providing ways for individuals to perceive the organizational ethical climate. Within the ethical criteria dimension, egoism, conventional, and principled types were identified. The locus of analysis dimension includes the individual perspective, local perspective (adherence to organizational rules and systems) and the cosmopolitan perspective (adherence to broader rules outside the organization). The ethical climates corresponding to Victor and Cullen's (1988) principled-local perspectives are deemed non-existent (Weber & Opoku-Dakwa, 2022). Under this framework, ethical climate is categorized into five types: instrumental, bureaucracy/clan, gig/pure market, law and code, and social contract.

3.2.1.3 Measurement of team ethical climate

Victor and Cullen (1988) developed the ECQ, which includes 26 items across five ethical climate subscales: instrumental, independence, caring, rules, and law and code. Despite its widespread use, the ECQ has also been critiqued for certain limitations. Weber and Opoku-Dakwa (2022) contended that the ECQ is structured to assess ethical climate in a descriptive

rather than normative manner, potentially causing misinterpretations when used to guide management practices. Likewise, although widely adopted, occasional findings have highlighted the fragility of its underlying theoretical structure. For example, both Vaicys et al. (1996) and Wimbush et al. (1997) found an overlap between the rules and law/code factors; Yener et al. (2012) reported a fusion of the independence and instrumental factors; and Gwamanda and Mahembe (2023) found very low factor loadings on the independence scale. In researching ethical climate in Danish firms, Lemmergaard and Lauridsen (2008) found structural issues with benevolence-individual subscale, and also found that adding autonomy ethical climate improves the measure. Additionally, some unique new dimensions emerged in several studies. For example, Wimbush et al. (1997) reported a new Service dimension.

Taking a more comprehensive approach in addressing the shortcomings of the ECQ, Weber and Opoku-Dakwa (2022) introduced a revised version, the ECQ 2.0, drawing inspiration from Kohlberg and Hersh's (1977) moral development theory. The ECQ 2.0 measures two dimensions: ethical criteria and locus of analysis. The dimension of ethical criteria comprises egoism, conventional, and principled subscales, totaling 18 items, while the dimension of locus of analysis encompasses individual, local, and cosmopolitan subscales, totaling 12 items.

For the ethical criteria dimension, the egoism criterion describes when self-interest is essential for decision-making. The conventional criterion aligns closely with the caring climate in the ECQ, signifying that individuals' ethical judgments are centered on group interests and are altruistic in nature. However, conventional caring is limited to specific groups or teams, such as colleagues or customers, rather than all members of society. Weber and Opoku-Dakwa (2022) therefore suggested that universal ethical principles should be distinguished from law and professional codes. They use "Principled" criterion for universal principles. The criterion includes considerations for universal rights, duty and justice, which are central to this perspective.

For the locus of analysis, Weber and Opoku-Dakwa (2022) suggested that when people are guided by individual values, an organization ethical climate is absent. Therefore, the perspective of individual ethical analysis orientation is regarded as a null hypothesis rather than a component of organizational ethical climate, and thus is excluded from the theoretical model, though it is still retained in the scale. When an organization ethical climate exists, it can be focused either on internal rules or rules outside of the organization. In this way, the locus of analysis uses "Local" and Cosmopolitan" for these two types.

Weber and Opoku-Dakwa (2022) hope that ECQ 2.0 can guide organizational change. They cited an example from Vallerand et al.'s (2010) study of nurses in a strong, social duty-guided

ethical climate. They explained that because self-interest is devalued in this climate, a lack of self-care contributes to low productivity and high turnover among nurses. Therefore, they argued that managers should pay more attention to self-interest in such cases.

3.2.2 Comparing competitive measures: Psychometric quality

To ensure the measurement tools' reliability and validity, we conducted a series of psychometric quality analyses, with the following parameters and evaluation criteria detailed below. For reliability assessment, either the Cronbach's α coefficient or the composite reliability indicator was used to assess the scale's internal consistency (Jöreskog, 1971). A scale is deemed to have acceptable reliability when the α coefficient exceeds 0.70 (Cronbach, 1951).

Regarding validity, researchers typically focus on construct, convergent, and incremental validity. To assess construct validity, exploratory factor analysis (EFA) is commonly employed, where researchers examine the Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and Bartlett's test of sphericity to determine the suitability of the data for factor analysis. The criteria require a KMO value greater than 0.70 and a Bartlett's test *p*-value less than 0.05 (Shrestha, 2021). Depending on the theoretical covariance of factors, a Varimax rotation is commonly applied to ascertain factor loadings and prevent multicollinearity issues in future scale applications due to its orthogonal solution. Additionally, CFA is conventionally used to verify the theoretical model's fit due to its robustness. Evaluation criteria include: $\lambda>0.50$ and reaching statistical significance ($p<0.01$); the model fit indices should meet Hu and Bentler's (1999) minimum criteria ($\chi^2/df<3$, CFI>0.90, TLI>0.90, RMSEA<0.08, and SRMR<0.08) or, preferably, Hair Jr. et al. (2019) adjusted criteria based on sample size and model complexity. Specifically, for samples over 250 and models with fewer than 12 observed variables, insignificant χ^2 values, CFI>0.96, TLI>0.96, RMSEA<0.07, and interpret SRMR with caution due to upward bias are expected. For models with 12 to 30 observed variables, the thresholds are slightly relaxed (significant χ^2, CFI>0.94, TLI>0.94, RMSEA<0.07, and SRMR<0.08). Discriminant validity is tested with Henseler et al.'s (2015) HTMT ratio, with a strict cutoff of 0.85.

Convergent validity is commonly evaluated by testing and reporting the AVE. An AVE value exceeding 0.50 suggests that the measurement indicators effectively capture the characteristics of the latent variable (Fornell & Larcker, 1981; Shrestha, 2021).

To assess incremental validity, a hierarchical regression analysis is typically conducted, comparing the model's explanatory power before and after incorporating the new scale. A

statistically significant increase in ΔR^2 ($p<0.05$) indicates that the newly introduced construct significantly enhances the model's predictive efficacy (Hunsley & Meyer, 2003).

Given the multilevel research design of this study, it is essential to evaluate the aggregability of team-level constructs. For this purpose, the r_{wg} and the ICC are the conventional indicators used, as recommended in the literature (James et al., 1993; Woehr et al., 2015).

R_{wg} is used to test if team members' responses are interchangeable with those of other members within the same team (Biemann et al., 2012). LeBreton and Senter (2008) suggested that r_{wg} >0.70 signifies a high degree of within-team consistency. The ICC comprises two types: ICC(1) and ICC(2). ICC(1) estimates the reliability of individual ratings, indicating the variance attributable to group membership, whereas ICC(2) assesses the reliability of mean differences across teams (Biemann et al., 2012). According to Shieh (2012), an ICC(1) value of 0.1 reflects a moderate impact of team membership on ratings, while a value of 0.25 indicates a relatively substantial effect. For team-level data aggregation, an ICC(2) value between 0.40 and 0.75 denotes good reliability, and a value above 0.75 signifies excellent reliability.

3.3 Research method

3.3.1 Procedure

Data collection was carried out via an online questionnaire. We utilized the sample service of the Wenjuanxing platform to invite participants and distribute the surveys, offering financial compensation to respondents through the platform. All participants remained anonymous, and each team created a unique identifier to facilitate the matching of team members.

Prior to the formal survey, a pre-test was conducted. We distributed the questionnaire online to 25 physicians and nurses via the Wenjuanxing platform and solicited their feedback and suggestions.

During the formal survey, data were gathered in three waves, with an average interval of six weeks. In the first wave, we collected demographic variables and the ECQ 2.0. The second wave focused on the Instrumental and Caring subscales of the ECQ, as well as the Job Embeddedness Scale. In the third wave, we collected the Work Engagement Scale.

Data were screened for quality, eliminating any responses that met the exclusion criteria. These criteria include: 1) Completion of the questionnaire in an unreasonably short time, 2) Logical inconsistencies in the answers, such as selecting a high job title at a very young age, 3)

Monotonous answers, 4) Failure to correctly answer attention check items. To ensure respondent engagement, we incorporated two attention check items into the questionnaire, one in ECQ and the other in sociodemographic items.

3.3.2 Sample

In the first wave, 750 physicians and nurses (50% each) from Chinese public hospitals were invited to participate. We received 639 responses (an 85.2% response rate), of which 528 were valid.

In the second wave, we collected 517 responses. After excluding responses that failed the attention check or came from teams with fewer than three responses, 500 valid responses remained.

In the third wave, 492 responses were collected. We subsequently removed 11 responses for failing attention checks or insufficient team participation, resulting in a final sample of 95 teams and 481 individual participants. For the current psychometric analysis, we randomly selected 76 teams and then randomly sampled a minimum of three individual participants from each, yielding a total sample of 303 participants.

3.3.3 Data analysis strategy

Given the psychometric nature of this study, both EFA and CFA were employed to assess construct validity, adhering to the criteria outlined by Shrestha (2021) and utilizing the fit indices and thresholds specified by Hair Jr. et al. (2019). For convergent validity, we computed the AVE (Fornell & Larcker, 1981). For discriminant validity, we computed HTMT (Henseler et al., 2015). Incremental validity was evaluated through hierarchical regression analysis, incorporating ECQ and ECQ 2.0 at different stages and assessing statistical significance based on the ΔR^2 at $p<0.05$, as recommended by Hunsley and Meyer (2003).

Considering the theoretical team-level nature of the constructs, we examined their aggregability using the r_{wg}, supplemented by both ICC(1) and ICC(2) (James et al., 1993; Woehr et al., 2015). We took into account the thresholds proposed and discussed by LeBreton and Senter (2008) and Shieh (2012). Lastly, reliability was assessed with composite reliability indicator (Jöreskog, 1971).

3.3.4 Measures

In the first wave, ethical climate was measured using Weber and Opoku-Dakwa's (2022) ECQ

2.0, which includes 30 items organized into six factors: Egoism (6 items, e.g., "In this organization, people protect their own interests"), Conventional (6 items, e.g., "In this organization, people care for each other's well-being"), Principled (6 items, e.g., "When making decisions, people in this organization are encouraged to consider justice, fairness, human rights, and the broader impact of their actions"), Individual (4 items, e.g., "In this organization, people are expected to follow their personal and moral beliefs"), Local (4 items, e.g., "People in this organization tend to follow the organization's established rules and procedures"), and Cosmopolitan (4 items, e.g., "In this organization, external standards such as laws, professional codes, cultural and religious norms, international standards, or moral principles are a significant consideration").

In the second wave, the Instrumental and Caring ethical climates were measured using Victor and Cullen's (1988) ECQ scale, in its Chinese version validated by Liu and Jing (2010), comprehending 11 items: 6 for the Instrumental ethical climate (e.g., "In this company, people prioritize their own interests above all else") and 5 for the Caring ethical climate (e.g., "The primary consideration here is what is best for everyone in the company").

In the second wave, job embeddedness was evaluated using the seven-item Job Embeddedness Global Scale developed by Crossley et al. (2007), with a Chinese version adapted from Li and Zhao (2017). However, the CFA results for this scale indicated poor fit ($\chi^2(14)=98.734$; $p<0.001$; Normed $\chi^2=7.052$; CFI=0.902; TLI=0.853; RMSEA=0.142, 90%CI [.116, .169], PClose=0.001; SRMR=0.062). An EFA suggested a refined solution consisting of 3 items ("JE 1 I feel attached to this organization", "JE 3 I am too caught up in this organization to leave", and "JE 5 I simply could not leave the organization that I work for"). The revised model showed excellent fit ($\chi^2(1)=1.453$; $p=0.085$; Normed $\chi^2=1.453$; CFI=0.998; TLI=0.995; RMSEA=0.039, 90%CI [.000, .164], PClose=0.387; SRMR=0.0121), along with good reliability (CR=0.807) and convergent validity (AVE=0.583). The CFA structure is depicted in Figure 3.1.

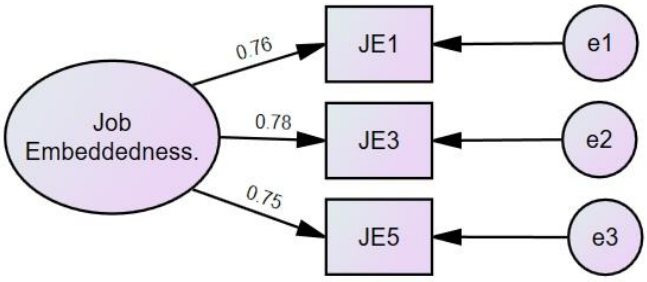


Figure 3.1 CFA for job embeddedness

In the third wave, Work Engagement was assessed using the UWES-9 scale developed by

Schaufeli et al. (2002), with its Chinese version employed for this study: vigor (3 items, e.g., "At my work, I feel bursting with energy"), dedication (3 items, e.g., "I am proud of the work that I do"), and absorption (3 items, e.g., "I get carried away when I am working"). The CFA for this scale showed good fit ($\chi^2(24)=38.537$; $p=0.031$, Normed $\chi^2=1.606$; CFI=0.987; TLI=0.980; RMSEA=0.045, 90%CI [.014, .070], PClose=0.601; SRMR=0.0316). The factors all have good reliability ($CR_{vigor}=0.798$; $CR_{dedication}=0.812$; $CR_{absorption}=0.793$) as well as convergent validity ($AVE_{vigor}=0.572$; $AVE_{dedication}=0.592$; $AVE_{absorption}=0.563$). The solution also has good discriminant validity as the highest observed HTMT is 0.642. The CFA structure is shown in Figure 3.2.

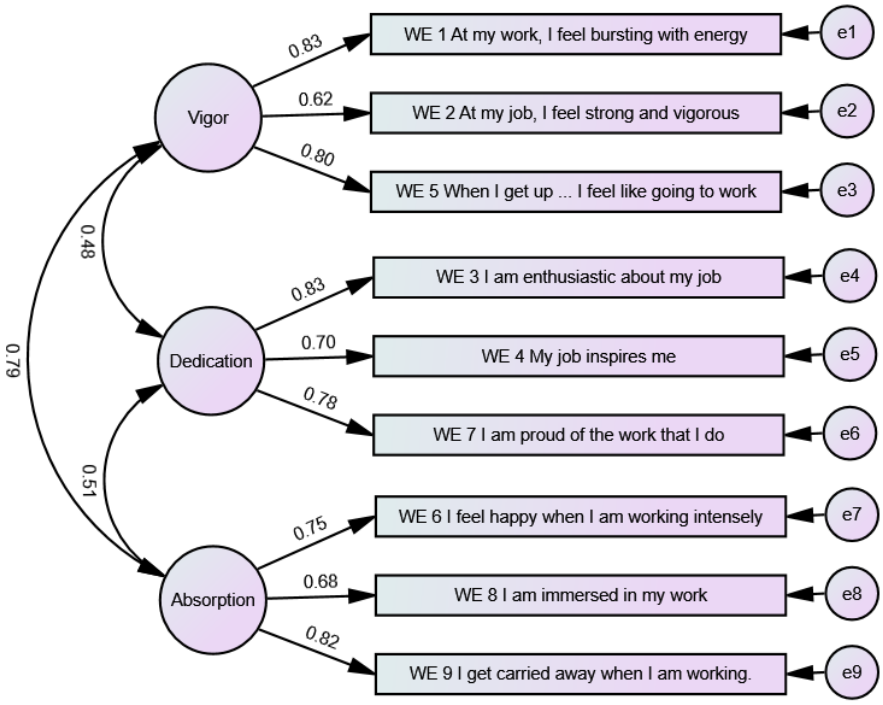


Figure 3.2 CFA for work engagement

Based on the literature, we controlled for the following variables (Benlahcene et al., 2022; Lim, 2024; Tomova Shakur et al., 2024). Sociodemographic variables were measured as follows: gender (1=Male, 2=Female), age (1=25 and below, 2=26-30, 3=31-35, 4=36-40, 5=41-45, 6=46-50, 7=51-55, 8=56-60, 9=61 and above), education (1=Junior college and below, 2=Bachelor's degree, 3=Master's degree, 4=Doctor's degree), professional tenure (1=Less than 3 years, 2=3-5 years, 3=6-10 years, 4=10-20 years, 5=over 20 years) and team size (Respondents directly answered the question "How many people are there in your team?"). Additionally, we measured social desirability with the Marlowe-Crowne Social Desirability Scale, comprising 14 items (Tao et al., 2009).

3.4 Results

This section will first present the psychometric assessment results for the ECQ 2.0, followed by Caring and Instrumental ECQ scale, and their intercorrelations.

3.4.1 Psychometric quality of ECQ 2.0

For ECQ 2.0, the confirmatory factor analysis showed poor fit for this model ($\chi^2(390)=780.134$, $p<0.01$, Normed $\chi^2=2.000$; CFI=0.876; TLI=0.861; RMSEA=0.058; 90% CI [.052, .063]; PClose=0.018; SRMR=0.0580) with some covariances between latent constructs suggesting a different factor structure.

EFA revealed that while there was adequate shared variance to identify latent constructs, the associations between items, after applying varimax rotation, showed that the Local and Cosmopolitan scales were not mutually independent. This finding contradicts the foundational assumptions made by Weber and Opoku-Dakwa (2022). A detailed examination indicated that the Local and Cosmopolitan scales merged into a single factor and exhibited negative correlations. Consequently, after further analysis, three items from the Cosmopolitan scale were retained, while all items from the Local scale were excluded. The resulting factor can be interpreted as the continuum from Local to Cosmopolitan. Similarly, there were many cases of low commonality and cross-loadings between the items measuring the levels (Individual, Egoism, Conventional, Principled), leading to their exclusion. Following the procedures outlined in the psychometric quality section, a comprehensive EFA yielded a valid solution (KMO=0.747; Bartlett's χ^2 (45)=886.944, $p<0.001$), accounting for 72.9% total variance after rotation (Varimax), with all items demonstrating commonalities above .500, and .717 is the minimum observed factor loading in the matrix (Table 3.1).

A CFA for this solution demonstrated a good fit ($\chi^2(31)=51.468$, $p=0.012$, Normed $\chi^2=1.660$; CFI=0.976; TLI=0.965; RMSEA=0.047; 90% CI [.022, .069]; PClose=0.567; SRMR=0.0409) with four factors as follows:

Cosmopolitan (3 items, "COS1 In this organization, external standards (such as laws, professional codes, cultural and religious norms, international standards, or moral principles) are a major consideration", "COS3 In this organization, a primary consideration is whether a decision violates an external standard (e.g., legal, professional, cultural, religious, international, or moral standard)", "COS4 In this organization, people are guided more by external rules and standards than by the organization's specific rules and standards").

Conventional-Benevolence (3 items, "COV1 In this organization, people look out for each other's good", "COV6 Members of this organization consider equally our duty to all relevant organizational stakeholders (e.g., owners, employees, customers, suppliers, the environment, the local community, and the general public)", "COV5 What is best for everyone in the organization is the major consideration").

Table 3.1 Rotated component matrix for ECQ 2.0

Items	Component 1	2	3	4
COV6 Members of this organization consider equally our duty to all relevant organizational stakeholders.	**.812**	-.187	.147	.132
COV1 In this organization, people look out for each other's good.	**.811**	-.206	.117	.110
COV5 What is best for everyone in the organization is the major consideration.	**.744**	-.273	-.024	.010
COS1 In this organization, external standards (such as laws, professional codes, cultural and religious norms, international standards, or moral principles) are a major consideration.	-.183	**.849**	.048	-.114
COS3 In this organization, a primary consideration is whether a decision violates an external standard (e.g., legal, professional, cultural, religious, international, or moral standard).	-.217	**.799**	-.147	-.011
COS4 In this organization, people are guided more by external rules and standards than by the organization's specific rules and standards.	-.262	**.717**	-.003	-.157
COV4 People are expected to do anything to further the organization's interests.	.061	-.071	**.892**	-.059
COV3 Work is considered substandard only when it hurts the organization's interests.	.115	.000	**.890**	.043
PRP1 When making decisions, people in this organization are encouraged to weigh justice, fairness, human rights, and the effects of their actions on the greater good.	-.015	-.113	.015	**.874**
PRP3 In this organization, people are expected to be fair and act in the interest of society and humanity.	.218	-.095	-.032	**.817**

Conventional-Clan (2 items, "COV4 People are expected to do anything to further the organization's interests", "COV3 Work is considered substandard only when it hurts the organization's interests").

Principled (2 items, "PRP1 When making decisions, people in this organization are encouraged to weight justice, fairness, human rights, and the effects of their actions on the greater good"., "PRP3 In this organization, people are expected to be fair and act in the interest of society and humanity").

Three factors exhibited good reliability (CR_{Cosmop}=0.773; $CR_{ConvBenev}$=0.780; CR_{Clan}=0.763) as well as convergent validity (AVE_{Cosmop}=0.532; $AVE_{ConvBenev}$=0.543; AVE_{Clan}=0.617), although Principled showed slightly below standard reliability and convergent validity while still acceptable ($CR_{Principled}$=0.654; $AVE_{Principled}$=0.486) (Hair Jr. et al., 2019). The model also demonstrated good discriminant validity, as indicated by the HTMT values, with the largest value between paired latent constructs being 0.512. Figure 3.3 illustrates the CFA solution.

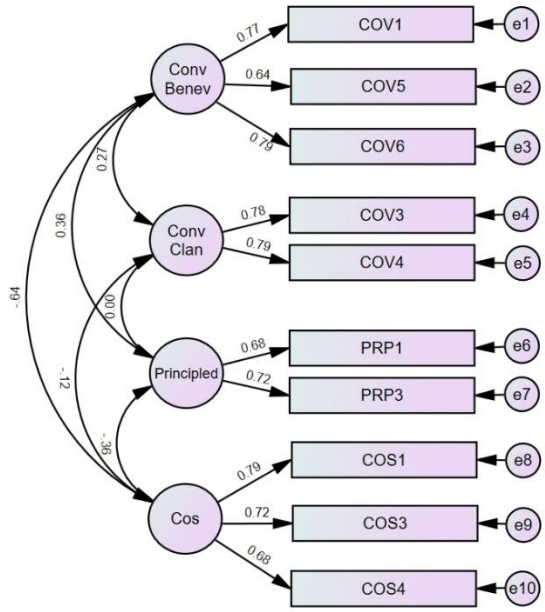


Figure 3.3 CFA for ECQ 2.0

3.4.2 Psychometric quality for ECQ

A CFA of ECQ Instrumental and Caring ethical climate was conducted (Liu & Jing, 2010; Victor & Cullen, 1988). The initial two-factor solution, comprising 11 items for Instrumental and Caring climates, demonstrated a poor fit ($\chi^2(43)=174.433$, $p<0.001$, Normed $\chi^2=4.057$; CFI=0.894; TLI=0.865; RMSEA=0.101; 90% CI [.085, .116]; PClose=0.000; SRMR=0.0579).

Subsequently, an EFA revealed a solution where three items exhibited insufficient commonality ("Ins 5 People are expected to do anything to further the hospital's interests, regardless of the consequence", "Car 2 What is best for everyone in the hospital is the major consideration here", "Car 4 The most important concern is the good of all the people in the hospital as a whole"). After removing these items, the refined solution proved valid (KMO=0.868; Bartlett's $\chi^2(28)=892.523$, $p<0.001$) and revealed three factors, with the Instrumental ethical climate splitting into two distinct factors. This revised solution accounted for 71.8% of the total variance after rotation (Varimax), with all items showing commonalities above .500 and the minimum factor loading being .627. Table 3.2 presents the rotated component matrix.

Table 3.2 Rotated component matrix for ECQ

Items	Caring Climate	Ins. -Self	Ins. -Arena
Car 1 people look out for each other's good	**.789**	-.219	-.209
Car 3 Our major concern is always what is best for the other person	**.829**	-.222	-.230
Car 5 it is expected that you will always do what is right for the customer and public	**.660**	-.370	-.244
Ins 2 People always try to take advantage of others	-.271	**.793**	.048
Ins 4 People generally believe that as long as their own interests are not compromised, the hospital's interests have nothing to do with them	-.287	**.756**	.162
Ins 6 Work is considered substandard only when it hurts the hospital's interests	-.141	**.627**	.550
Ins 1 people protect their own interests above all else	-.217	.171	**.822**
Ins 3 There is no room for one's own personal morals or ethics in this hospital	-.268	.082	**.825**

Covariance analysis suggested that the Instrumental latent constructs could be grouped under a 2nd order factor, and the CFA for this refined model demonstrated favorable fit indices ($\chi^2(19)=48.392$, $p<0.001$, Normed $\chi^2=2.547$; CFI=0.966; TLI=0.950; RMSEA=0.072; 90% CI [.047, .097]; PClose=0.073; SRMR=0.0397). When measured at the second-order level, the Instrumental climate exhibited strong reliability (CR=0.825) and good convergent validity (AVE=0.703). Similarly, the Caring climate also demonstrated good reliability (CR=0.797) and convergent validity (AVE=0.567). The solution further displayed good discriminant validity, as evidenced by an HTMT value of 0.681 (Figure 3.4).

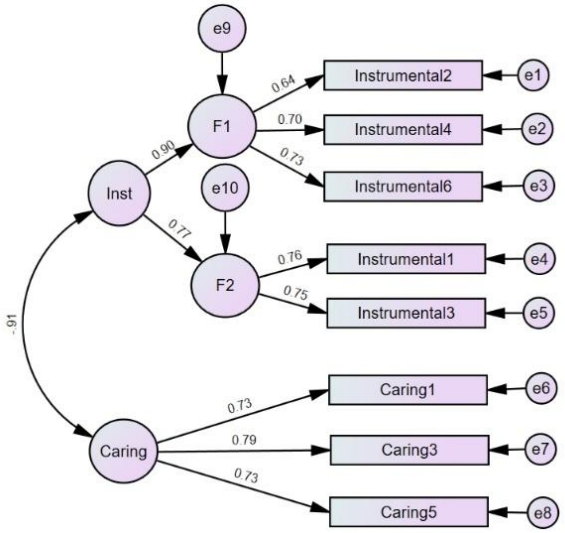


Figure 3.4 CFA of ECQ

By comparing the nature of the factors identified in both the ECQ and ECQ 2.0, there are possible convergences between psychometrically robust measures.

3.4.3 Comparative aggregability

While ethical climate is often depicted as an individual's psychological perception of the work

environment, its greater theoretical significance lies in shared perceptions of that environment, highlighting group processes as determinants of behavioral choices (Myint et al., 2021). This perspective aligns with Joyce and Slocum's (1982) original distinction between psychological and organizational climates.

To assess the aggregability of these perceptions, we employed measures such as r_{wg}, ICC(1), and ICC(2), following the guidelines provided by Woehr et al. (2015). Table 3.3 presents the test results of all factors of ECQ and ECQ 2.0, as well as work engagement and job embeddedness. The results indicate that the both ethical climate scales similarly capture shared perceptions across each factor. Work engagement and job embeddedness can also be aggregated at the team level.

Table 3.3 Comparative aggregability

	$R_{wg(j).uniform}$		$R_{wg(j).measure\text{-}specific}$					
Measure	Mean	SD	S^2_E	Mean	SD	F ratio	ICC(1)	ICC(2)
ECQ Ins1 (item 246)	0.86	0.08	0.90	0.52	0.30	10.48*	0.70	0.90
ECQ Ins2 (item 13)	0.78	0.17	0.90	0.43	0.31	5.29*	0.52	0.81
ECQ Ins (2^{nd} order)	0.90	0.06	0.90	0.58	0.29	21.58*	0.84	0.95
ECQ Caring	0.88	0.06	0.90	0.57	0.30	13.09*	0.75	0.92
ECQ 2.0 Conv-Ben	0.85	0.22	0.90	0.65	0.32	8.16*	0.64	0.88
ECQ 2.0 Conv-Clan	0.81	0.21	0.90	0.56	0.35	12.56*	0.74	0.92
ECQ 2.0 Princ	0.79	0.21	0.90	0.50	0.31	3.72*	0.41	0.73
ECQ 2.0 Cos	0.82	0.24	0.90	0.58	0.32	6.68*	0.59	0.85
Job Embeddedness	0.87	0.10	0.90	0.59	0.25	12.47*	0.74	0.92
Work engagement	0.97	0.06	2.14	0.91	0.16	11.36*	0.72	0.91

*p<0.001, shape is moderate skew

The findings indicate that the scales are largely equivalent, with all r_{wg}, ICC(1) and ICC(2) measures reaching the threshold for aggregation although some minor issues were detected. Specifically, in ECQ, the instrumental scale is divided into two sub-factors under a second-order structure. When examining the first-order factors, ECQ Instrumental type two shows a comparatively lower ICC(1). A similar pattern emerges in the ECQ 2.0 scale, where the Principled ethical climate exhibits a relatively lower ICC(1), closely followed by the Cosmopolitan.

3.4.4 Patterns of association between ECQ and ECQ 2.0

By cross-referencing the scales from ECQ and ECQ 2.0, and analyzing their respective means and dispersion, we can assess the degree of alignment between the two measurement approaches. Table 3.4 presents all pertinent data for this comparison.

The initial analysis on sociodemographic variables revealed no significant correlations with any subscales from ECQ or ECQ 2.0, except for a weak link between individual educational level and the ECQ 2.0 Conventional-Clan (r=0.123, p<0.05).

Upon examining correlations between subscales, three significant correlations emerged at the individual level. Specifically, there were significant correlations between the ECQ Instrumental ethical climate and both the ECQ 2.0 Conventional-Benevolence (r=0.130, $p<0.05$) and Conventional-Clan (r=0.227, $p<0.01$) subscales, and the ECQ Caring ethical climate showed a significant negative correlation with the ECQ 2.0 Conventional-Clan subscale (r=-0.164, $p<0.01$).

At group level, there is only one significant correlation, between ECQ Instrumental ethical climate and ECQ 2.0 Conventional-Clan (r=0.257, $p<0.05$).

Table 3.4 Descriptive and bivariate statistics for individual and team level

Variable	Ind. Mean	Ind. SD	1	2	3	4	5	6	7	8	9	10	Team mean	Team SD
1. Age	3.18	1.31	-	-.349**	.480**	.941**	.086	-.075	-.003	.007	-.108	.125	3.19	.84
2. Gender	1.69	.46	-.115*	-	-.534**	-.291*	-.187	.161	.029	.112	-.021	-.101	1.68	.33
3. Education Level	2.07	.51	.253**	-.207**	-	.363**	.070	.035	-.059	-.054	-.115	.203	2.07	.31
4. Professional Tenure	2.91	1.11	.925**	-.065	.191**	-	.079	-.070	.080	-.032	-.138	.085	2.92	.69
5. IEC	2.38	.77	.040	-.105	.061	.038	-	-.809**	.026	-.059	.139	.257*	2.40	.75
6. CEC	3.68	.92	-.098	.062	-.020	-.087	-.680**	-	-.129	.047	-.023	-.166	3.63	.87
7. EC_Cosmopolitan	2.16	.89	.040	.034	-.053	.055	-.029	-.097	-	-.316**	-.589**	-.100	2.18	.77
8. EC_Principled	3.94	.84	-.104	.101	-.022	-.105	-.032	.021	-.253**	-	.329**	-.042	3.95	.63
9. EC_Conv_Benev	3.84	.84	-.090	-.006	-.006	-.108	.130*	-.024	-.521**	.241**	-	.210	3.85	.69
10. EC_Conv_Clan	3.21	1.12	.076	-.082	.123*	.051	.227**	-.164**	-.102	-.001	.197**	-	3.29	.99

*p<0.05 level (2-tailed); **p<0.01 level (2-tailed) N=303, N groups=76, Team level correlations shown above the diagonal.

3.4.5 Incremental validity of ECQ 2.0

Given that ECQ 2.0 is claimed to offer added theoretical and empirical value beyond Victor and Cullen's (1988) proposal, we conducted an analysis to assess the variance explained by ECQ 2.0 after accounting for both sociodemographic variables and the original ECQ. Table 3.5 and Table 3.6 present the results of hierarchical regression models, detailing the coefficients and incremental variance explained for job embeddedness and work engagement, respectively.

3.4.5.1 Incremental validity on job embeddedness

Job embeddedness was selected for this study due to its role in representing the forces that prevent a person from leaving his or her job (Mitchell et al., 2001). It measures the extent to which individuals are connected to their coworkers and also how much they feel fitted to their job and what they stand to lose by leaving that job. According to Mitchell et al. (2001), field theory by Lewin (1951) provides the conceptual foundation for job embeddedness, and this theory describes an individual's life space as a network of interconnected fields encompassing various aspects of their lives, such as work, family, and leisure. These fields can be consciously or unconsciously perceived by the individual and influence their behavior through the density and strength of the links between the individual and their environment, including people or activities, thus embedding individuals within their organizations (Burnes & Cooke, 2013). The centrality of these aspects varies from individual to individual according to life context, and across time as a dynamic system. Some aspects can be more closely related to each other, while others more distant, creating a web of relations that guide the choices of individuals. Field theory is thus the foundation for the construct of job embeddedness (Mitchell et al., 2001).

The ethical dimension plays an important role in embedding individuals to their job and organization due to the intrinsically ethical human nature and the search for consistency between one's own ethical values and that of the organization (Schwepker Jr & Hartline, 2005). The factors that build individual perceptions of organizational ethics have been ascribed to ethical leadership, ethical culture, ethical climate, perceptions of organizational fairness or justice, or corporate social responsibility, among others (Fein et al., 2023; Junaidi, 2023; Saleem et al., 2020).

Table 3.5 Hierarchical ECQ 2.0 and ECQ model coefficients on job embeddedness

Variable	Model 1 (control variables only)				Model 2 (control + ECQ)				Model 3 (all)			
	β	t	*p*	95% CI	*β*	t	*p*	95% CI	*β*	t	*p*	95% CI
Individual level												
Age	.012	0.107	.915	-.231; .244	.042	0.563	.574	-.108; .191	.034	0.464	.643	-.117; .177
Gender	.357	2.680	.007	.100; .624	.239	2.907	.004	.089; .413	.255	3.146	.002	.107; .430
Educ	-.113	0.907	.364	-.360; .134	-.101	1.320	.187	-.261; .048	-.109	1.427	.154	-.265; .036
ProTen	-.086	0.649	.516	-.350; .174	-.080	0.943	.346	-.242; .091	-.07	0.831	.406	-.232; .103
CEC					.444	8.763	.001	.347; .543	.418	7.866	.001	.317; .521
IEC					-.432	7.242	.001	-.551; -.314	-.463	7.345	.001	-.590; -.338
Cosmop									-.118	2.354	.019	-.213; -.018
Princip									-.077	1.566	.117	-.177; .024
ConvBen									.026	0.486	.627	-.081; .133
ConvClan									.001	0.037	.970	-.062; .066
Team level												
Age	.040	0.103	.459	-.619; .664	.178	0.974	.165	-.113; .496	.104	0.544	.293	-.197; .431
Gender	.752	1.967	.025	.192; 1.469	.245	1.513	.065	.019; .545	.287	1.576	.058	.028; .643
Educ	.251	0.504	.307	-.615; 1.020	-.195	1.084	.139	-.478; .107	-.189	0.900	.184	-.494; .192
ProTen	-.222	0.505	.307	-.896; .544	-.298	1.450	.074	-.629; .036	-.198	0.963	.168	-.537; .136
Team size	.080	1.218	.112	-.022; .192	-.031	0.812	.208	-.086; .038	-.032	0.752	.226	-.090; .051
CEC					.624	5.490	.001	.423; .792	.572	4.022	.001	.329; .785
IEC					-.332	3.184	.001	-.503; -.169	-.394	2.697	.004	-.652; -.187
Cosmop									-.156	1.639	.051	-.322; -.015
Princip									-.126	0.969	.166	-.382; .058
ConvBen									.026	0.210	.417	-.149; .270
ConvClan									.029	0.518	.302	-.055; .126
R^2(ind)	5.2%	*p*=0.187			57.9%	*p*<0.001			59.4%	*p*<0.001		
R^2(team)	11.2%	*p*=0.059			79.8%	*p*<0.001			82%	*p*<0.001		
ΔR^2(ind)					52.8%	*p*<0.001			3.6%	*p*=0.027		
ΔR^2(team)					68.6%	*p*<0.001			2.2%	*p*=0.117		

Indeed, ethical-focused empirical studies exploring the antecedents of job embeddedness have reported an important role for ethical leadership and ethical climate (Ferreira, 2017; Karatepe, 2013). Accounting for the theoretical explanatory mechanism that links these constructs to job embeddedness, social learning theory of Bandura (1977) clarifies how leaders, as role models, establish the reference against which individuals judge on the ethical stance of the organization where they are working and, likewise, the social norm (expressed as ethical climate) is also a central factor against which individuals judge their ethical fit which is a key feature of job embeddedness construct (Mitchell et al., 2001). Theory then posits that ethical climate is positively associated with job embeddedness.

Given this study focuses on the incremental validity of ECQ 2.0 over ECQ, we anticipated that ethical climate, as measured by ECQ 2.0, would explain unique variance in job embeddedness beyond that accounted for by ECQ.

At the individual level, after controlling for age, gender, education, and professional tenure, both dimensions of ethical climate measured by ECQ emerged as strong predictors of job embeddedness, namely Caring ethical climate (β=0.444, t=8.763, p<0.001, 95% CI [.347, .543]) and Instrumental ethical climate (β=-*0.*432, t=7.242, p<0.001, 95% CI [-.551, -.314]), accounting for 57.9% adjusted variance. No multicollinearity issues were detected, as indicated by low VIF (VIF_{Caring}=1.887; $VIF_{Instrumental}$=1.889).

When the four subscales from ECQ 2.0 were included as predictors of job embeddedness, the explained variance increased to 59.4% ($adjR^2$). This increase was not affected by multicollinearity (highest VIF=1.474).

Still, by adding the four subscales from ECQ 2.0, while controlling age, gender, education, professional tenure, and also Caring and Instrumental ethical climate from ECQ, the model does add up some unique variance (ΔR^2=3.6%) that, albeit very modest, is significantly adding to the explanatory power.

At the team level, after controlling for the same variables as at the individual level but also including team size, both ethical climate dimensions from ECQ remained strong predictors of job embeddedness, namely Caring ethical climate (β=0.624, t=5.490, p<0.001, 95% CI [.423, .792]) and Instrumental ethical climate (β=-0.332, t=3.184, p<0.001, 95% CI [-.503, -.169]) which account for 79.8% adjusted variance. There are no multicollinearity issues as evidenced by low VIF (VIF_{Caring}=3.166; $VIF_{Instrumental}$=3.020).

When incorporating the four subscales from ECQ 2.0 as predictors of job embeddedness at the team level, the explained variance rose to 82% ($adjR^2$). This increase was not due to multicollinearity (highest VIF=1.886).

Adding the four subscales from ECQ 2.0, while controlling for age, gender, education, professional tenure, team size, and Caring and Instrumental ethical climate from ECQ, led to no significant enhancement in the model's explanatory power (ΔR^2=2.2%).

3.4.5.2 Incremental validity on work engagement

As a complementary concept, work engagement is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002, p. 74). Work engagement has been included together with job embeddedness in models aiming to explain various organizational behaviors, such as turnover intention or innovative behavior (Norouzinik et al., 2022; Takawira et al., 2014). Despite some conceptual overlap, both constructs relate to factors that keep employees connected to their job. Halbesleben and Wheeler (2008) conducted a study purposefully designed to ascertain whether these constructs differ or if their empirical overlap precludes their need to co-exist. Their study reports unique variance attributable to each construct in explaining turnover intention and job performance. Additionally, Norouzinik et al. (2022) conceived job embeddedness and work engagement as parallel mediators between narcissistic leadership and innovative behavior instead of treating them as sequential, suggesting that they are not only conceptually distinct but may also not be directly interrelated.

Work engagement has been conceived from a social exchange theory viewpoint (Blau, 1964; Cropanzano & Mitchell, 2005). According to Saks (2006), social exchange theory is a fitted theory to explain how individuals develop work engagement. According to Cropanzano and Mitchell (2005), individuals co-exist in a mutually interdependent system of relationships that are characterized by reciprocity. With continuous interaction, relationships consolidate around mutual commitments and trust as individuals establish a consensus about their rules of exchange. Therefore, when organizations provide resources (material or intangible such as socioemotional resources) individuals tend to reciprocate by repaying their organization as expressed in loyalty and dedication. Reminding the centrality of ethical dimension in society and individuals' life, as organizations provide ethically consistent conditions (e.g., leadership, working climate, resource allocation criteria) individuals will reciprocate by further engaging with their job. Again, as this study is concerned with the incremental validity of ECQ 2.0 over ECQ, then we expect that ethical climate, as measured by ECQ 2.0, accounts for unique variance of work engagement, above and beyond that of ECQ.

At the individual level, after accounting for age, gender, education, and professional tenure, the ethical climate measured by ECQ failed to predict work engagement significantly

(β_{caring}=0.000, t=0.035, p=0.972, 95% CI [-.119, .133]; $\beta_{instrumental}$=0.102, t=1.202, p=0.229, 95% CI [-.062, .269]). However, incorporating the four subscales from ECQ 2.0 into the model, while controlling for the same demographic variables and the caring and instrumental ethical climate dimensions from ECQ, led to a substantial increase in explained variance, reaching 16.7%, with a notable unique variance contribution (ΔR^2=14.6%).

Similarly, at the group level, the ECQ dimensions did not significantly predict work engagement (β_{caring}=0.061, t=0.376, p=0.354, 95% CI [-.194, .339]; $\beta_{instrumental}$=0.056, t=0.273, p=0.392, 95% CI [-.276, .391]). Consistent with the individual-level analysis, when the four subscales from ECQ 2.0 were added to the model, while controlling for the same demographic factors plus team size and the ECQ's caring and instrumental ethical climate dimensions, there was a marked increase in explained variance, up to 25.7%, with a significant unique variance contribution (ΔR^2=18.8%). The results are shown in Table 3.6.

Table 3.6 Hierarchical ECQ 2.0 and ECQ model coefficients on work engagement

Variable	Model 1 (control variables only)				Model 2 (control + ECQ)				Model 3 (all)			
	β	t	*p*	95% CI	*β*	t	*p*	95% CI	*β*	t	*p*	95% CI
Individual level												
Age	0.115	1.185	0.236	-.074; .315	.116	1.202	.229	-.071; .318	.110	1.213	.225	-.066; .305
Gender	0.052	0.534	0.593	-.128; .252	.071	0.681	.496	-.122; .273	.053	0.523	.601	-.136; .237
Educ	-0.213	2.061	0.039	-.423; -.014	-.217	2.097	.036	-.431; .015	-.215	2.268	.023	-.411; -.03
ProTen	-0.113	1.000	0.317	-.344; .105	-.116	1.031	.303	-.349; .099	-.081	0.748	.454	-.302; .129
CEC					.000	0.035	.972	-.119; .133	-.052	0.809	.419	-.176; .075
IEC					.102	1.202	.229	-.062; .269	.063	0.772	.440	-.102; .218
Cosmop									-.191	2.903	.004	-.320; -.065
Princip									.100	1.736	.083	-.007; .221
ConvBen									.146	2.162	.031	.017; .285
ConvClan									-.094	2.391	.017	-.176; -.018
Team level												
Age	0.397	1.334	0.091	-.054; .919	.407	1.355	.088	-.035; .946	.189	0.671	.251	-.229; .682
Gender	-0.215	0.902	0.183	-.610; .168	-.226	0.827	.204	-.685; .213	-.153	0.548	.292	-.665; .268
Educ	-0.602	1.810	0.035	-1.176; -.086	-.632	1.794	.036	-1.259; -.095	-.403	1.124	.131	-1.025;.157
ProTen	-0.453	1.282	0.100	-1.092; .068	-.461	1.286	.099	-1.110; .065	-.179	0.528	.299	-.765; .320
Team size	-0.078	1.079	0.140	-.205; .035	-.083	1.137	.128	-.206; .035	-.101	1.417	.078	-.217; .014
CEC					.061	0.376	.354	-.194; .339	-.031	0.160	.436	-.342; .307
IEC					.056	0.273	.392	-.276; .391	.006	0.026	.489	-.360; .404
Cosmop									-.229	1.171	.121	-.559; .089
Princip									.111	0.697	.243	-.117; .412
ConvBen									.178	0.953	.170	-.090; .523
ConvClan									-.153	1.854	.032	-.294; -.018
R^2(ind)		2.1%	*p*=0.692		3.1%	*p*=0.661			16.7%	*p*=0.019		
R^2 (team)		6.7%	*p*=0.089		6.9%	*p*=0.123			25.7%	*p*=0.021		
ΔR^2(ind)					1.0%	*p*=0.242			14.6%	*p*<0.001		
ΔR^2(team)					0.2%	*p*=0.935			18.8%	*p*=0.005		

3.5 Discussion and conclusion

Victor and Cullen's (1988) measure of ethical climate, ECQ, has been widely used in research, overshadowing most alternative measures and converging on five of the nine theoretically posited ethical climate types: instrumental, caring, rules, law and code, and independence (Newman et al., 2017). However, it has been criticized for its relatively volatile factorial structure as witnessed in many publications (Gwamanda & Mahembe, 2023; Yener et al., 2012). To overcome this, a novel measure of ethical climate (ECQ 2.0) was published by Weber and Opoku-Dakwa (2022) with the subsequent revised theoretical framework.

Given the recency of this measure and the promising added value it offers to empirical research on ethical climate, it is important to compare its properties with those of the original ECQ by Victor and Cullen (1988). So far, the study that originated ECQ 2.0 has been cited more than 25 times, and none of the articles used it empirically. Therefore, it is yet waiting for psychometric testing.

This study aims to bridge the existing research gap by conducting a comparative psychometric assessment of ECQ 2.0 against two of the most well-established scales from the ECQ, Instrumental and Caring ethical climates. The findings first present the construct validity of ECQ 2.0, along with its convergent validity, discriminant validity, and reliability, followed by a parallel analysis for the ECQ. Second, the study reports on the bivariate associations between the ECQ and ECQ 2.0 measures. Third, it examines the comparative aggregability of data to the team level, which is considered the appropriate level for measuring ethical climate. Fourth, it assesses the incremental validity of ECQ 2.0.

In terms of comparative psychometric validity and reliability, adjustments to the CFA were necessary for the ECQ's Instrumental and Caring ethical climate scales to meet the fit index thresholds, with the Instrumental climate scale splitting into two first factors organized under a second-order factor. While reliability, convergent validity, and discriminant validity were satisfactory, the factor structure deviated from theoretical expectations. Similarly, ECQ 2.0 achieved a stable factor solution that significantly differed from the structure proposed by Weber and Opoku-Dakwa (2022). From the 26 initial items, only 10 were retained, forming a four-factor structure that met minimum fit index thresholds and demonstrated adequate convergent validity, discriminant validity, and reliability. Conventional ethical climate splits in two to express the benevolence norm (benevolence-individual) which is distinguished from the clan norm (benevolence-local), which refers to the protection of the common good in the form

of organizational interests. The "cosmopolitan" fused with the "local" reversed items to produce a single factor expressing an external norms orientation over internal regulations. Lastly, "principled" ethical climate emerged as an expression of the supremacy of ethical principles, without any specific indication whether those are individual or cosmopolitan. This structure has important implications for Weber and Opoku-Dakwa (2022) proposal.

Firstly, Weber and Opoku-Dakwa (2022) argue that the individual criterion should be regarded as a null hypothesis, asserting that ethical climate can only originate from collective sources. The analysis found no evidence of an individual-based factor, providing empirical support for this claim.

Secondly, the split within the conventional scale, distinguishing between the general benevolence expressing “caring” across individual, local, and cosmopolitan contexts as noted by Martin and Cullen (2006), and the benevolence towards one’s own organization (conventional-clan). This aligns with the recurring finding that the most robust scales in the ECQ are “caring” and “instrumental”. This instrumental-versus-caring dichotomy appears to be a fundamental aspect of ethical thinking, reflecting the tension between selfishness and altruism-a key issue in human survival from an evolutionary psychology perspective (Hardy & Van Vugt, 2006).

Thirdly, the lack of a principled-local factor reinforces Weber and Opoku-Dakwa’s (2022) argument that such a group is inherently nonexistent within Kohlberg and Hersh’s (1977) framework. According to these authors, principled is inherently cosmopolitan, as there can be no local-principled climate, since Weber and Opoku-Dakwa (2022) reject the individual level due to its unable to share (and thus, its incompatibility with the concept of ethical climate), a principled climate must, by definition, be universal.

Fourthly, the absence of an egoism factor can be attributed to its inherent conflict with conventional moral reasoning, which, in a collectivist society like China, may be viewed as countercultural. Consequently, it is likely suppressed by the prevailing pro-social climate, which emphasizes caring for others and protecting the organization.

Globally, the psychometrically robust version of ECQ 2.0 does not entirely encompass the theoretical breadth of potential ethical climates, but some of its assertions are corroborated, carrying significant structural implications for Victor and Cullen’s (1988) original framework that intersected ethical criteria with the locus of analysis.

The bivariate statistics indicated fewer significant correlations between ECQ and ECQ 2.0 than one would expect from measures based on similar theoretical frameworks. At the individual level there are some counter-intuitive correlations such as those observed between

instrumental ethical climate and conventional-benevolence or conventional-clan. These correlations may indicate some volatility in ethical climate measurements, potentially due to the time-lag between the administrations of ECQ and ECQ 2.0. However, at the group level there seems to be more stability as the single significant correlation is more in line with expectations, where instrumental ethical climate is positively associated to conventional-clan, thus reflecting a shared foundational principle of behavior driven by self-interest rather than a general doing-good-to-others principle. In both situations, one can take self-interest as the ultimate driver of such ethical criteria. Still, overall, the lack of significant correlations can be also interpreted as being due to the substantial differences in how ethical climate is measured in ECQ 2.0 as compared to ECQ where even full dimensions (e.g., individual locus of analysis) are suppressed.

Regarding the aggregability of both ethical climate measures, the findings demonstrate that both effectively capture ethical climate at the collective level. Despite the relatively low ICC(1) for the second type of the ECQ instrumental scale as a first-order factor, as well as the comparatively low ICC(1) values for the principled ethical climate and cosmopolitan scales in ECQ 2.0, these issues do not significantly undermine the overall capability of both measures. However, the relatively weaker performance of the principled and cosmopolitan scales may echo Arnaud and Schminke's (2012) argument that such ethical climates are uncommon, reflecting the scarcity of post-conventional moral development in the general population.

The results concerning incremental validity are mixed. When predicting job embeddedness beyond Instrumental and Caring scales, ECQ 2.0 contributes relatively little additional explanatory power, accounting for only 3.6% of the variance (on top of the 57.9% explained by the existing scales) at the individual level. At the group level, this added unique variance is even lower, at just 2.2%, compared to the 79.8% variance explained by ECQ. Based on these figures, it is difficult to argue that ECQ 2.0 provides enough unique variance to justify its use in explaining job embeddedness.

However, when examining work engagement, the results differ markedly. At the individual level, ECQ explained just over 1% of the variance in addition to sociodemographic variables, bringing the total explained variance to a mere 3.1%, while incorporating ECQ 2.0 significantly boosted this explanatory power, contributing an additional 14.6% of unique variance and thus demonstrating clear evidence of incremental validity. At the group level, this enhancement was even more pronounced, with ECQ 2.0 adding 18.8% of unique variance and accounting for a total of 25.7% of the variance. Notably, ECQ contributed a negligible and statistically insignificant 0.2% of variance beyond sociodemographic variables (6.7%), and this not only

underscores the incremental validity of ECQ 2.0 but also suggests that ECQ is not a viable option for explaining work engagement.

Overall, these results indicate that ECQ 2.0 does not exhibit incremental validity over ECQ in explaining job embeddedness, but it does demonstrate such validity in the context of work engagement.

3.6 Limitations

This study adopts a cross-sectional rather than longitudinal design, yet ethical climate is inherently prone to substantial shifts prompted by critical events. The time-lagged measurement between ECQ and ECQ 2.0 may introduce uncertainties regarding fluctuations in ethical climate during this interval.

Regarding sample characteristics, although the sample of 76 teams meets the research requirements, a larger sample would bolster the study's statistical power and generalizability.

Additionally, we did not fully control the recruitment process. Still, the data-collection platform has been widely used in prior studies and undergoes basic quality control; therefore, we are confident that all participants fully comply with the methodological requirements of this study.

3.7 Future research

First and foremost, future studies could adopt a longitudinal approach to dynamically track how ethical climate evolves over time and assess the real-time influence of critical events.

Secondly, expanding the sample size by including more teams would enhance statistical power and the generalizability of research outcomes.

Finally, it would be worthwhile to investigate alternative composite measures that integrate values from ethical criteria, locus of analysis, and source of criteria as indicators of ethical climate.

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Chapter 4: Physicians versus Nurses: How Team Ethical Climate and Team Moral Distress Influence Team Work Engagement Differently

Abstract: Amid the resource limitations prevalent in Chinese public hospitals, frontline healthcare professionals often face ethical dilemmas. The psychological pressure arising from conflicts between professional ethical standards and practical conditions directly affects work quality. Team ethical climate, as a collective perception of ethical values within a team, offers a potential path to alleviate this dilemma. This study aims to explore the impact of team ethical climate on team work engagement in Chinese public hospitals, analyze the mediating role of team moral distress, and compare the differences between physicians and nurses in these relationships. Based on the previous chapter's research on Weber and Opoku-Dakwa's ECQ 2.0, the study focuses on four types of team ethical climates: benevolence, clan, principled, and cosmopolitan, and tests the conceptual model using data from 474 physicians and nurses across 95 teams. The results show that team benevolence ethical climate positively influences team work engagement, while team clan ethical climate has negative impact; moral distress plays a mediating role, and nurses exhibit significantly greater sensitivity to these relationships compared to physicians.

4.1 Introduction

Resource constraints in China's public hospitals have become the norm. In this context, frontline healthcare professionals often face ethical dilemmas (Wei et al., 2023). As direct providers of medical services, physicians and nurses face significant challenges in clinical work. Within the institutional frameworks shaped by medical insurance policies, performance evaluations, and other factors, they must navigate the delicate balance between professional ethical standards and practical limitations, all while coping with resource shortages like insufficient hospital beds and manpower. These factors combined mean that they frequently encounter conflicts between ethical values and practical limitations. When healthcare professionals cannot provide patients with the necessary treatment according to their own ethical standards, the gap results in sustained psychological pressure (Hamric & Epstein, 2017;

Prompahakul & Epstein, 2020).

Moral distress is a state of psychological imbalance and negative emotion, characterized by the inability to make moral decisions in line with one's own ethical compass (Wilkinson, 1987). The experience of moral distress involves people's cognition of moral responsibility (Corley et al., 2001). When individuals involuntarily engage in immoral behavior, knowing that such actions are morally wrong but powerless to resist or change them, they may feel that they have violated moral principles (Hamric & Epstein, 2017). Morley et al. (2019) argued that the occurrence of moral distress requires the simultaneous satisfaction of two conditions: experiencing a moral event and generating psychological distress. Compared with physicians, nurses are more prone to moral distress due to their more frequent contact and communication with patients (Wei et al., 2023).

The unique organizational attributes of public hospitals further exacerbate the complexity of ethical decision-making. As institutions with dual objectives of public welfare and operational efficiency, public hospitals need to balance patients' rights and interests with the demands of maintaining operations and development in resource allocation (Li & Lin, 2025). Such organizational attributes are transmitted to the clinical frontline through the management decision-making chain, also placing frontline medical staff in a decision-making dilemma between the professional ethical requirement of "patient interests first" and the hospital's requirement of cost-benefit balance. This will bring negative impacts on employees' mental and physical well-being and ultimately compromise work quality (Prompahakul & Epstein, 2020).

Given that the shortage of medical resources will hardly be overcome in the short term, team ethical climate, as employees' shared cognition of team ethical values, may provide a solution to easing medical ethical dilemmas. By constructing a supportive ethical environment, organizations may regulate medical staff's cognitive evaluation and coping patterns toward ethical conflicts, thereby buffering the negative impacts of ethical dilemmas (Miljeteig et al., 2021).

Victor and Cullen (1988) posited that ethical climates can be classified into distinct types. Among the various categorizations, they proposed five common ethical climate types, namely Instrumental, Caring, Independent, Rules, and Law and Code. Among them, the instrumental ethical climate is often regarded as a negative ethical climate (Parboteeah et al., 2024).

In Study 1, the confirmatory factor analysis of ECQ 2.0 developed by Weber and Opoku-Dakwa (2022) identified four factors: Benevolence, Clan, Principled, and Cosmopolitan. A comparative analysis of ECQ and ECQ 2.0 reveals the following correspondences. The Benevolence climate in ECQ 2.0 corresponds to the Caring climate in ECQ. The Clan climate

in ECQ 2.0 corresponds to the Instrumental climate in ECQ. The Principled climate in ECQ 2.0 partially overlaps with both the Rules and Law and Code climates in ECQ. The Cosmopolitan climate in ECQ 2.0 shares partial similarity with the Law and Code climate in ECQ but extends beyond specific external rules to include universal moral standards and broader ethical norms.

This study focuses on the impact of these four types of team ethical climates on team work engagement. Since moral distress represents a core psychological experience in ethical decision-making and is influenced by the team's overall ethical perception, we also incorporated the variable of moral distress into the research at the team level. Recognizing the professional differences between physicians and nurses, this study conducts a comparative analysis of the two occupations (physicians and nurses), with the expectation of enriching the team-level mechanism research on ethical climates of different occupations in hospital organizations and providing theoretical references for organizational ethical management practices.

4.2 Literature review

4.2.1 Team level ethical climate and work engagement

Ethical climate serves as a guiding framework within organizations that reflects ethical decision-making, influencing employees' ethical tendencies and behaviors (Al Halbusi et al., 2022; Victor & Cullen, 1988). Different teams within the same organization may develop distinct ethical rules and objectives, leading to variations in their ethical climates (Vardi, 2001). Malloy and Agarwal (2001) suggested that team ethical climate can be used to distinguish between teams, as each team has a unique framework for ethical behavior and decision-making, with team leaders playing a crucial role in shaping this climate. Mayer et al. (2013) found that employees' moral choices are influenced by the ethical behaviors of leaders and colleagues within the team. Drawing from the definition of organizational ethical climate, team ethical climate is defined as team members' collective perception of appropriate behavior under the team's ethical norms (Cheng & Wang, 2015). Thus, team ethical climate, as a team-level phenomenon and construct, is designated as one of the core variables in workplace ethics research. Its importance is underlined by some valuable outcomes such as job satisfaction or work engagement (David et al., 2021; Jang & Oh, 2019; Yener et al., 2012).

Parboteeah et al. (2024) conducted cross-national comparisons and found that for Asian countries dominated by Confucian culture and Germanic European country clusters,

instrumental ethical climates yield relatively stronger negative outcomes, such as reduced organizational commitment and job satisfaction, and increased deviant behaviors. They noted that these countries commonly exhibit high performance orientation and obedience awareness, which reinforces the impact of instrumental ethical climates. By contrast, caring, independent, rules, and law and code ethical climates produce positive effects.

Wang and Hsieh (2012) analyzed populations across multiple industries to explore the link between different types of ethical climates and job satisfaction. The results showed that individuals' perceptions of the caring and rules ethical climates were positively correlated with job satisfaction, while the instrumental ethical climate produced a distinct outcome, as it was negatively correlated with job satisfaction.

Work engagement refers to a state where individuals work with passion and excitement. The higher the level of work engagement, the more willing individuals are to invest their resources in work (Bakker et al., 2023). Although studies on individual work engagement are relatively abundant, team work engagement, as an important construct at the team level, has also received sustained attention. Team work engagement depends on individual-level factors such as an individual's commitment to the team, the respect received within the team, and one's own drive, and also encompasses team-level factors including the team's shared ability to overcome challenges, a shared sense of accomplishment, a sense of community, collective drive, and focus (Gersdorf-Van Den Berg et al., 2024).

Team ethical climate serves as a team-level work resource. According to the Job Demands-Resources Theory, work engagement is positively correlated with work resources. Work resources meet employees' needs, generate motivational effects, and are transformed into the driving force for employees' work engagement (Schaufeli & Bakker, 2004).

Based on the Social Exchange Theory, when teams show more care for members, even under high job demands, members will be more motivated to invest in work (Cropanzano & Mitchell, 2005; Platania et al., 2022). Related studies have shown that a positive ethical climate enables employees to have more positive perceptions at work, enhances their job satisfaction, and alleviates the negative impacts of job burnout (Jang & Oh, 2019; Maffoni et al., 2020). Moreover, it fosters employees' identification with and trust in the organization, cultivating a sense of organizational commitment (Simha & Pandey, 2021; Teresi et al., 2019). Empirical research has indicated that a positive ethical climate makes employees more responsible and service-oriented (Zhang & Li et al., 2021).

A meta-analysis has shown that instrumental and caring climates are the two types among the five common ethical climates with the strongest predictive power for cognition and emotion,

as they reflect the opposing values of "self-importance" and "other-importance" respectively (Martin & Cullen, 2006). A study by Simha and Pandey (2021) indicated that caring and rules ethical climates have a negative impact on nurses' turnover intention through the mediating role of organizational trust. The study by Zhang and Li (2021) suggested that different types of ethical climates vary in the degree and direction of their influence on employees' in-role and extra-role service behaviors. The caring ethical climate has a significant positive impact on both types of behaviors, while the instrumental ethical climate has a significant negative impact on extra-role service behaviors.

Based on the above findings, the following hypotheses are proposed:

Hypothesis 1a: Team principled ethical climate is positively correlated with team work engagement.

Hypothesis 1b: Team cosmopolitan ethical climate is positively correlated with team work engagement.

Hypothesis 1c: Team benevolence ethical climate is positively correlated with team work engagement.

Hypothesis 1d: Team clan ethical climate is negatively correlated with team work engagement.

As previously mentioned, moral distress is a key variable in clinical settings, and its impact on psychological resource depletion can be better understood through the lens of COR Theory by Hobfoll (1989).

4.2.2 Conservation of resources theory

The COR Theory, proposed by Hobfoll (1989), stems from research on stress and resource management. Its core logic is that when people are under psychological stress that may cause or has already caused resource loss, they will proactively take measures to protect and accumulate resources, aiming to minimize or even offset the loss. This theory revolves around resources, which refer to all entities or conditions that people consider valuable, such as tools, social status, vocational skills, and knowledge (Hobfoll, 1989). The COR Theory consists of four core principles: Firstly, the impact of resource loss outweighs those of resource gain. Secondly, resources must be invested to prevent and compensate for resource depletion. Thirdly, when the degree of resource loss is relatively severe, the importance of resource gain will increase, meaning that people have a stronger motivation to obtain resources. Fourthly, when resources are overused or exhausted, individuals or teams will enter a protective defensive mode

(Hobfoll, 1989; Hobfoll et al., 2018).

Hobfoll (2011) further proposed the concept of "Resource Caravan", highlighting that in the context of teams and organizations, resources do not exist in isolation but form, develop, and interact with each other in an aggregated manner. This concept is crucial for understanding the sources of stress teams encounter during resource loss. When a team suffers resource loss, it may trigger a chain reaction within the caravan, and a single loss can easily evolve into a "resource loss spiral" (Hobfoll, 2011). Because team members share the organizational culture and work environment, the common assessment of resource loss will strengthen the consistency of stress and amplify the perception of stress. From the perspective of differences in team resource reserves, teams with more abundant resources are more resilient when facing resource loss and are more capable of acquiring new resources; in contrast, teams with scarce resources are not only more vulnerable to the impact of resource loss, but also less capable of obtaining new resources (Hobfoll et al., 2018). The formation and maintenance of resource caravans depend on the environmental "passageways" shaped by organizations and teams. These ecological settings can either foster resource growth, as seen in a trusting team climate, or impede it, such as in a discriminatory culture (Hobfoll et al., 2018).

4.2.3 Team level moral distress and work engagement

Stress and negative emotions have been confirmed to have adverse effects on work engagement (Clark et al., 2021). Generally, moral distress is regarded as a factor that exerts negative impacts on individuals' psychological, health, and work outcomes (Prompahakul & Epstein, 2020).

Although moral distress can be uncomfortable, it may also have a work-promoting effect, especially in healthcare jobs. Relevant studies have shown that moral distress acts as a double-edged sword for healthcare professionals. Corley (2002) suggested that moral distress enables people to learn from failures and resolve to avoid repeating them, embodying the pursuit of providing high-quality patient care. Hamric (2014) showed through case studies that moral distress is also a learning process, contributing to the enhancement of moral integrity and work outcomes, and can bring higher-quality care for nurses and physicians. Henrich et al. (2017) indicated that the surveyed physicians believed that experiencing moral distress is essential to becoming an excellent physician, as the lack of such emotions may lead to negligence toward patients. Rennó et al. (2018) conducted a qualitative study on undergraduate nursing students, and the results showed that nursing students can learn from moral distress to improve their moral sensitivity, personal identity, and ethical capabilities.

According to the COR Theory, when a team perceives the pressure of potential resource loss, such as being threatened by the pressure of moral distress, it will take measures to proactively invest resources to prevent and reduce the loss (Hobfoll et al., 2018). Tigard (2019) pointed out that moral distress has potential positive values, which are twofold: it has both virtue value and instrumental value. Moral distress signals that something an individual cares about has gone wrong. Kolbe and De Melo-Martin (2023) argued that moral distress may be valuable because it allows people to recognize their commitment to moral principles and understand what is truly important. Considering the nature of the medical industry, moral emotions may be crucial.

Causes of moral distress vary across teams, including team-level events such as witnessing team members giving false hope to patients or insufficient support among team members (Epstein et al., 2019). Under the influence of the team's ethical climate, employees perceive how the team defines moral and immoral behaviors, as well as the ethical support they can receive (Olson, 2018). A supportive organizational environment helps medical staff alleviate moral distress (Miljeteig et al., 2021). Therefore, team-level moral distress may influence the psychological state and work attitudes of team members.

Based on the above, the following research hypothesis is proposed:

Hypothesis 2: Team moral distress is positively correlated with team work engagement.

4.2.4 Team level ethical climate and moral distress

Employees perceive the ethical climate as a pivotal factor shaping their moral decision-making and behavior (Dzeng & Curtis, 2018). Through collaboration and communication, they develop a shared understanding of the team's norms regarding moral and immoral conduct (Olson, 2018). When employees are forced to act against their own moral principles due to organizational expectations, moral distress arises, predisposing them to fatigue, decreased job satisfaction, reduced organizational and professional commitment, and even the desire to leave the organization (Dodek et al., 2021; Maffoni et al., 2020; Silverman et al., 2022). Personal values significantly influence the onset and severity of moral distress, as individuals' interpretations of similar workplace situations can vary widely (Deschenes et al., 2020). Consequently, the team's ethical climate not only shapes these perspectives but also directly modulates the frequency and intensity of moral distress experienced.

Wang and Hsieh (2013) proposed that rules and law and code ethical climates may have weak or negative impacts on employees' acquiescent silence and defensive silence. This

influence is inherently dual-edged: while individuals are cognizant of the rules and acknowledge the duty to report misconduct, they often remain silent due to fear of reprisal or a desire to shield colleagues. For moral distress, on the one hand, people feel less pressured because they are clear about the boundaries between morality and immorality; on the other hand, they feel torn when choosing between "protecting colleagues" and "doing the right thing and speaking out to expose wrongdoings". McCorvey and Woehr (2022) pointed out that in a rule-based ethical climate, people are less likely to engage in moral decision-making because the external or organizational rules they follow already define right and wrong. Moreover, they are less inclined to violate rules or laws for organizational interests. Their findings show that both rules and law and code ethical climates are negatively correlated with moral disengagement. Therefore, within an ethical climate characterized by clearly defined rules and stringent enforcement, individuals encounter moral dilemmas less frequently than in other climate types.

Hamric's (2014) case study demonstrated that when the team climate values care and communication, that is, when it is in a caring ethical climate, members are more likely to face up to, discuss, and systematically resolve moral distress, thereby enhancing the overall moral awareness. Conversely, in teams that prioritize organizational interests, members avoid admitting moral distress out of fear of being rejected. As a result, the problem keeps being hidden and worsening. This indicates that in an instrumental team ethical climate, people's moral judgment will be distorted, and members' sensitivity to ethical conflicts will be reduced. This finding is corroborated by Johnson and Ronald Buckley (2015). In team decisions that default to unethical behavior, team members may perceive themselves as merely executing team decisions, thereby reducing their resistance to unethical acts. This leads to an increase in the team's overall tolerance of unethical behavior, thereby reducing the perceived moral conflict.

Coremans et al. (2024) revealed that within a caring ethical climate, individuals demonstrate heightened concern for their colleagues' well-being and are more attuned to issues affecting others. People will proactively identify more moral dilemmas, and teams will discuss moral distress more frequently, so team members experience moral distress more frequently and intensely. Conversely, in an instrumental ethical climate people only focus on organizational or personal interests, and patient interests become less important, so moral distress caused by insufficient care may occur less frequently.

Based on the above, the following research hypotheses are proposed:

Hypothesis 3a: Team principled ethical climate is negatively correlated with team moral distress.

Hypothesis 3b: Team cosmopolitan ethical climate is negatively correlated with team moral

distress.

Hypothesis 3c: Team benevolence ethical climate is positively correlated with team moral distress.

Hypothesis 3d: Team clan ethical climate is negatively correlated with team moral distress.

4.2.5 Team level ethical climate, moral distress and work engagement

While existing studies have examined how ethical climate influences work engagement, the mediating role of moral distress in this process remains underexplored. Dzeng and Curtis (2018) highlighted moral distress as a key factor contributing to physician burnout and diminished well-being. Lamiani et al. (2018) indicated in their study on nurses and physicians that the congruence between personal and organizational values indirectly affects depression levels through the mediating influence of moral distress. Maffoni et al. (2020) found in a study of Italian healthcare workers that ethical climate directly influences employee burnout and also exerts an indirect effect via moral distress. According to the COR Theory, individuals are inclined to proactively invest resources to counteract perceived losses of valued resources (Hobfoll et al., 2018). Under different values, the resource loss associated with events triggering team moral distress may differ, leading to distinct compensatory resource allocation strategies (Deschenes et al., 2020; Hobfoll et al., 2018). In light of these insights, it is essential to integrate the preceding hypotheses into a cohesive process that accounts for these dynamics:

Hypothesis 4a: Team moral distress mediates the relationship between team principled ethical climate and team work engagement.

Hypothesis 4b: Team moral distress mediates the relationship between team cosmopolitan ethical climate and team work engagement.

Hypothesis 4c: Team moral distress mediates the relationship between team benevolence ethical climate and team work engagement.

Hypothesis 4d: Team moral distress mediates the relationship between team clan ethical climate and team work engagement.

4.2.6 Occupation, team level ethical climate and moral distress

Previous research has consistently found that nurses generally report higher levels of moral distress than physicians (Wei et al., 2023). Lievrouw et al. (2016) argued that this may stem from physicians' more rational coping mechanisms for moral distress. The professional socialization of physicians places a strong emphasis on rational ethical decision-making, with

their moral distress typically arising from macro-level decisions, such as treatment plan selections, rather than routine patient interactions. Henrich et al. (2017) proposed that many physicians view moral distress as a constructive aspect of becoming a competent practitioner, believing that its absence could lead to patient neglect and treatment indifference. Epstein et al. (2019) developed the MMD-HP scale to assess samples of nurses and physicians. The results showed that patient-related factors may be the main reason for the difference in moral distress levels between nurses and physicians. Nurses, who dedicate more time to direct patient care and communication, often experience moral distress differently. The study by Silverman et al. (2022) further indicated that nurses perceive a more negative ethical climate than physicians do, and nurses' scores on moral distress and turnover intention are significantly higher than those of physicians. The two factors of "inappropriate care caused by poor clinical decisions" and "poor quality of care caused by poor team communication or lack of professionalism" are the main sources of moral distress for nurses.

Austin et al. (2017, p. 402) noted that while physicians and nurses share common triggers for moral distress, there are also notable differences. Both physicians and nurses identify the two situations that may most likely trigger moral distress as "Follow the family's wishes to continue life support even though I believe it is not in the best interest of the patient" and "Initiate extensive life-saving actions when I think they only prolong death". The difference lies in that the factor of "Working with incompetent colleagues" has a greater impact on nurses than on physicians. When comparing the two occupations, even after controlling workload, nurses still experience higher levels of moral distress than physicians.

Based on these findings, nurses' moral distress appears more intricately linked to patient care responsibilities than that of physicians. When nurses work in an ethical climate that values caring for others and adherence to rules and regulations, they are more likely to prioritize patient interests and to be vigilant against potential harms. Physicians, however, approach moral issues more rationally and positively, making them less sensitive to moral distress than nurses. We propose the following hypotheses:

Hypothesis 5a: The impact of team principled ethical climate on team moral distress will interact with occupation. Specifically, for nurses, the impact of team principled ethical climate on team moral distress is stronger, while for physicians, the impact is weaker.

Hypothesis 5b: The impact of team cosmopolitan ethical climate on team moral distress will interact with occupation. Specifically, for nurses, the impact of team cosmopolitan ethical climate on team moral distress is stronger, while for physicians, the impact is weaker.

Hypothesis 5c: The impact of team benevolence ethical climate on team moral distress will

interact with occupation. Specifically, for nurses, the impact of team benevolence ethical climate on team moral distress is stronger, while for physicians, the impact is weaker.

Hypothesis 5d: The impact of team clan ethical climate on team moral distress will interact with occupation. Specifically, for nurses, the impact of team clan ethical climate on team moral distress is stronger, while for physicians, the impact is weaker.

4.2.7 Occupation, team level ethical climate, moral distress and work engagement

In terms of ethical climate, Yener et al. (2012) suggested that a positive ethical climate significantly enhances employees' work engagement by shaping moral norm consensus within the organization. This finding aligns with studies on analogous organizational climates, such as those centered around safety or innovation. When an organizational climate conveys a supportive tone, employees perceive clarity in role behaviors and availability of work resources, thereby strengthening their willingness to engage in work (Nahrgang et al., 2011; Seppälä et al., 2015). Moreover, studies have shown that organizational support, organizational justice, transparent employee feedback systems, and norms that encourage open conflict resolution all exert positive influences on work engagement (Brunetto et al., 2023; Conway et al., 2016; Robijn et al., 2020).

In contrast, low organizational support leads employees to perceive reduced work resources and benefits, thereby decreasing work engagement (Robijn et al., 2020). A caring ethical climate can be viewed as a form of support extended by the organization and colleagues, similar to having a safety net of benevolent assistance in times of need. Conversely, an instrumental ethical climate may convey a sense of isolation, where self-interest prevails and such support is notably absent.

Due to their frequent involvement in detailed patient care, nurses have a more intense perception of ethical conflicts than physicians (Silverman et al., 2022). The nature of this occupation makes nurses particularly susceptible to moral distress when operating within an ethical climate that prioritizes patient care and adherence to regulations.

In line with this, the previous hypotheses should be integrated in a process in such a way that:

Hypothesis 6a: The indirect effect of team principled ethical climate on team work engagement through team moral distress will interact with occupation. Specifically, this effect is stronger for nurses and weaker for physicians.

Hypothesis 6b: The indirect effect of team cosmopolitan ethical climate on team work

engagement through team moral distress will interact with occupation. Specifically, this effect is stronger for nurses and weaker for physicians.

Hypothesis 6c: The indirect effect of team benevolence ethical climate on team work engagement through team moral distress will interact with occupation. Specifically, this effect is stronger for nurses and weaker for physicians.

Hypothesis 6d: The indirect effect of team clan ethical climate on team work engagement through team moral distress will interact with occupation. Specifically, this effect is stronger for nurses and weaker for physicians.

4.2.8 Conceptual model

The aforementioned hypotheses outline a group-level conceptual model that connects the aggregated team ethical climate and moral distress, with team work engagement serving as the resultant outcome variable. Figure 4.1 shows the conceptual model.

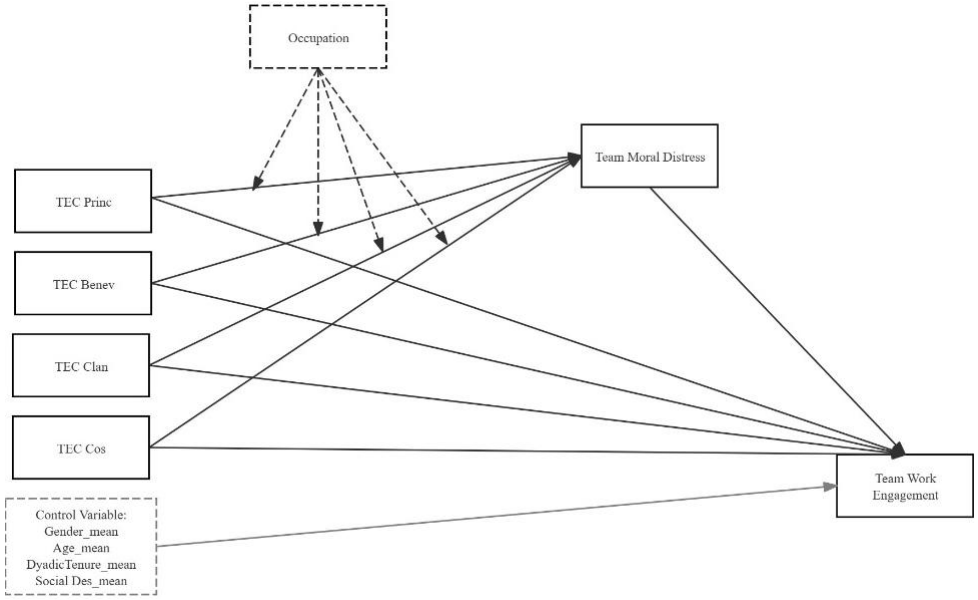


Figure 4.1 Conceptual model

4.3 Research method

4.3.1 Procedure

Data for this study were collected via an online questionnaire administered on the Wenjuanxing platform. The pre-testing, data collection procedures, and quality control measures for the questionnaire have been detailed in Study 1 and will not be repeated here. The formal survey was conducted in three waves with an average interval of six weeks. The first wave gathered

demographic variables and the ECQ 2.0. The second wave collected data from the moral distress scale. The third wave collected data from the work engagement scale.

4.3.2 Sample

In the first data collection round, physicians and nurses each comprised 50% of the sample. Following the completion of all three rounds, the final dataset comprised of 95 teams and 474 individual responses.

4.3.3 Data analysis strategy

Given the time-lagged design of the data collection, data were matched using anonymous, self-generated individual codes created by participants following provided instructions. After compiling all the data, confirmatory factor analyses were conducted using Amos software to evaluate the psychometric quality of measures, adhering to the same standards outlined in Study 1. Furthermore, considering the complexity of the conceptual model, as the interaction effects require robustness in data analysis, we used SmartPLS 4 to test the model (Barcelos et al., 2023). SPSS 29 was used to calculate descriptive statistics and correlations. Since constructs were conceived at the team level, the same procedure for computing aggregability indices as described in Study 1 was adopted.

4.3.4 Measures

Work Engagement (Wave 3) was measured using the Chinese version of Schaufeli et al.'s (2002) UWES-9, which consists of three factors with three items each: vigor (e.g., " At my work, I feel bursting with energy"), dedication (e.g., "I am proud of the work that I do"), and absorption (e.g., "I get carried away when I am working"). The CFA for this scale indicated good fit ($\chi^2(24)=42.979$; $p<0.01$, Normed $\chi^2=1.791$; CFI=0.989; TLI=0.983; RMSEA=0.041, 90%CI [.20, .60], PClose=0.761; SRMR=0.0264). The factors exhibited good reliability ($CR_{vigor}=0.783$; $CR_{dedication}=0.817$; $CR_{absorption}=0.792$) as well as convergent validity ($AVE_{vigor}=0.549$; $AVE_{dedication}=0.599$; $AVE_{absorption}=0.560$). The solution also demonstrated good discriminant validity, as the highest observed HTMT was .769. A second-order factor version was tested, showing comparable model fit and good reliability (CR=0.747) and convergent validity (AVE=0.616). Figure 4.2 shows the CFA solution.

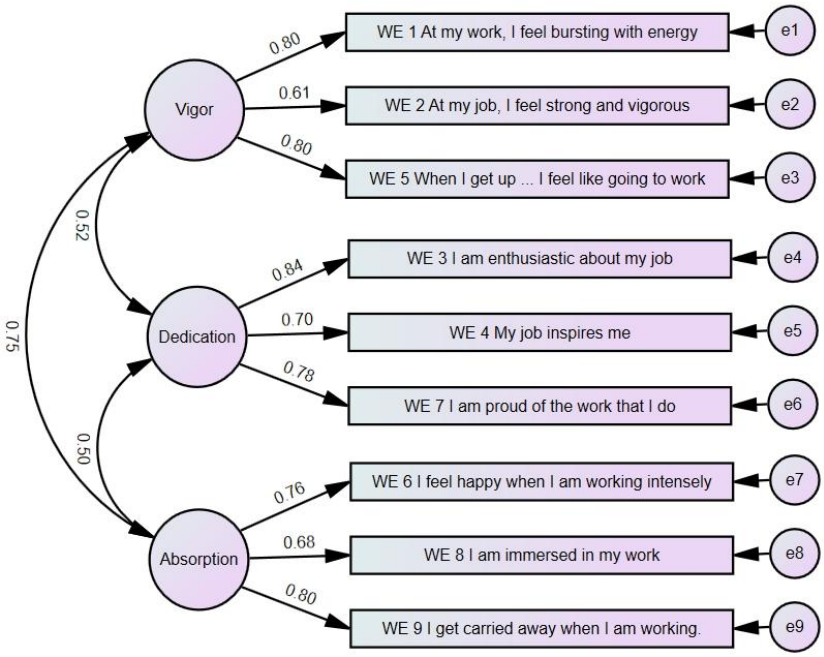


Figure 4.2 CFA for work engagement

Moral distress (Wave 2) was measured using the MMD-HP by Epstein et al. (2019), which consists of 27 items. Following the authors' recommendation, this construct was treated as formative, with the total score calculated by summing the products of the frequency and intensity of distress for each item. The total score ranges from 0 to 432, with higher values indicating stronger moral distress. For categorization, the total score distributions were divided into quintiles with cutoffs set as P1=below 49, P2=50-79, P3=80-100, P4=101-125, P5=above 125. We followed back-translation method of Brislin (1970) to translate into Chinese.

Ethical Climate (Wave 1) was measured using the ECQ 2.0 developed by Weber and Opoku-Dakwa (2022), as the structure described in Study 1. A CFA for this solution showed good fit ($\chi^2(31)=59.722$, $p<0.001$, Normed $\chi^2=1.927$; CFI=0.979; TLI=0.969; RMSEA=0.044; 90% CI [.027, .061]; PClose=0.693; SRMR=0.0348) with four factors as follows:

Cosmopolitan (3 items, "COS1 In this organization, external standards such as laws, professional codes, cultural and religious norms, international standards, or moral principles, are a major consideration", "COS3 In this organization, a primary consideration is whether a decision violates an external standard (e.g., legal, professional, cultural, religious, international, or moral standard)", "COS4 In this organization, people are guided more by external rules and standards than by the organization's specific rules and standards").

Benevolence (3 items, "COV1 In this organization, people look out for each other's good", "COV6 Members of this organization consider equally our duty to all relevant organizational stakeholders (e.g., owners, employees, customers, suppliers, the environment, the local

community, and the general public)", "COV5 What is best for everyone in the organization is the major consideration").

Clan (2 items, "COV4 People are expected to do anything to further the organization's interests", "COV3 Work is considered substandard only when it hurts the organization's interests").

Principled (2 items, "PRP1 When making decisions, people in this organization are encouraged to weigh justice, fairness, human rights, and the effects of their actions on the greater good", "PRP3 In this organization, people are expected to be fair and act in the interest of society and humanity").

All factors demonstrated good reliability (CR_{cos}=0.783; CR_{Benev}=0.755; CR_{Clan}= 0.768; CR_{Princ}=0.672) as well as convergent validity (AVE_{cos}=0.547; AVE_{Benev}=0.510; AVE_{Clan}=0.623; AVE_{Princ}=0.506), although the reliability of Principled is lower but still acceptable (Hair Jr. et al., 2019). The solution exhibited good discriminant validity as indicated by HTMT (the largest found between paired latent construct was 0.35). Figure 4.3 shows the CFA solution.

Occupation was a self-reported variable coded as 0 (nurse) or 1 (physician).

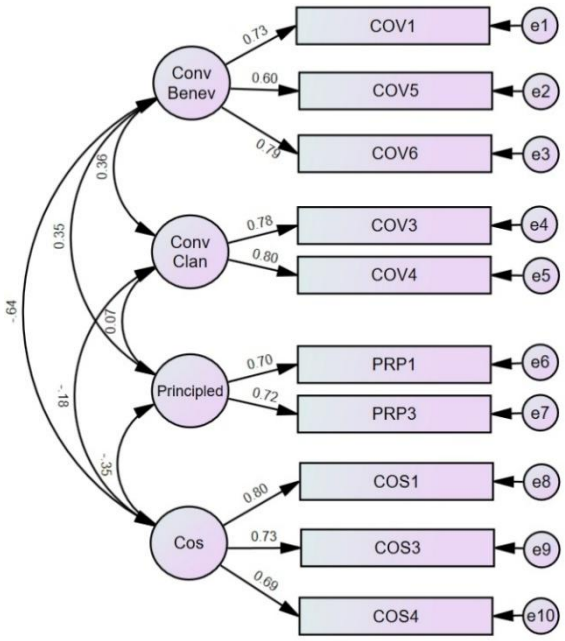


Figure 4.3 CFA for ECQ 2.0

In terms of sociodemographic variables, based on literature review, the following variables were controlled: Gender (0=male, 1=female), age (1=25 years old and below, 2=26-30, 3=31-35, 4=36-40, 5=41-45, 6=46-50, 7=51-55, 8=56-60, 9=61 and above), and dyadic tenure (measured by a single item: "How many years have you worked with your current team leader?") (Mazzetti et al., 2023; Silverman et al., 2022).

Social desirability was used as a control variable to mitigate social desirability bias. It was

measured using the Chinese short version of Marlowe-Crowne Social Desirability Scale, which consists of 14 items (Tao et al., 2009). Each "Yes" response was scored as 1 point, and each "No" response was scored as 0 point. The total score reflects the individual's level of social desirability. Gender, age, dyadic tenure and social desirability were also used as team level control variables.

4.3.5 Aggregability

Following the same analytical approach as in Study 1 we found that all the team-level conceptualized variables can be aggregated. The results are shown in Table 4.1.

Table 4.1 Comparative aggregability of ECQ 2.0, moral distress and work engagement

	$r_{wg(j).uniform}$			$r_{wg(j).measure\text{-}specific}$				
Measure	Mean	SD	S^2_E	Mean	SD	F ratio	ICC(1)	ICC(2)
ECQ 2.0 Ben	0.85	0.19	0.90	0.63	0.32	10.46*	0.65	0.90
ECQ 2.0 Clan	0.79	0.23	0.90	0.55	0.34	14.11*	0.72	0.93
ECQ 2.0 Princ	0.78	0.23	0.90	0.51	0.30	4.37*	0.40	0.77
ECQ 2.0 Cos	0.82	0.25	0.90	0.58	0.30	8.31*	0.59	0.87
Moral Distress	0.87	0.17	0.90	0.74	0.27	30.65*	0.86	0.97
Work engagement	0.97	0.05	2.14	0.91	0.14	13.65*	0.72	0.93

*p<0.001, shape is moderate skew

4.4 Results

4.4.1 Descriptive statistics

The sample is evenly split between physicians and nurses in terms of occupation, with females comprising approximately 69% of participants. The average age falls within the 31 to 35 years range. The mean dyadic tenure with the current team leader is 4.41 years (SD=2.50), and the average social desirability score is relatively high at 9.64 (SD=1.83).

Overall, the sample reports a moderate level of moral distress (M=2.98, SD=1.33). Among the four types of team ethical climates, the Principled ethical climate scores highest on average (M=3.91, SD=0.62), while the Cosmopolitan ethical climate scores lowest (M=2.2, SD=0.73). The average team work engagement is at a relatively high level (M=5.30, SD=0.70).

At the individual level, occupation and gender show significant correlations with team moral distress. Nurses tend to report higher levels of team moral distress than physicians, and females report higher levels than males.

Among the four team ethical climates, only the Clan and Principled ethical climates demonstrate significant correlations with occupation.

At the team level, among control variables, team average age is negatively correlated with

team moral distress, while team average social desirability is positively correlated with the Benevolence, Clan, and Principled ethical climates.

With respect to the variables in the conceptual model, team moral distress is positively correlated with team work engagement. The Cosmopolitan ethical climate correlates negatively with the other three ethical climates, while the Benevolence ethical climate correlates positively with the Clan and Principled ethical climates. Team work engagement is negatively correlated with the Cosmopolitan ethical climate, positively correlated with the Benevolence and Principled ethical climates, and shows no significant relationship with the Clan ethical climate. Table 4.2 presents the descriptives statistics and estimates.

Table 4.2 Descriptive and bivariate statistics for individual and team levels

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Individual level																	
1. Occupation	0.48	0.50	-														
2. Gender	0.69	0.46	-.548**	-													
3. Age	3.15	1.28	.221**	-.135**	-												
4. Dyadic Tenure	4.41	2.50	.189**	-0.08	.719**	-											
5. Social Desirability	9.64	1.83	.091*	-0.02	0.08	0.07	-										
Team level																	
6. Mean Gender	0.69	0.31	-.833**	.658**	-.213**	-.194**	-0.06	-									
7. Mean Age	3.15	0.74	.374**	-.241**	.581**	.420**	0.07	-.366**	-								
8. Mean Dyad Ten	4.41	1.58	.302**	-.203**	.389**	.627**	0.02	-.309**	.670**	-							
9. Mean Social Des	9.64	1.12	.153**	-0.06	0.06	0.02	.614**	-.097*	.108*	0.04	-						
10. T Moral Distress	2.98	1.33	-.100*	.095*	-0.06	-0.05	-0.04	.145**	-.104*	-0.08	-0.06	-					
11. T EC_Cos	2.20	0.73	-0.02	0.02	0.02	-0.02	0.05	0.03	0.03	-0.03	0.08	0.05	(.78)				
12. T EC_ Benev	3.85	0.70	0.02	-0.02	-0.04	-0.01	0.06	-0.03	-0.08	-0.01	.099*	0.01	-.601**	(.75)			
13. T EC_Clan	3.26	0.99	.156**	-0.09	0.05	-0.01	0.07	-.130**	0.08	-0.01	.114*	-0.01	-.130**	.263**	(.76)		
14. T EC_Princ	3.91	0.62	-.093*	-0.01	0.03	0.02	0.07	-0.01	0.05	0.04	.121**	-0.08	-.271**	.274**	0.01	(.67)	
15. T Work Eng	5.30	0.70	-0.01	0.02	0.00	-0.02	-0.02	0.03	0.01	-0.03	-0.04	.091*	-.453**	.431**	0.00	.289**	(.75)

*p<0.05 level (2-tailed), **p<0.01 level (2-tailed), N=474, N groups=95.

4.4.2 Hypotheses test result

Table 4.3 presents the estimated values, *p*-values, and 95% confidence intervals for each effect. Notably, team average age exhibited a positive correlation with team moral distress. Control variables at the team level, including gender composition, average dyadic tenure, and average social desirability, demonstrated no significant associations with team moral distress. Regarding team work engagement, team-level gender and social desirability were not significantly linked. However, both team average age and average dyadic tenure were negatively correlated with team work engagement. Additionally, occupation did not show a significant relationship with team moral distress.

Hypothesis 1 posited that at the team level, a Principled ethical climate (H1a), Cosmopolitan ethical climate (H1b), and Benevolence ethical climate (H1c) would exert positive direct effects on team work engagement, while a Clan ethical climate (H1d) would have a negative direct effect. The results revealed estimated values for H1a, H1b, H1c, and H1d were 0.084 (p<0.01, 95% CI [-0.031, 0.145]), -0.275 (p<0.01, 95% CI [-0.403, -0.153]), 0.281 (p<0.01, 95% CI [0.158, 0.420]), -0.081 (p<0.01, 95% CI [-0.13, -0.036]), respectively. The results, being statistically significant, supported Hypotheses H1a, H1c, and H1d, but not H1b. Specifically, the relationship between the team's cosmopolitan ethical climate and team work engagement was negative, not positive.

Hypothesis 2 proposed that team moral distress would have a positive direct effect on team work engagement. The research results confirmed this hypothesis with a significant estimate (β=0.057, p<0.01, 95% CI [0.022, 0.092]), supporting H2.

Hypothesis 3 proposed that team Principled ethical climate (H3a), Cosmopolitan ethical climate (H3b), and Clan ethical climate (H3d) would negatively influence team moral distress, while a Benevolence ethical climate (H3c) would exert a positive impact. The results indicated estimated values for H3a, H3b, and H3d were 0.108 (p=0.161, 95% CI [-0.084, 0.279]), 0.082 (p=0.278, 95% CI [-0.109, 0.341]), -0.389 (p<0.01, 95% CI [-0.557, -0.225]), respectively. The estimated value for H3c was 0.432 (p<0.01, 95% CI [0.167, 0.672]). Therefore, the results supported hypotheses H3c and H3d but not H3a and H3b.

Table 4.3 Estimates for the team-level model

Variable	Moral Distress (team)					Work Engagement (team)				
	β	t	*p*-value	95% CI		*β*	t	*p*-value	95% CI	
Control variables										
Gender (m)	0.535	1.304	0.096	[-0.167; 1.191]		0.067	0.765	0.222	[-0.088; 0.200]	
Age (m)	-0.277	2.462	0.007	[-0.450; -0.080]		0.142	3.250	0.001	[0.065; 0.209]	
Dyad Ten (m)	0.024	0.508	0.306	[-0.058; 0.099]		-0.026	2.173	0.015	[-0.097; -0.014]	
Soc Des (m)	-0.025	0.473	0.318	[-0.113; 0.062]		0.067	1.014	0.155	[-0.069; 0.015]	
Direct effects										
EC_Princ	0.108	0.990	0.161	[-0.084; 0.279]	H3a	0.084	2.448	0.007	[0.031; 0.145]	H1a s.
EC_Cos	0.082	0.589	0.278	[-0.109; 0.341]	H3b	-0.275	3.605	0.001	[-0.403; -0.153]	H1b
EC_Ben	0.432	2.821	0.002	[0.167; 0.672]	H3c s.	0.281	3.535	0.001	[0.158; 0.420]	H1c s.
EC_Clan	-.389	3.863	0.001	[-0.557; -0.225]	H3d s.	-0.081	2.851	0.002	[-0.13; -0.036]	H1d s.
Occupation	0.695	0.451	0.326	[-1.848; 3.131]						
MD						0.057	2.677	0.004	[0.022; 0.092]	H2 s.
Indirect effects										
EC_Princ-MD-WE						0.006	0.868	0.193	[-0.003; 0.021]	H4a
EC_Cos-MD-WE						0.005	0.572	0.284	[-0.005; 0.022]	H4b
EC_ Ben-MD-WE						0.025	1.995	0.023	[0.009; 0.05]	H4c s.
EC_ Clan-MD-WE						-0.022	2.077	0.019	[-0.045; -0.008]	H4d s.
Conditional direct effects										
Occ* EC_Princ	-0.118	0.834	0.202	[-0.358; 0.105]	H5a					
Occ* EC_Cos	0.009	0.038	0.485	[-0.419; 0.334]	H5b					
Occ* EC_Ben	-0.642	2.462	0.007	[-1.07; -0.224]	H5c s.					
Occ* EC_Clan	0.676	4.649	0.001	[0.433; 0.913]	H5d s.					
Conditional indirect effect										
Occ* EC_Princ-MD-WE						-0.007	0.735	0.231	[-0.025; 0.005]	H6a
Occ* EC_Cos-MD-WE						0.000	0.037	0.485	[-0.019; 0.026]	H6b
Occ* EC_Ben-MD-WE						-0.037	1.826	0.034	[-0.076; -0.01]	H6c s.
Occ* EC_Clan-MD-WE						0.039	2.203	0.014	[0.015; 0.074]	H6d s.

Hypothesis 4 suggested that team Principled ethical climate (H4a), Cosmopolitan ethical climate (H4b), and Benevolence ethical climate (H4c) would positively influence team work engagement indirectly through team moral distress, while Clan ethical climate (H4d) has a negative indirect effect. The results showed that the estimated values were 0.006 (p=0.193, 95% CI [-0.003, 0.021]), 0.005 (p=0.284, 95% CI [-0.005, 0.022]), 0.025 (p<0.05, 95% CI [0.009, 0.05]), -0.022 (p<0.05, 95% CI [-0.045, -0.008]), respectively. The results supported Hypotheses H4c and H4d, but not H4a and H4b.

Hypothesis 5 proposed that the impact of team Principled ethical climate (H5a), Cosmopolitan ethical climate (H5b), Benevolence ethical climate (H5c), and Clan ethical climate (H5d) on team moral distress would vary by occupation, with stronger effects for nurses and weaker ones for physicians. The results demonstrated estimated values of -0.118 (p=0.202, 95% CI [-0.358, 0.105]), 0.009 (p=0.485, 95% CI [-0.419, 0.334]), -0.642 (p<0.01, 95% CI [-1.07, -0.224]), 0.676 (p<0.01, 95% CI [0.433, 0.913]), respectively. The results supported Hypotheses H5c and H5d, but neither H5a nor H5b.

Hypothesis 6 proposed that the conditional indirect effects of occupation on the pathways through which team Principled ethical climate (H6a), Cosmopolitan ethical climate (H6b), Benevolence ethical climate (H6c), and Clan ethical climate (H6d) affect team work engagement via team moral distress are moderated by occupation. Specifically, these relationships are expected to be stronger for nurses and weaker for physicians. The results yielded estimated values of -0.007 (p=0.231, 95% CI [-0.025, 0.005]), 0.000 (p=0.485, 95% CI [-0.019, 0.026]), -.037 (p<0.05, 95% CI [-0.076, -0.01]), 0.039 (p<0.05, 95% CI [0.015, 0.074]) in sequence. The findings support Hypotheses H6c and H6d, but not H6a and H6b.

4.5 Discussion

Medical services are inextricably linked to patients' physical and mental well-being. In medical settings, healthcare professionals frequently confront complex decisions that require dual assessments, balancing humanistic philosophy and subjective values and placing high demands on their ethical and moral standards (Różyńska et al., 2024). The impact of current ethical conflicts and moral dilemmas on occupational groups such as physicians and nurses, as well as hospitals as a whole, has become an important topic that cannot be ignored. In Chinese public hospitals, physicians and nurses serve as the core providers of medical services, and their level of work engagement is of great significance. It contributes to the sustainable development of hospitals (Prenestini et al., 2023). Current studies have not sufficiently explored the of ethics-

related antecedents of work engagement, and there is a lack of team-level research in Chinese healthcare occupations. Building on the findings in Study 1, this research investigates the relationship between the team-level four ethical climate types of ECQ 2.0 on team level work engagement and explores the mediating role of team moral distress. Additionally, we compare the physicians and nurses within this mechanism.

This study constructed a team-level theoretical model. By collecting and analyzing survey data from 95 teams and 474 physicians and nurses in Chinese public hospitals, the results reveal that team benevolence ethical climate and clan ethical climate affect team work engagement through team moral distress, but in opposite directions. Team benevolence ethical climate is positively correlated with team work engagement through team moral distress, while team clan ethical climate is negatively correlated with team work engagement through team moral distress. For the above relationships, nurses are more strongly affected than physicians.

Regarding the direct relationship between team ethical climate and team work engagement, both principled and benevolence ethical climates promote work engagement, whereas clan and cosmopolitan ethical climate have negative effect. Specifically, the direction of the impact of cosmopolitan ethical climate on work engagement is contrary to the original hypothesis. This indicates that team climates that emphasize mutual care, justice, fairness, and humanitarian principles may foster positive work attitudes among healthcare professionals. In contrast, teams prioritizing organizational interests or relying on external legal rules for ethical decision-making are associated with lower work engagement.

In terms of the direct relationship between team moral distress and work engagement, although the coefficient is close to zero, team-level moral distress significantly promotes team work engagement. This indicates that moral distress does not have a negative impact on the work engagement of healthcare teams.

Regarding the effect of different types of ethical climates, team benevolence ethical climate leads to higher moral distress, while clan ethical climate reduces moral distress. This may be because, in teams that focus on caring for colleagues and patients, individuals are more aware of conflicts between ethical requirements and practical choices, thus making them more prone to moral distress.

Team level benevolence and clan ethical climates influence team work engagement in different direction through the mediation effect of moral distress. In teams emphasizing mutual support and patient care, where individuals more readily perceive conflicts between ethical principles and real-world contexts, lead to moral distress that motivates higher work engagement to address ethical challenges. Conversely, clan climate's organizational-interest-

oriented culture suppresses moral conflict in ethical decision-making, indirectly reducing work engagement.

Physicians and nurses differ in their sensitivity to benevolence and clan ethical climates. Nurses exhibit more pronounced effects of ethical climate on moral distress and work engagement, indicating that despite working in the same hospital environment, nursing professions are more sensitive to team ethical climates, significantly influencing their work states.

Not only the relationships between cosmopolitan and principled ethical climates and moral distress are statistically insignificant, but also the results of all other hypotheses related to occupational or moral distress are non-significant. This finding may lend support to the study by McCorvey and Woehr (2022), which posits that when people adopt internal or external rules as criteria for ethical judgment, the relatively clear boundaries between right and wrong in such rules reduce the need for subjective judgment, thereby making it less likely for them to experience frequent moral distress.

4.6 Contribution

4.6.1 Theoretical contribution

Firstly, a key topic warranting discussion is the factor structure that surfaced from the empirical analysis of ECQ 2.0. When juxtaposing the ethical climate frameworks and their corresponding items, Cosmopolitan 2.0 aligns with certain aspects of Law & Code 1.0 and Rules 1.0 from Victor and Cullen (1988), and these aspects relate to the relative centrality of within-organization rules (Rules 1.0) compared to outside-organization law (Law & Code 1.0). Higher values denote a greater emphasis on Law & Code 1.0, while lower values indicate a stronger focus on Rules 1.0, which means higher values suggest that the individuals perceive their ethical climate as being more firmly rooted in general law and codes that originate beyond the organization.

Principled 2.0 embodies moral or ethical standards deemed intrinsically good from a deontological perspective, aligning with Law & Code 1.0. Similarly, Benevolence 2.0 corresponds to Caring 1.0, which emphasizes concern for the well-being of others and the duty to care for all stakeholders. Regarding Clan 2.0, the two items in our scale ("People are expected to do anything to further the organization’s interests", "Work is considered substandard only when it hurts the organization’s interests"), bear a striking resemblance, or are even identical,

to those in Instrumental 1.0 from ECQ ("people are expected to do anything to further the company's interest, regardless of the consequences", "Work is considered substandard only when it hurts the organization's interests"), characterized by prioritizing organizational interest above all else, regardless of the consequences. Therefore, Clan 2.0 mirrors the nature of Instrumental 1.0 but on an organizational basis.

Secondly, the analytical framework of "team ethical climate-team moral distress-team work engagement" developed in this study makes a significant contribution to research on team-level interactions, and it offers further validation of the distinct impact mechanisms through which organization-interest-oriented and interpersonal-care-oriented ethical climates influence work-related outcome variables. The former indirectly reduces work engagement by dampening moral distress, while the latter promotes work engagement by triggering constructive moral distress.

Finally, this study provides new evidence for the positive role of team-level moral distress in healthcare professionals, verifying that moral distress may act as a form of "constructive stress" that enhances team work engagement. Morally distressing experiences are, in essence, a sign of heightened sensitivity to the discrepancies between ethical standards and reality, a sensitivity that is more evident in benevolence-oriented teams. According to the COR theory, the threat of potential resource depletion, such as the psychological resource loss induced by moral distress, drives individuals to preserve resource balance by increasing work engagement (Hobfoll et al., 2018). COR theory contends that teams, functioning as resource caravans, disseminate resource threats through interpersonal exchanges. When teams encounter moral distress, team members perceive it as a threat to shared resources, prompting them to actively engage in work to maintain balance. Conversely, a clan climate suppresses moral distress, reducing the incentive to engage in work as a response to resource threats and thus weakening the engagement driven by constructive stress.

4.6.2 Practical contribution

The discovery that a benevolence ethical climate promotes team work engagement while increasing moral distress uncovers a dilemma in healthcare ethics management. In Chinese public hospitals, where the dual objectives of public welfare and efficiency prevail, an excessive focus on interpersonal care beyond the scope of available resources can intensify the clash between ethical ideals and practical limitations. When teams pursue the ethical ideal of prioritizing patient interests, practical challenges such as medical insurance cost containment

and hospital operational efficiency consistently trigger moral distress among healthcare workers. Hospital administrators must steer clear of two extremes: one is shying away from ethical discussions for fear of provoking moral distress, which inadvertently fosters an instrumental ethical climate; the other is overemphasizing ethical ideals without providing sufficient organizational support, leaving professionals mired in persistent moral distress. Chinese public hospitals should strike a balance by proactively managing moral distress, which involves establishing open communication channels for ethical concerns to mitigate negative impacts, and providing organizational incentives and leadership support to encourage adherence to ethical standards, thereby preventing the proliferation of instrumental ethical climates.

The negative correlation between cosmopolitan ethical climate and team work engagement corroborates the findings of Wang and Hsieh (2012), which suggest that external legalistic ethical norms are perceived as obligatory restrictions rather than internalized values, thereby curbing work engagement by eroding autonomy. This highlights the critical role of internalization in ethical climate effects. For hospital management, transitioning ethical management from a compliance-driven to a value-driven approach is imperative to activate the positive impact of ethical climate on work engagement, thereby enhancing healthcare quality and bolstering organizational resilience. Case discussions in groups on ethical dilemmas such as end-of-life treatment decisions and resource allocation conflicts may guide teams to form shared ethical frameworks. This approach not only amplifies the positive effects of a benevolence climate but also mitigates future moral distress through collective consensus. In this way, teams can achieve a virtuous cycle between ethical climate and work engagement.

4.7 Limitations and future study

The study predominantly relies on self-report data for ethical climate, moral distress, and work engagement. It may give rise to common method bias, while a six-week time-lagged design is deemed effective in preventing this bias. Incorporating multi-source data, like supervisor ratings and peer evaluations, could offer a more robust solution (Podsakoff et al., 2024). Although this might introduce new, unaccounted-for errors, such as severity or leniency bias in performance appraisals, it could better rule out systematic subjective reporting errors.

The study did not analyze different sources of moral distress. We used the MMD-HP total score as suggested by the author, Epstein et al. (2019), without differentiating distress sources. Diverse moral distress types may differently moderate the relationship between ethical climate and work engagement, warranting separate measurement in future research.

The causes of occupational role differences regarding how ethical climate affects work engagement through moral distress remain unexplored. Although empirical research showed that nurses are more sensitive to team ethical climate than physicians, it did not delve into the reasons for such differences in sensitivity. Future studies can conduct in-depth analysis of the sources of this sensitivity difference through qualitative interviews.

This study investigates team-level outcome variables of ethical climate, but does not address its antecedents. Previous research indicates that ethical climate is not immutable, but can be influenced by factors like team leadership and can be shaped or changed (Antunez et al., 2023). Through this study, we have learned about the positive or negative impacts of different types of team ethical climate on work attitude variables, and formed an understanding of what kind of ethical climate organizations should strive to cultivate. Therefore, future research should focus on how different types of team ethical climates are formed and which team level and organizational level variables affect them.

Chapter 5: Linking Organizational Ethical Rewards to Individual Behaviors: A Three-level Model of Ethical Rewards, Leadership and Climate in Chinese Public Hospitals

Abstract: Leadership plays a core role in organizational ethical development, yet the impact of organizational reward intensity on leaders' moral behavior, as well as the cascading effect of this impact on employees' unethical behavior through leadership and team ethical climate, remains an underexplored area. This study constructs a three-level model, encompassing organizational, team, and individual levels. Utilizing time-lagged data from a sample of 704 physicians across 157 teams in 31 Chinese public hospitals, it delves into the mechanism of ethical rewards. Results reveal that organizational ethical rewards not only enhance job embeddedness but also mitigate unethical pro-organizational behavior through the chain mediation of ethical leadership and instrumental ethical climate.

5.1 Introduction

An organization's values are the cornerstone of its operations, with espoused ethical values emerging as a particularly vital and distinct subset (Waheed & Zhang, 2022). Senior management utilizes these espoused ethical values to convey the organization's core ethical principles to diverse stakeholders, including employees and the public, fostering an understanding and recognition of these ethical concepts. The espoused ethical values are usually embodied in a written form, such as an employee code that emphasizes standards of appropriate behavior in various business scenarios (Bourne et al., 2019).

Espoused ethical values reflect an organization's ethical stance, shaping not only stakeholders' perceptions, particularly employees', but also serving as a behavioral compass for employees, and this, in turn, can influence perceptions across a broad spectrum of stakeholders, from staff to the general public (Al Halbusi et al., 2022). Many Chinese public hospitals have recognized the significance of espoused ethical values in hospital management. Most hospitals have adopted mottos and ethical code systems to consistently promote the ethical values they consider most important. For example, slogans on values such as "patient-centered" and "dedication to work" are often posted on the walls of hospitals as reminders to medical staff.

The official website of the hospital usually includes the ethical values promoted by the hospital in the hospital profile and provides the public with documents such as the ethical code system developed by the hospital (Liu et al., 2020).

Ethics are critical in healthcare settings due to the sensitivity of decision-making in such clinical contexts. Many ethical dilemmas arise in hospital settings due to the need to prioritize care amid limited resources. Middle managers are particularly vulnerable to these conflicts of interest. They act as a bridge, receiving directives from senior hospital management while overseeing and guiding front-line physicians. Generally, they also take on the role of treating patients. The management dilemmas they face span a wide range, including resource allocation, ethical value alignment, role clarity, workload management, and skill development. These dilemmas not only present obstacles to effective management but also have a direct impact on the quality of medical services and the overall operational efficiency of the healthcare organization (Oldenhof, 2015). Beyond the typical interest conflicts associated with patient care, other areas can also give rise to ethical quandaries. The medical insurance system, clinical trials, and relationships with pharmaceutical companies are all potential sources of ethical dilemmas (Gramma et al., 2023).

Firstly, middle managers have the responsibility to implement the directives from senior managers (Tønnessen et al., 2017). This may give rise to conflicts between the professional judgment of middle managers and the directives of senior managers based on administrative management goals (Aitamaa et al., 2016; Yue et al., 2017). In Chinese public hospitals with clear administrative hierarchies, failure to execute the instructions from senior managers may lead to questions about their loyalty to the organization, which in turn affects career development.

Secondly, from a Leader-Member Exchange (LMX) Theory perspective, middle managers face dilemmas in personnel management due to differential relationships. This theory posits that leaders and subordinates gradually develop relationships of varying qualities through interactions. Subordinates in high-quality relationships receive more work resources as well as attention and support from leaders compared to those in low-quality relationships (Graen & Uhl-Bien, 1995; Xiong et al., 2021). In the Chinese context, interpersonal communication emphasizes "Guanxi", which is rooted in Confucian culture. The two parties in "Guanxi" exchange emotional and material benefits through reciprocal behaviors to maintain and advance the relationship (Y. Chen et al., 2024; Nie & Lämsä, 2015).

When leading a team, middle managers are tasked with the delicate balancing act of ensuring fairness among employees, protecting the organization’s interests, and protecting team

members. Managing those with whom they share a close personal relationship, essentially members of their inner circle, poses particular challenges (Graen & Uhl-Bien, 1995; Lavorata & Maquart, 2020). For example, when they find that an employee who is also a friend has insufficient ability and makes mistakes, they need to decide whether to report it. Middle managers may form inner circles with subordinates who have close personal relationship, showing obvious differences in relationships with those outside the circle. The existence of guanxi networks in the workplace further exacerbates this bias, as middle managers often feel compelled to actively favor those within their guanxi inner circle, driven by the pressure of obligation consensus inherent in guanxi (Y. Chen et al., 2024). If not managed properly, this favoritism can tarnish the middle manager's reputation within their guanxi circle. However, unfair resource allocation can breed resentment and dampen work motivation among those outside the guanxi circle. In addition, problems also arise when employees' needs are inconsistent with those of the organization or when the needs and expectations of employees' conflict between team members (Aitamaa et al., 2016).

Middle managers may find themselves making ethical compromises, often due to insufficient organizational support. The absence of systematic mechanisms in the organization to address ethical issues leaves them lacking the motivation to adhere to ethical principles (Aitamaa et al., 2016). The hospital performance evaluation system generally places much emphasis on economic benefits, with specific reward and punishment mechanisms, but lacking specific and clear standards in ethics. This leads to managers paying less attention to ethical issues (Yue et al., 2017). The high cost of information communication and the potential troubles it may bring also increase the likelihood of ethical compromise (Kälvemark et al., 2004). The trust crisis in society towards the medical industry forces managers to adopt defensive treatment strategies (such as excessive medical treatment and programmed communication), further squeezing the space for ethical decision-making (Ouyang, 2022).

These are some reasons that explain why espoused ethical values may differ significantly from enacted ethical values. To ensure espoused ethical values are actually fulfilled, the organization usually adopts a reward and punishment system as a means. However, a common issue is that managers do not always practice what they preach. The values reflected in the organization's actual rewards or punishments align with what the organization claims to promote (Martínez et al., 2021). Enacted ethical values, as defined by Howell et al. (2012), pertain to the values that employees actually experience, accept, internalize, and recognize in their daily work. Employees observe which behaviors are truly rewarded by the organization and perceive the rewarded behaviors as those that the organization expects (Treviño & Nelson,

2017). Therefore, when making ethical decisions, employees primarily refer to the ethical values actually practiced by the organization (Howell et al., 2012).

The misalignment between espoused ethical values and enacted ethical values may have negative impacts on the organization, including reduced employee job satisfaction, diminished trust in the organization, and impaired work quality (Osafo et al., 2021). Therefore, a well-designed and effectively implemented ethical reward system, as a means to accurately convey the ethical values espoused by the organization, is of great significance to the organization.

The match between enacted and espoused ethical values is one important factor in fostering a positive ethical climate, but the role leaders play in this matter is equally critical.

Leaders play an important role in the ethical orientation of the organization, shaping the ethical concepts of their subordinates through communication and contact with them in their daily work. In addition, leaders themselves serve as role models, whose behavior is observed, learned from, and imitated by their subordinates, affecting their professional attitudes and behavior. An ethical leader is able to gain the support and trust of employees, shaping a positive work environment, and also contributing to the company's reputation in society (Treviño & Nelson, 2017).

In organizational ethics literature, much attention has been placed on the antecedents of individual behavior among which ethical leadership has been one of the most frequently studied. However, ethical leadership itself can be the product of the wider ethical context namely how much ethical behaviors are rewarded (Kaptein, 2008). At the early studies on ethical climate, Treviño et al. (1998) called attention to decoupled ethical climates where the narrative could be placed upon being ethical but the rewards could be rather placed upon performance, sending to the background the importance of ethics.

Leaders are mostly taken in literature as the primary source of ethics in business and within the organizations (Lim, 2024). However, it is essential to go beyond this perspective and examine how leaders are recognized for prioritizing ethics compared to other business dimensions that may compete with ethical decisions. Such recognition comes as their legitimation by shareholders and stakeholders, their reputation as responsible leaders, their compensation schemes and how much ethics (e.g., corporate ranking in ethical or ESG scores) weighs in determining the leaders' rewards (Pathak & Jha, 2024).

Therefore, leaders do play a central role, but in the same way the strength with which they reward an ethical employee is expected to affect the employee's behavior, so is their ethical behavior expected to be affected by how strongly the organization will reward their own ethicality. However, the impact of such organization-level ethics-related constructs on the team

and individual levels has not been thoroughly researched (Cabana & Kaptein, 2025). Especially the chain effects of organization-level ethical rewards on work teams and employees remain unknown. This is the research gap that motivated this study. To which extent does the organizational ethical rewards trickle down to employee's unethical behavior via the leader's ethical leadership and team ethical climate?

To answer this question, this study will review literature on ethical reward, ethical leadership, instrumental ethical climate unethical behavior and job embeddedness, to posit a multilevel hypothetic model that covers three levels (organizational, team, individual) where organizational ethical rewards is expected to promote ethical leadership, that should deter instrumental ethical climate at team level and consequently, lower the chances of employee unethical behavior.

5.2 Literature review

5.2.1 Evolution of leadership concepts

Early leadership theories focused on the inherent traits or specific behavior patterns of leaders (Benmira & Agboola, 2021). Trait Theory contends that leadership traits are innate, such as wisdom and courage (Chao & Chang, 2013). However, this theory has gradually been questioned. In an early remark, Stogdill (1948) suggested that although there are indeed some differences in traits between leaders and others, not all individuals with these traits can become qualified leaders. Behavioral Theory, different from Trait Theory, argues that the behavioral performance of leaders in performing management functions is more important. Leadership is not inborn and can be improved through training (Derue et al., 2011). Both Trait Theory and Behavioral Theory have certain limitations. They both ignore the influence of situational factors on leadership (Derue et al., 2011).

In the mid-20th century, the focus of leadership research gradually shifted towards situational aspects (Benmira & Agboola, 2021). Contingency Theory emphasizes that leadership effectiveness does not depend on leaders' trait or behavior but on the degree of fit between the leadership style and the organizational environment. Therefore, it is impossible to define an optimal leadership style without considering the organizational context, and the most suitable leadership style varies from one organization to another (Fiedler, 2005). This theory suggests that leaders must possess the ability to correctly judge and assess situations (Benmira & Agboola, 2021). Although contingency theory has brought new progress to leadership

research, it still fails to fully explain how leaders can promptly adjust their leadership styles in rapidly changing situations.

At the end of the 20th century, with the increasing intensity of global competition, Transformational Leadership Theory and Transactional Leadership Theory emerged (Greimel et al., 2023). Transformational Leadership Theory defines leadership as a top-down influence process, emphasizing that leaders should be able to quickly adapt to the environment and inspire subordinates to promote the achievement of common goals (Bass & Avolio, 1993; Yang et al., 2020). Transactional Leadership Theory, on the other hand, focuses on motivating employees through power, such as fair reward and punishment mechanisms, to ensure that employees' behaviors meet organizational expectations (Benmira & Agboola, 2021). However, although the above leadership theories take ethical factors into account to a certain extent, ethicality is not their primary goal.

As an evolution of Transformational Leadership Theory, specifically by emphasizing leaders' role-modeling in a complex and challenging business environment, the ethical dimension gained centrality in a reification process that takes meaning making, establishing a grand vision, a purpose and responsibility to create ethical bounds within the organization.

Entering the 21st century, the emergence of a series of scandals such as the Enron scandal has highlighted the necessity of ethical leadership. Ethical leadership places ethics at the core of leadership practice. What distinguishes it from other leadership theories is that leaders regard the organization's success in the ethical dimension as an important goal (Brown et al., 2005). Based on early leadership theories, this theory emphasizes the key role of attaching importance to ethics in the long-term development of organizations (Nemr & Liu, 2021). Relevant studies have shown that unethical behaviors in work can bring many negative impacts, such as additional investment of human, material and financial resources to deal with subsequent events, and damage to the organization's reputation (Paterson & Huang, 2019). Therefore, promoting organizational ethics through leadership is crucial to the healthy development of organizations and even society.

5.2.2 Ethics-based leadership constructs

Based on the review of leadership-related research by Zhu et al. (2019), the ethical dimension has emerged as a pivotal theoretical perspective for analyzing leadership styles, significantly influencing their formation and differentiation. Among the numerous leadership styles emerging in the literature, ethical leadership, authentic leadership, servant leadership,

responsible leadership, and conversely, abusive supervision and exploitative leadership, underscore the intricate link between leadership and ethics from multiple dimensions (Brown et al., 2005; Gardner et al., 2021; Russell & Stone, 2002; Schmid et al., 2019; Tepper, 2000; Waldman & Siegel, 2008).

Authentic Leadership Theory holds that leaders are crucial to fostering an ethical climate filled with trust and harmony within an organization (Gardner et al., 2021). Authentic leaders attach importance to abiding by ethical rules when making decisions. In team management, they value communication with team members and actively promote collaboration among them (Zhang et al., 2022).

The ethical core of servant leadership is embodied in the value orientation of altruism (Russell & Stone, 2002). Servant leaders position themselves as the servers and supporters of team members. They maintain positive interpersonal relationships with employees and provide the necessary guidance and care for employees. Empirical research by Canavesi and Minelli (2022) suggested that servant leadership helps employees obtain better growth opportunities and career development space. In return, employees have a high degree of trust in their leaders and show strong work initiative.

Responsible leadership incorporates social responsibility into the core considerations of leadership behavior, demonstrating a far-sighted strategic vision (Waldman et al., 2019). Responsible leaders value the interests of stakeholders, including those outside the organization. For this reason, they do not overemphasize short-term interests and strive to ensure that their decisions serve the long-term development of the organization and related parties (Pathak & Jha, 2024). Responsible leaders act as moral role models in the team, enabling middle managers and employees to have a stronger sense of responsibility in their work and reducing employees' unethical pro-organizational behavior (Cheng et al., 2019). Research by Yasin (2021) shows that responsible leadership can create a positive ethical climate, help establish a good corporate image in the minds of employees, and reduce employee turnover.

In sharp contrast to the positive leadership styles above is abusive supervision. According to Tepper (2000), abusive supervision refers to long-term hostile words and behaviors from leaders. Although it does not involve physical harm, it still causes harm to employees and undermines their trust in the team and organization. The research by Xiong et al. (2021) further revealed a positive correlation between abusive supervision and employees' unethical pro-organizational behavior. When employees suffer unfair treatment and oppression at work, they will bear enormous psychological pressure. To avoid being punished, employees are more inclined to carry out unethical behaviors as required by the organization.

Exploitative leadership is also a highly destructive leadership behavior. Such leaders are self-interest-centered and arbitrarily sacrifice the interests of their subordinates and the organization, such as taking credit for their subordinates' work achievements (Schmid et al., 2019). Exploitative leaders ignore employees' career development and physical and mental health, which will lead to extremely low job satisfaction and high turnover rate among team members, putting the organization's development in a difficult position (Lyu et al., 2023).

In summary, ethics is an important element permeating these different leadership theories. Authentic leadership integrates ethical decision-making into daily work. Servant leadership puts the well-being of others first, embodying the connotation of ethical leadership. Responsible leadership, through continuous attention to social responsibility, adheres to the ethical bottom line in decisions. Abusive supervision and exploitative leadership stand in sharp contrast to ethical leadership, highlighting the significant value of ethical leadership in cultivating a healthy, efficient, and ethical organizational environment from the converse perspective.

However, although all the above leadership theories acknowledge that ethics is an important element, they are variants of another earlier theory that captures ethics as leadership's essential consideration: ethical leadership (Bedi et al., 2016; Brown & Treviño, 2006a).

5.2.3 Ethical leadership

Treviño et al. (2000) suggested that leaders have the dual roles of "moral persons" and "moral managers". A "moral person" requires a leader to be a person of noble character, strictly abide by ethical rules, and have a sense of social responsibility. A "moral manager" requires a leader to set an example by taking the lead in abiding by rules, handling affairs fairly and justly, and actively communicating with subordinates.

Based on Social Learning Theory by Bandura (1977), Brown et al. (2005) systematically constructed the concept of ethical leadership. Social Learning Theory holds that individuals learn through observing and imitating others' behaviors (Bandura, 1977). On this basis, Brown et al. (2005, p. 120) defined ethical leadership as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making". This also reflects the characteristics of "moral persons" and "moral managers".

Brown and Treviño (2006a) further employed Social Exchange Theory (SET) by Blau (1964) to explain the interaction between leaders and employees.

5.2.4 Social exchange theory

SET is one of the commonly used theories for understanding workplace behavior (Ahmad et al., 2023). Blau (1964) proposed the concept of "exchange and power", pointing out that social exchange is characterized by behaviors that depend on others' rewarding responses. Such behaviors are voluntarily initiated by individuals, with their motivation stemming from the expectation of rewards, and the quality of the exchange is influenced by the relationship between the actor and the target individual. The core view of SET holds that the essence of social interaction is exchange, and this process follows specific rules including the principle of reciprocity. Commitment, loyalty, and trust are the results of the gradual development of relationships over time (Cropanzano & Mitchell, 2005).

In teams, the interactions between team leaders and members, as well as among members themselves, are important manifestations of social exchange relationships (Cropanzano et al., 2017). Team leaders are key intermediaries in team social exchange. By implementing rules and policies, communicating and coordinating, and focusing on employees' personal development, they influence employees' organizational citizenship behaviors and organizational commitment, promote the deepening of team exchange relationships, while different leadership styles form differentiated team social exchange climates (Kilroy et al., 2023).

In addition, the organizational context has a significant impact on exchange behaviors: on the one hand, factors such as work rules affect the formation and quality of exchange behaviors; on the other hand, factors such as norms and values within the organization influence team members' cognition and decision-making regarding exchange behaviors (Cropanzano et al., 2017; Kilroy et al., 2023).

Overall, SET posits that in social interactions, individuals exchange resources in accordance with established norms and anticipate rewards in return (Cropanzano & Mitchell, 2005). In the leader-employee relationship, fairness, justice, and care demonstrated by ethical leaders towards employees are crucial resources (Kim & Vandenberghe, 2021). Leaders treat each employee equitably, offer corresponding evaluations and rewards based on their job performance, which makes employees feel their efforts are duly recognized. Meanwhile, leaders show concern for employees' work and personal lives, providing necessary support and assistance to enhance the bond between leaders and employees, building greater trust and respect from employees towards leaders. In return for leaders' care and trust, employees are more inclined to exhibit behaviors in line with the ethical values advocated by leaders (Hirsh et

al., 2018).

Notably, traditional Chinese ethical values share similarities with the above viewpoints. Confucianism advocates "cultivating one's moral character, regulating the family, governing the country, and bringing peace to the whole world", regarding personal moral cultivation as the foundation for career success (Tan, 2024; Zhu et al., 2019). It requires that a leader must first be a person of noble morality in the general sense. Additionally, it demands that managers handle various affairs impartially to gain the respect and trust of their subordinates.

Resick et al. (2006) conducted research on 62 countries and regions globally, including Asian countries and regions within the Confucian cultural sphere including China, and discovered the cross-cultural stability of ethical leadership. The interview findings of Eisenbeiß and Brodbeck (2014) with numerous managers from countries such as Germany, the United States, and South Korea indicated that there is a consensus on ethical and non-ethical leadership across different cultural backgrounds. For example, honest, fair, and upright leaders are seen as manifestations of high moral standards in various social and departmental cultures. Authentic and transparent practice of moral values, leading by example, charisma, and empowerment are also commonly associated with ethical leadership. Regarding cultural differences, the concept of ethical leadership in Eastern cultures is more closely linked to servant and humble leadership behaviors. The comparative study by Ahmad et al. (2020) on employees working in universities in Australia and Pakistan also supports the consistent recognition of the core connotation of ethical leadership across different cultures. They utilized the ethical leadership scale from Brown et al. (2005) in both countries. The results showed good reliability and validity. There are also disparities in specific items of ethical leadership. For example, the Australian sample places the greatest emphasis on "leader credibility", while the Pakistani sample attaches the most importance to "setting an example". In summary, relevant studies have uncovered the cross-cultural characteristics of ethical leadership from multiple perspectives and levels. Existing studies have convincingly demonstrated the cross-cultural stability and consensus of ethical leadership globally, providing a robust theoretical foundation for implementing management models based on ethical leadership worldwide. Meanwhile, there are differences in the specific understanding and focus of ethical leadership among different cultures, which reflect the profound impact of cultural backgrounds on leadership perception.

SET is suitable for exploring the understudied organizational-level antecedents of ethical leadership.

5.2.5 Antecedents of ethical leadership

Existing research indicates that the formation and development of ethical leadership are jointly driven by two types of factors: individual factors and organizational factors (Lim, 2024).

From the perspective of individual factors, Tomova Shakur et al. (2024) carried out a meta-analysis of 164 studies, uncovering connections between age, leadership styles and value orientations. An individual's moral attributes and the degree of moral development also play an essential role in the formation process of ethical leadership (Lim, 2024). Leaders with a high level of moral identity have a strong sense of identification and belonging toward moral norms. This makes them conscientiously follow high moral standards in their daily behaviors. An empirical study of CEOs shows that CEOs with a strong sense of social responsibility often show a high level of ethical leadership (Benlahcene et al., 2022). It also suggests that ethical education can significantly improve leaders' sensitivity and understanding of ethical issues.

In addition to individual factors, contextual factors play an important role in the formation and development process of ethical leadership. The social environment, as an important macro-level contextual factor, profoundly affects leaders' ethical value standing and behaviors (Banks et al., 2021). Different cultural environments have different perspectives on ethical leadership, for example, in countries where Confucianism is the dominant culture, the focus is on the leader's role in bringing people together in a team (Eisenbeiß & Brodbeck, 2014).

The organizational environment, as a micro-level contextual factor affecting ethical leadership, should not be ignored (Lim, 2024). It provides the foundation and support for the formation and development of ethical leadership. Within the organization, leaders, through continuous social learning processes, observe and evaluate various ethical signals spread within the organization, as well as the rewards and punishments given by the organization for ethical and unethical behaviors, and adjust their behavior accordingly. Through SET lenses, ethical leadership is modeled based on these signals and permeates the whole organization with due variations considering the individual and contextual factors. In this way, leaders learn from ethical role models within the organization (usually senior managers) (Banks et al., 2021).

5.2.6 Outcomes of ethical leadership

Ethical leadership typically yields favorable outcomes at the organizational, team, and individual levels. The following will elaborate on its mechanisms and impacts in detail from these three levels.

At the organizational level, Metwally et al. (2019) revealed that leaders are one of the

factors shaping the work environment. Ethical leadership influences and shapes organizational values, fostering a positive organizational culture. Shafique et al. (2020) suggested ethical leadership drives organizational innovation by stimulating employee creativity.

At the team level, the mechanisms of ethical leadership become more complex. Metwally et al. (2019) suggested that ethical leadership promotes cooperation and trust among team members. Ethical leadership emphasizes the importance of common goals at the team level, guides employees to work collaboratively, and enhances team cohesion. Kuenzi et al. (2020) suggested that ethical leadership negatively affects unethical behaviors at the team level through the ethical climate. Ethical leaders reward and punish employees in accordance with moral standards, which enhances employees' awareness of the importance of ethics. Teams that exhibit collective moral identity at the team level are more likely to show consistent choices regarding unethical behaviors.

At the individual level, Paterson and Huang's (2019) research on Chinese consulting firms revealed that ethical leadership plays a pivotal role in employees' role cognition construction. Leaders demonstrate moral behaviors for employees, advocate the emphasis on ethical values, make employees perceive the organization's expectations for ethical behaviors, and correspondingly shape their own moral cognition of work roles. A similar conclusion has been reached by Zheng et al. (2022), based on the Social Information Processing Theory and the Leader Self-concept Theory. They suggested that when leaders transmit ethical signals through decision-making transparency and ethical modeling, employees internalize organizational rules into internal ethical standards and then form the ethical courage to challenge unethical behaviors. The empirical study on Chinese hotel employees by Khattak et al. (2022) indicated that the fair environment created by ethical leadership can enhance employees' work engagement. This psychological attachment to the organization not only improves employees' career satisfaction but also encourages them to take the initiative to assume responsibilities beyond their job duties and perceive their work as more meaningful. The study by Wu et al. (2022) revealed the special value of ethical leadership for healthcare professionals. Given the characteristics of the medical work environment, which is high-intensity and high-pressure, ethical leadership improves employees' altruism and intrinsic motivation, enhances their vitality and morale, and improves their mental health by providing psychological safety and resource support, highlighting its psychological protection function in high-stress occupational environments.

5.2.7 Team ethical leadership and team instrumental ethical climate

Team ethical climate is one of the outcome variables of ethical leadership. As defined by Brown et al. (2005), ethical leaders fulfill their managerial duties through the dual roles of being both a "moral person" and a "moral manager". Specifically, ethical leaders systematically shape the ethical framework of their subordinates through role modeling, value transmission, and reward/punishment systems. Mayer et al. (2010) demonstrated that leaders' interpretation and practice of ethical rules significantly affect employees' perception of the ethical climate. By formulating rules that encourage ethical conduct and consistently integrating ethical values into daily decision-making, leaders transmit clear ethical signals to employees. These cues help employees discern the organization's standards of right and wrong, directly influencing their perception of the ethical climate and motivating them to align their behavior with the organization's ethical requirements. Al Halbusi et al. (2021) further corroborated the impact of ethical leadership on the ethical climate, highlighting that when employees resonate with the organization's ethical climate, its influence on their ethical behaviors becomes more significant. Lee et al.'s (2022) cross-cultural study focused on China and South Korea, two nations deeply rooted in Confucian values and characterized by a strong collective culture. Compared with Western countries, employees in these two countries are more inclined to seek identity recognition from the teams they belong to. Based on a strong sense of group belonging, they are more willing to follow the ethical values of the team and are thus more likely to be influenced by the ethical climate.

Antunez et al.'s (2023) study on multinational enterprises revealed that ethical leadership could influence the moral psychological processes of team members, inhibit moral disengagement, and thus weaken the negative impact of the instrumental ethical climate. Despite variations in this inhibitory effect across countries, the study consistently underscores ethical leadership as a pivotal force in shaping the ethical climate across all surveyed countries, highlighting the universal significance of ethical leadership in fostering an ethical climate, transcending cultural and geographical boundaries.

5.2.8 Team instrumental ethical climate and individual job embeddedness

Team-level instrumental ethical climate reflects the team's orientation toward ethical decision-making, influencing employees' ethical tendencies and behaviors (Al Halbusi et al., 2022). An ethical climate emerges when employees uniformly perceive certain behaviors as the expected and endorsed standards within the organization (Victor & Cullen, 1988).

Among various ethical climates, instrumental ethical climate is generally regarded as harmful to organizations (Parboteeah et al., 2024). Rooted in utilitarianism, instrumental ethical climate prioritizes self-interest, neglecting organizational or social interests and general moral norms (Weber & Opoku-Dakwa, 2022).

Mitchell et al. (2001) described job embeddedness as the tight connections between employees and internal or external members, encompassing all factors that encourage them to stay. Thus, team ethical climate should be included as a factor that influences job embeddedness. Karatepe (2013) found that ethical climate perception affects job performance and extra-role service behaviors through job embeddedness. When employees perceive alignment between the organizational ethical climate and their values, positive emotions enhance job embeddedness by strengthening connections, fit, and sacrifice, thereby enhancing performance. Positive perceptions of the organization and team, for example, positive work atmosphere, organizational support, knowledge sharing, friendly relationships, promote job embeddedness (Chan et al., 2019). The study by Khan et al. (2020) indicated that job embeddedness is influenced by team distributive fairness and trust, with employees in positive climates exhibiting higher responsibility, belonging, and job embeddedness.

Therefore, the following hypothesis is proposed.

Hypothesis 1: Team instrumental ethical climate is negatively associated with individual job embeddedness.

5.2.9 Team instrumental ethical climate and individual unethical behavior

Unethical behavior denotes a departure from the ethical norms widely acknowledged by society (Treviño et al., 2014). From the perspective of behavioral motivation, the drive of self-interest is a common cause of unethical behavior. Self-serving unethical behaviors in the workplace often come at the expense of the interests of the organization one belongs to.

However, self-serving is not the only motivation for unethical behavior. In certain specific situations, the starting point of an individual’s behavior may go beyond the scope of personal interests. For example, there may be a stronger concern for the interests of team members (C. Chen et al., 2024). Unethical pro-organizational behavior (UPB) is the behavior in which an individual actively chooses to violate external social moral rules for the purpose of benefiting the organization (Umphress et al., 2010). In this behavior pattern, the individual regards the organization as a close community of "us". When weighing interests, the individual will give priority to the interests of the team, placing them above personal interests and the interests of

out-group members.

Bryant and Merritt's (2021) research revealed that a stronger LMX is significantly and positively linked to employees' inclination towards UPB, a correlation that persists even among employees with a high moral identity. C. Chen et al. (2024) reported that individuals with a higher degree of collectivism are less likely to engage in self-serving unethical behavior (UBSS) at the expense of colleagues, work teams, or the organization, but are more likely to engage in UPB. They also mentioned in the research that the ethical norms of organizations for UPB may be more lenient than those for UBSS, and employees may consider the former more reasonable than the latter.

Despite both UBSS and UPB violating social ethical norms, distinct differences exist between them. UBSS stems from personal interest motivation and tends to bring negative impacts to the organization, while UPB is oriented towards organizational interests and usually comes at the expense of external stakeholders (C. Chen et al., 2024). Even though UPB aims to benefit the organization, if such behavior is publicly exposed, it is likely to have an adverse impact on the organization's reputation (Bryant & Merritt, 2021).

The ethical climate, as the shared ethical perception within an organization, sets the criteria for behavioral standards within the organization and the ways of responding to ethical requirements (Teresi et al., 2019). UPB is driven by potential rewards that the organization may offer, which also strengthens the motivation for unethical behavior (Umphress et al., 2010). McCorvey and Woehr (2022) suggested that an egoistic ethical climate is positively correlated with unethical behavior. In an egoistic ethical climate, employees are keen on pursuing their own interests, even if such pursuit may involve unethical behavior. In contrast, under a benevolence ethical climate, individuals pay attention to the well-being of both in-group and out-group members and attach more importance to ethical norms, laws and regulations, making it extremely difficult to find reasonable motives for unethical behavior (McCorvey & Woehr, 2022). Xu et al.'s (2024) study revealed that UPB can trigger different emotions among employees under different ethical climates. In an ethical climate where ethical norms are not highly valued, employees who engage in UPB tend to feel proud, believing that their behavior contributes to the success of the organization. On the contrary, in an ethical climate that highly emphasizes moral behavior and compliance with moral principles, engaging in UPB tends to trigger a sense of shame among employees.

Based on the above theories and research, the following hypotheses are put forward.

Hypothesis 2a: Team instrumental ethical climate is positively associated with individual UBSS.

Hypothesis 2b: Team instrumental ethical climate is positively associated with individual UPB.

5.2.10 Ethical leadership, instrumental ethical climate and job embeddedness

Studies by Ferreira (2017) and Zhou et al. (2020) have both demonstrated that ethical leadership and support from leadership bolster job embeddedness. Through role modeling and providing support, leaders foster trust, goal commitment, and value alignment among employees, thereby enhancing job embeddedness. Additionally, the harmonious team environments cultivated by leaders facilitate open communication, constructive feedback, and alleviate psychological stress. The study by Yang et al. (2020) suggested that leaders' self-dedication and ethical behavior enhance team fit, provide resources for skill development, improve performance, and foster belonging that discourages turnover. Zia et al. (2023) indicated in their study that job embeddedness is a positive outcome of servant leadership, which supports employees to embed through management support, subsequently leading to improved performance. This is consistent with the reciprocity principle of SET (Blau, 1964).

Leaders play a key role in shaping team ethical climate (Antunez et al., 2023). Thus, ethical leadership not only positively influences the team's ethical climate but also strengthens the bonds between employees and their teams, thereby promoting job embeddedness.

Based on the above theories and research, the following hypothesis is proposed.

Hypothesis 3: Team instrumental ethical climate mediates the positive association between team ethical leadership and individual job embeddedness.

5.2.11 Ethical leadership, instrumental ethical climate and unethical behavior

Team instrumental ethical climate is profoundly shaped by leaders' ethical orientation and decisions (Antunez et al., 2023). Ethical leadership not only advocates moral behavior through rules and decisions but also continuously influences team members by modeling expectations of what to do or avoid (Paterson & Huang, 2019). Employees assimilate behavioral standards and universal ethical principles from their leaders, which in turn influences their decision-making regarding unethical acts, whether driven by self-interest or aimed at organizational gain. Consequently, both types of unethical behavior can be swayed by the team's ethical climate and ethical leadership.

Based on the above theories and research, the following hypotheses are put forward.

Hypothesis 4a: Team instrumental ethical climate mediates the negative association

between team ethical leadership and individual UBSS.

Hypothesis 4b: Team instrumental ethical climate mediates the negative association between team ethical leadership and individual UPB.

5.2.12 Organizational policies on ethics

5.2.12.1 Ethical rewards and ethical leadership

The reward mechanism has long been recognized as a crucial means of aligning employees' behaviors with organizational goals. Rewards come in diverse forms, encompassing both monetary and non-monetary incentives, along with other benefits (Alves & Lourenco, 2023). Monetary rewards include salary and bonus while non-monetary rewards include forms such as public praise, honor conferment, and the delegation of more responsibilities and autonomy (Sittenthaler & Mohnen, 2020). Research indicates that non-monetary rewards are equally effective in motivating employees. For example, Alves and Lourenço's (2023) study of 614 corporate managers in Portugal revealed a synergistic effect between monetary and non-monetary incentives. Relying solely on monetary incentives is insufficient to achieve the best management performance. However, when monetary incentives are combined with non-monetary incentives (such as granting work autonomy) and benefits (such as providing free car parking), better management performance can be achieved. Non-monetary rewards alone can also serve as powerful motivators, as evidenced by the positive impact of recognition and praise on nurses' work enthusiasm (Shi et al., 2024).

Organizations adopt reward mechanisms with the aim of stimulating employees' enthusiasm and initiative and driving them to strive towards the organizational goals. The design of the reward system has a direct impact on employees' ethical behavior choices. Nill and Schibrowsky's (2005) study demonstrates that the reward system has a significant impact on students' ethical decision-making. Behaviors that receive rewards and support are likely to occur more frequently, thus rewarding unethical behaviors often leads to the persistence of such behaviors. At the same time, when individuals believe that ethical behaviors may harm their own interests, the likelihood of them engaging in unethical behaviors will increase significantly. As a key organizational factor influencing individual ethical decision-making, ethical reward systems motivate leaders to exhibit leadership behaviors that align with organizational ethical norms. Based on this analysis, the following hypothesis is proposed.

Hypothesis 5: Organizational ethical rewards is positively associated with team ethical leadership.

5.2.12.2 Ethical rewards, ethical leadership and instrumental ethical climate

Nill and Schibrowsky (2005) emphasized that the shared beliefs and values within an organization are not spontaneously generated but are molded by the reward system. Top leaders are pivotal in designing and executing this system, which subsequently shapes employees' ethical decisions and ethical behaviors. One of the key powers of leadership lies in the ability to reward and punish employees' behaviors. Leaders set goals for employees, including ethical goals, by controlling rewards (Mayer et al., 2010).

Organizations develop and implement formal and informal ethical rule systems, encompassing reward and punishment mechanisms, to foster a collective ethical cognitive framework that guides member behavior (Kuenzi et al., 2020). Rewards such as commissions, promotions, workplace social activities, and verbal praise are all deemed to impact employees' ethics-related behaviors (Kurland, 1995; Baucus & Beck-Dudley, 2005). Formal rule systems play a significant role in organizational ethics. The behavioral boundaries are defined for organizational members through written ethical guidelines and systematic performance appraisal systems. The informal rule systems also play an indispensable role in shaping organizational ethics. Ethical values are infiltrated into all levels of the organization through implicit means such as internal informal communication. As team members are influenced by these formal and informal rule systems, they gradually develop a consistent understanding of ethical rules, and this understanding is further deepened and reinforced through mutual exchanges and encouragement within teams, leading to a consensus on ethical behavior expectations. This consensus ultimately shapes the organizational ethical climate (Coremans et al., 2024).

Compared to top-level managers, the social exchange process between team leaders and team members is more direct and frequent, enabling the ethical values advocated by the organization to take root in the hearts of team members (Brown & Treviño, 2006b). Mayer et al. (2009) studied how ethical leadership is transmitted from top-level managers to the team level. They proposed the trickle-down effect of ethical leadership at the organizational and team levels. The influence of ethical leadership is like a trickle, gradually permeating from top-level managers to team leaders, then to individuals. Top-level managers establish the organization's ethical value system, formulate the overall promotion and reward rules of the organization, and influence the behaviors and concepts of team leaders. Their influence on employees is generally indirect and extensive. Middle-level team leaders tend to follow and imitate top-level managers, convey and interpret to team members the organizational ethical values and expectations as

they understand them. Therefore, it is reasonable to expect organizational level ethical rewards to positively influence team leaders, and the team level ethical leadership impacts on team ethical climate.

Based on the above theories and research, we put forward the following hypothesis.

Hypothesis 6: Team ethical leadership mediates the negative association between organizational ethical rewards and team instrumental ethical climate.

5.2.12.3 Ethical rewards, ethical leadership, instrumental ethical climate and job embeddedness

From Hypothesis 1, we suggest team instrumental ethical climate reduces job embeddedness. From Hypothesis 6, we suggest organizational ethical rewards guides team level ethical leadership and instrumental ethical climate. The outcomes of team ethical climate include employees' feeling of connection to the organization (Al Halbusi et al., 2022). Therefore, organizational level ethical rewards transmit organizational values to teams and then to individuals, deepening connections and fit between them. Based on the above theories and research, we put forward the following hypothesis.

Hypothesis 7: Team ethical leadership and team instrumental ethical climate mediate the positive association between organizational ethical rewards and individual job embeddedness.

5.2.12.4 Ethical rewards, ethical leadership, instrumental ethical climate and unethical behavior

Among various organizational systems, the recognition and reward system directly reflect the organization's ethical expectations and acts as a vital guide for employees' behavior (Treviño & Nelson, 2017). Besides material rewards or promotion opportunities, the praise and recognition from leaders and colleagues in the team can also motivate employees. For example, when employees make good ethical decisions at work, recognition from leaders makes them feel that their behaviors are valued, thus strengthening their motivation to continue practicing ethical behaviors. In such a way a behavior cycle beneficial to organizational ethics construction is formed (Shi et al., 2024). On the contrary, if an organization supports and rewards UPB, employees tend to engage in such behaviors in exchange for promotions, bonuses, or other benefits (Zhang & He, 2024).

An instrumental ethical climate prioritizes self-interest, where employees tend to assess the rationality of their actions based on the personal benefits they bring (Weber & Opoku-Dakwa, 2022). When an organization's recognition and rewards focus on short-term performance and

individual achievements while ignoring whether behaviors comply with ethical rules, this actually aligns with the pursuit of an instrumental ethical climate.

Related studies have shown the effect mechanism of organizational level value orientation to team and individual level. Cheng et al. (2019) examined the top-down transmission of responsible leadership. The responsible leadership of top-level leaders inhibits employees' UPB through the mediating role of the responsible leadership of middle-level team managers. Rui and Qi (2021) studied the trickle-down effect of authoritarian leadership in Chinese organizations. Their research shows that in order to gain more trust and promotion opportunities, middle-level team managers will imitate the leadership style of senior managers. Moreover, in a high-power-distance culture, it is a common practice for middle-level managers to respect and obey the orders of senior leaders. When team leaders adopt an authoritarian leadership style, through leader-member exchange, it will bring negative psychological experiences and pressures to employees. In response, employees are more likely to engage in unethical behaviors. At the same time, their research shows that the authoritarian leadership of top-level managers do not directly affect employees. Instead, it has indirect effect on employees' unethical behaviors through middle-level team leaders. Therefore, the ethical orientation of top-level managers in an organization exerts its influence through the practices of lower-level team leaders, affecting the ethical perceptions and behaviors of employees.

Based on the above theories and researches, we put forward the following hypothesis.

Hypothesis 8a: Team ethical leadership and team instrumental ethical climate mediate the negative association between organizational ethical rewards and individual UBSS.

Hypothesis 8b: Team ethical leadership and team instrumental ethical climate mediate the negative association between organizational ethical rewards and individual UPB.

5.2.13 Conceptual model

The hypotheses outline a progressive, cross-level conceptual model that links organizational ethical rewards to individual outcomes including both attitudinal (job embeddedness) and behavioral (unethical behavior). This model is illustrated in Figure 5.1.

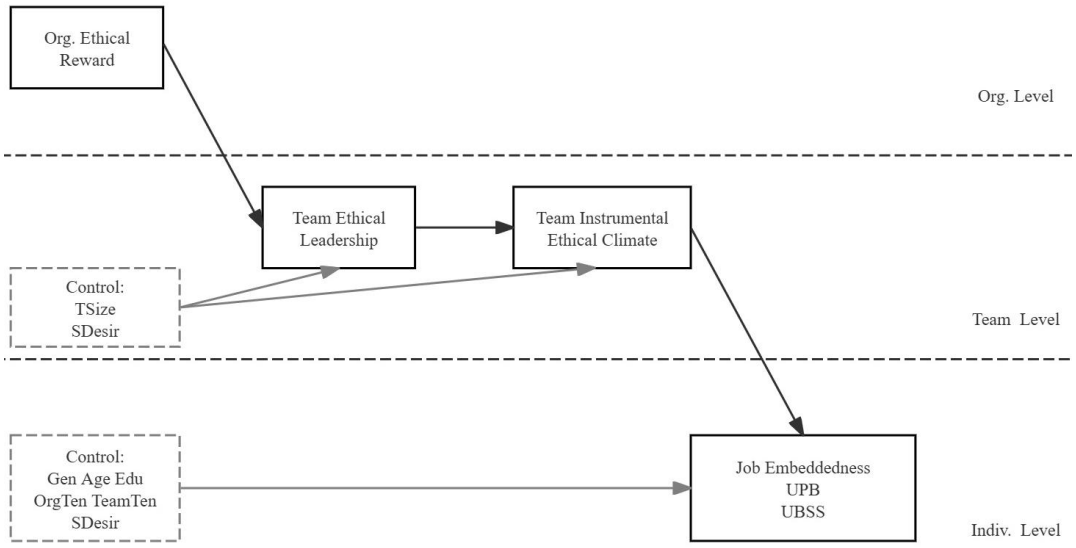


Figure 5.1 Conceptual model

5.3 Research method

5.3.1 Procedure

Data collection was carried out through an online questionnaire on the Wenjuanxing platform. We used Wenjuanxing's sample service to invite physicians and distribute the surveys, with respondents receiving compensation for their participation. All respondents were kept anonymous. Each team has a unique team name to match team members. We asked for the initials of the hospital to match members in the same hospital.

We first conducted an online pre-test with a group of six physicians. Some adjustment was made to how people answer one specific question. We changed one item's answering method from a sliding ruler to a blank-filling type.

For the formal survey, data were gathered in three waves, with time lag of two weeks. The first wave collected ethical rewards and ethical leadership. The second wave collected the instrumental ethical climate. The third wave collected job embeddedness, self-serving unethical behavior, unethical pro-organizational behavior, social desirability, and demographic variables.

5.3.2 Sample

In the first wave, we reached out to 1,700 physicians employed in Chinese public hospitals, and 923 agreed to participate. After screening, we retained 751 valid samples out of the 923 responses. The reasons for excluding invalid samples were as follows: 1) five respondents completed the survey too quickly, 2) one provided monotonous answers, 3) one team had only

one respondent, 4) 165 failed an attention-check item.

For the second wave, we contacted the 751 valid samples from the first wave, and 736 responded. Out of these, 716 valid answers were kept. The invalid samples were as follows: 1) three respondents finishing too fast, 2) 16 respondents providing mismatched codes that could not be linked to the first wave, and 3) one person submitting the survey twice.

In the third wave, we approached the 716 valid samples from the second wave, and 708 responded. We retained 704 valid answers, as four respondents gave mismatched codes. Ultimately, 704 valid answers were collected from 157 teams across 31 hospitals.

5.3.3 Data analysis strategy

We employed CFA using Amos software to assess the psychometric properties of our measures, adhering to the same guidelines as those used in prior studies. Furthermore, to appropriately test our hypotheses while accounting for the nested structure of the data, we utilized Mplus 8.3 software to specify a 3-2-2-1 multilevel model. This model incorporates one variable at the organizational level, two mediator variables at the team level, and one outcome variable at the individual level (tested separately for job embeddedness and unethical behavior). Finally, we used SPSS 29 to compute descriptive statistics, correlation analyses, and aggregability indices.

5.3.4 Measures

Ethical leadership (wave1) was assessed using the Chinese version of the Ethical Leadership Scale (Tian et al., 2015). The scale draws heavily on Brown et al.'s (2005) Ethical Leadership Scale and has been adapted to fit the Chinese cultural context. It consists of 10 items (e.g., "EL1 My team leader is open to criticism and different opinions", "EL2 My supervisor does not use Guanxi (personal relationships) or back-door practices to obtain illicit personal gains", and "EL3 Doesn't use his/her authority to seek special privileges for himself/herself"). Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The initial CFA revealed a poor fit ($\chi^2(35)=433.467$, $p<0.001$; $\chi^2/df=12.385$; CFI=0.772; TLI=0.707; RMSEA=0.127; 90% CI [.117, .138]; PClose=0.000; SRMR=0.0827). Lagrange multipliers indicated numerous instances of error covariance, suggesting the need to re-examine the factor structure. A PCA identified two components with some overlapping items. After removing these overlapping items, we obtained a valid solution (KMO=0.820; Bartlett's $\chi^2(21)=1175.390$, $p<0.001$) accounting for 59.7% total variance after rotation (Promax) concerning leaders' integrity (4 items, i.e. "EL2 My supervisor does not use Guanxi (personal

relationships) or back-door practices to obtain illicit personal gains", "EL3 Doesn't use his/her authority to seek special privileges for himself/herself", "EL7 Discusses business ethics or values with employees", "EL9 Defines success not just by results but also the way that they are obtained") and leaders' fairness (3 items, "EL5 Has the best interests of employees in mind", "EL6 Makes fair and balanced decisions", and "EL10 Can be trusted"). The strong correlation between these components implied the presence of a 2nd order factor. A subsequent CFA for this 2nd order factor solution demonstrated a good fit ($\chi^2(13)=52.551$, $p<0.001$; $\chi^2/df=4.042$; CFI=0.966; TLI=0.945; RMSEA=0.066; 90% CI [.048, .085]; PClose=0.073; SRMR=0.0355) with high convergent validity (AVE=0.665) as well as reliability ($R_{SB}=0.799$). The CFA structure is presented in Figure 5.2.

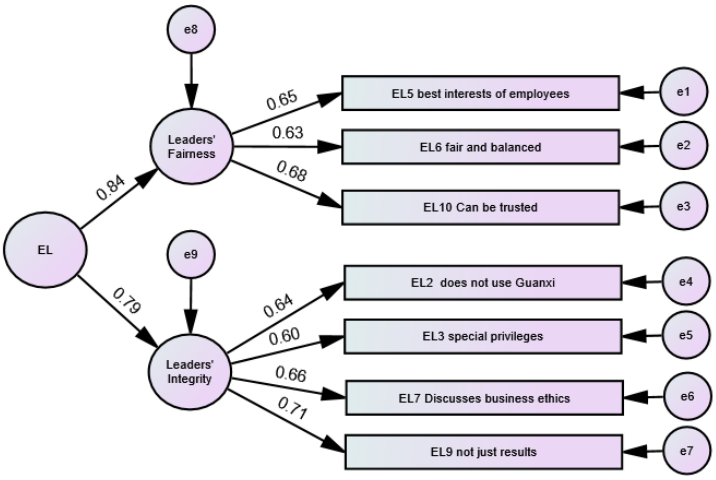


Figure 5.2 CFA for ethical leadership

Instrumental ethical climate (wave 2) was measured with Victor and Cullen's (1988) ECQ scale, Chinese version validated by Liu and Jing (2010), comprising 6 items that express instrumental ethical climate (e.g., "In this company, people protect their own interests above all else"). Each item was scored on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The initial CFA yielded a poor fit ($\chi^2(9)=220.722$, $p<0.001$; $\chi^2/df=24.525$; CFI=0.833; TLI=0.721; RMSEA=0.183; 90% CI [.162, .204]; PClose=0.000; SRMR=0.0760). Lagrange multipliers indicated instances of error covariance, suggesting the need to re-examine the factor structure. A PCA revealed a valid two-component solution (KMO=0.777; Bartlett's $\chi^2(15)=1274.074$, $p<0.001$) accounting for 66.2% total variance after rotation (Promax) but with some poor commonalities, which led to the removal of two items "IEC2 People always try to take advantage of others", and "IEC5 People are expected to do anything to further the hospital's

interests, regardless of the consequence". The remaining components were both reliable (R_{SB}=0.727; .692, respectively) and demonstrated good convergent validity (AVE=0.570; AVE=0.535 respectively). However, they were strongly correlated, which suggested a 2nd order factor. A CFA for this solution under a 2nd order factor demonstrated good fit ($\chi^2(3)$=12.189, p=0.007; χ^2/df=4.063; CFI=0.988; TLI=0.976; RMSEA=0.066; 90% CI [.030, .107]; PClose=0.210; SRMR=0.0270) with high convergent validity (AVE=0.757) as well as reliability (R_{SB}=0.862). The CFA structure is depicted in Figure 5.3.

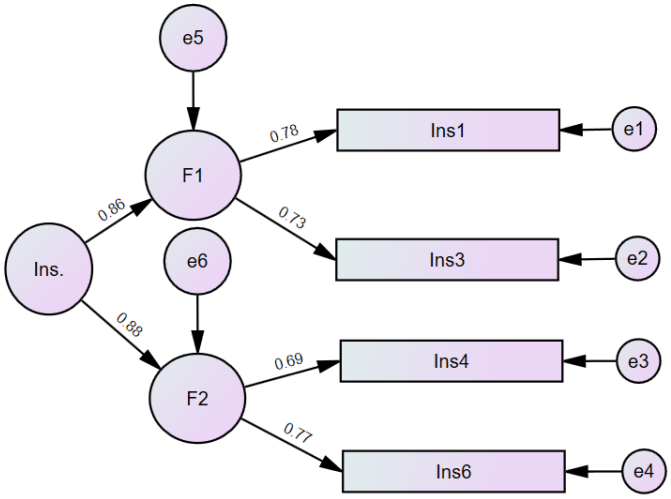


Figure 5.3 CFA for instrumental ethical climate

Job embeddedness (JE) (wave 3) was evaluated using the Chinese version of Crossley et al.'s (2007) Job Embeddedness Global Scale, seven items (e.g., "JE 1 I feel attached to this organization", "JE 3 I'm too caught up in this organization to leave"), as adopted by Li and Zhao (2017). Each item was rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The initial CFA indicated a poor fit ($\chi^2(14)$=179.204, p<0.001; χ^2/df=12.8; CFI=0.852; TLI=0.778; RMSEA=0.130; 90% CI [.113, .147]; PClose=0.000; SRMR=0.0666). Lagrange multipliers pointed to error covariance, necessitating a re-examination of the factor structure. After eliminating problematic items, the refined solution retained only two items (Item1 and Item3), but this resulted in a just-identified model, where the fit indices are not informative (Lei & Wu, 2007). Given that both items loaded significantly on the latent construct (Item1, λ=0.719; Item 3, λ=0.648), we decided to retain this single-factor solution. The CFA structure is illustrated in Figure 5.4.

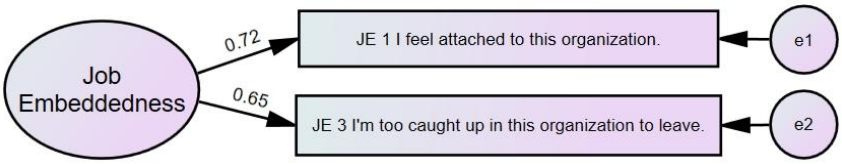


Figure 5.4 CFA for job embeddedness

Self-serving unethical behavior (wave 3) was measured with Mayer et al.'s (2012) 17-item scale. We followed back-translation method of Brislin (1970) to translate into Chinese. Following Paterson and Huang's (2019) approach, we retained 11 items that 11 physicians deemed as having 7 or more "yes" responses for applicability within their hospital settings, and examples of these items include "Pass blame for errors on to an innocent co-worker", "Claim credit for someone else's work", "Divulge confidential information". Each item was rated on a 5-point Likert scale, ranging from 1 (never) to 5 (always), with the question framed as "Although most people rarely exhibit unethical behavior, such behavior may still be seen occasionally due to certain situations or personal choices. In the working environment of your hospital, how frequently do the following behaviors of physicians typically occur?"

The initial CFA revealed a poor fit ($\chi^2(44)=428.783$, $p<0.001$; $\chi^2/df=9.745$; CFI=0.751; TLI=0.689; RMSEA=0.112, 90%; CI [.102, .121]; PClose=0.000; SRMR=0.0739). Lagrange multipliers indicated error covariance, prompting a re-evaluation of the factor structure. A PCA suggested a valid three-component solution after removing items with low commonality (KMO=0.758; Bartlett's $\chi^2(28)=951.062$, $p<0.001$) accounting for 62.1% of the total variance after rotation (Promax). The first component encompassed deceptive behavior (3 items, "UBS4 Conceal personal errors", "UBS6 Divulge confidential information", "UBS11 Falsify time/quality/quantity reports"). The second component related to abuse of power (3 items, "UBS8 Authorize a subordinate to violate hospital rules", "UBS1 Pass blame for errors on to an innocent co-worker", "UBS10 Accept gifts/favors in exchange for preferential treatment"), and the third component concerned opportunism (2 items, "UBS2 Claim credit for someone else's work", and "UBS7 Do not report others' violations of hospital policies and rules"). Although the reliability and convergent validity of these 1st order factors were suboptimal, their strong intercorrelations suggested the presence of a 2nd order factor. This 2nd order factor demonstrated good convergent validity (AVE=0.557) and reliability (Cronbach's α=0.789). A subsequent CFA for this 2nd order factor solution showed an acceptable fit ($\chi^2(18)=76.748$, $p<0.001$; $\chi^2/df=4.264$; CFI=0.937; TLI=0.902; RMSEA=0.068; 90% CI [.053, .084]; PClose=0.026; SRMR=0.0422). The CFA structure is depicted in Figure 5.5.

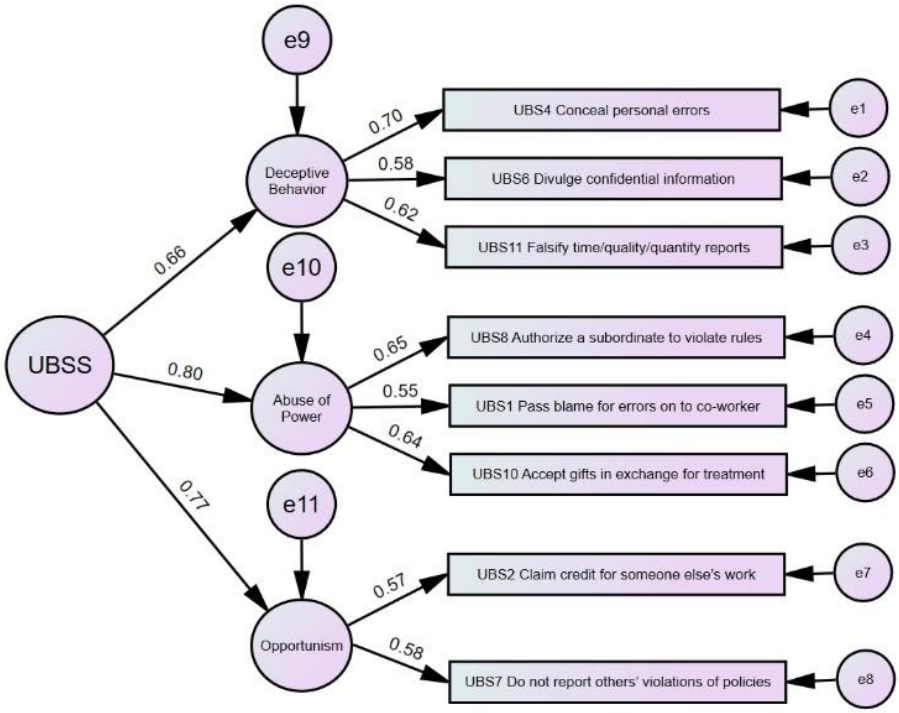


Figure 5.5 CFA for self-serving unethical behavior

Unethical pro-organizational behavior (wave 3) was measured with six items from the Unethical Pro-Organizational Behavior Scale developed by Umphress et al. (2010), with its Chinese version adapted by Sun et al. (2018). Representative items include "If it would help my hospital, I would misrepresent the truth to make my hospital look good", "If it would help my hospital, I would exaggerate the truth about my hospital services to patients", "If it would benefit my hospital, I would withhold negative information about my hospital from patients". Each item was scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The question is asked in this way "Based on your own actual feelings and experiences, please evaluate and judge each of the following descriptions, and select the option that best fits".

The initial CFA indicated a poor fit ($\chi^2(9)=113.791$, $p<0.001$; $\chi^2/df=12.643$; CFI=0.870; TLI=0.783; RMSEA=0.129; 90% CI [.108, .150]; PClose=0.000; SRMR=0.061). A PCA suggested a two-component solution, though two items were found to adversely affect the indicators. After removing these items, the two-component solution proved valid (KMO=0.694; Bartlett's $\chi^2(6)=538.555$, $p<0.001$), accounting for 74.6% of the total variance after rotation (Promax).

The first component involved concealing negative information from patients (2 items, "UPB1 If it would help my hospital, I would misrepresent the truth to make my hospital look good", and "UPB3 If it would benefit my hospital, I would withhold negative information about my hospital from patients"). The second component related to hiding negative information from

the public (2 items, "UPB4 If my hospital needed me to, I would give a good recommendation on behalf of an incompetent employee in the hope that the person will become another organization's problem instead of my own", "UPB6 If needed, I would conceal information from the public that could be damaging to my hospital"). The correlation between these two components suggested the presence of a 2nd order factor, which demonstrated good convergent validity (AVE=0.689) as well as reliability (R_{SB}=0.613).

A subsequent CFA for this 2nd order factor solution revealed a good fit ($\chi^2(3)$=9.731, p=0.021; χ^2/df=3.244; CFI=0.987; TLI=0.975; RMSEA=0.056; 90% CI [.019, .098]; PClose=0.329; SRMR=0.0263). The CFA structure is illustrated in Figure 5.6.

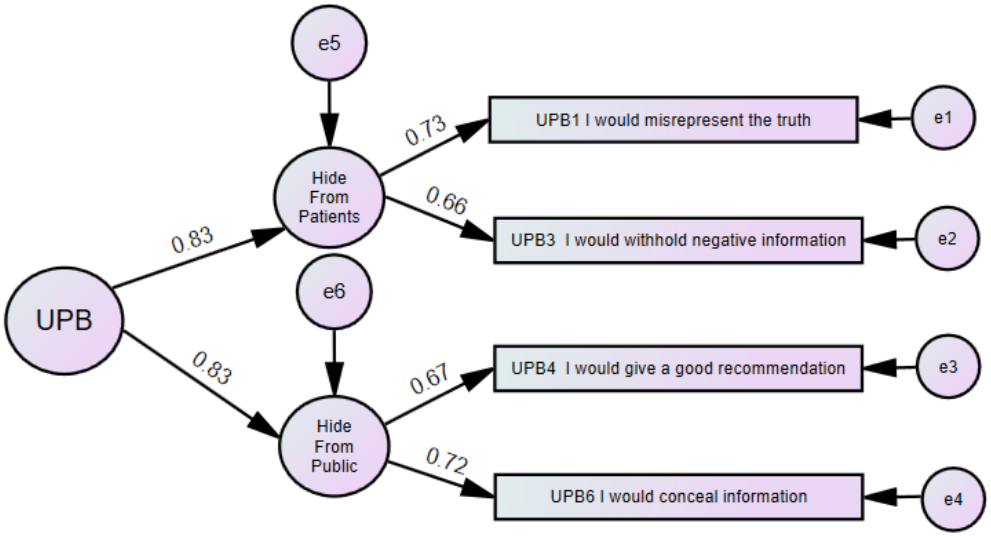


Figure 5.6 CFA for unethical pro-organizational behavior

Ethical rewards reflect the extent to which the Top Management Team (TMT) emphasizes the importance of ethical decision-making over other outcomes to middle managers. As no existing scale was available for this measurement, we developed three vignettes tailored to dilemmas commonly faced by middle managers in healthcare, as identified through a literature review: unethical hierarchical compliance (Vignette 1 Finger), guanxi-based bonus distribution among team members (Vignette 2 Guanxi), and guanxi-based favor (Vignette 3 Friend). After reading each vignette, participants were first asked to assess the likelihood that the middle manager in question would make an ethical or unethical decision. Subsequently, they responded to three items requesting the probability that the TMT would reward, such as career promotion, honorary title, and favor from top leaders. The vignettes are presented below.

(1) Vignette 1: Finger (Unethical hierarchical compliance)

"You work in an emergency department of a hospital. Tonight, a patient was admitted due to having had a finger severed by a machine at work and needs immediate replantation of the finger. After preparation for the surgery, one of the hospital directors came with his grandson.

The child was hurt by playing with a knife and also needed replantation of finger immediately. The director asked your team leader to handle his grandson first. Because short of hands tonight, only one physician is capable of finger replantation, and your hospital is far from other hospitals.

Q1) Imagine that this situation is occurring in your hospital. Which will be the team leader's decision?"

The participant is expected to answer based on six options ranging from 1 (the team leader will surely disagree with the request from the director) to 6 (surely agree).

Following this statement (which provides an indication of the perceived team leader's compliance with the unethical request), the participant is shown the following, being requested to answer based on a 5-point scale ranging from 1 (x before y) to 5 (y before x):

"Consider the profile of the team leader and the decision you signaled. Let's call it Team Leader X. Consider now a Team Leader Y which shows the opposite choice. How likely is it that in the future:

Q1.1) About get promoted in the career (all other things equal)."

Two more questions were made in this format, one regarding the likelihood of X or Y receiving an honorable title (for example, "Best physician of the year"), and another one regarding being look favorably by top leaders.

To compute the score for this vignette, as the interpretation of the answers depends on the likelihood signaled in the first question, we calculated the product of the first answer (ethical decision as expressed by answers ranging from 1 to 3, and unethical ranging from 4 to 6) with each of the three items concerning promotion (Q1.1), honor (Q1.2) and goodwill (Q1.3). The answers from 1 to 3 were dummy coded as +1 while the answers from 4 to 6 were coded as -1. The answers to questions 1.1 to 1.3 were coded from 5 to 1. The product ranges from -5 (very low ethical reward) to 5 (very high ethical reward).

(2) Vignette 2: Guanxi-based bonus

"Assume in your team, colleague A has a good relationship with the team leader X, the best in the team. However, that colleague has the worst task performance in the team (although it still reaches the minimum performance level). The team leader has the power to decide the annual bonus for the team members. All team members receive an annual bonus that ranges from 0% to 150%.

Q2 If we take the average bonus level as 100%, what is the most likely bonus A will get?"

Participants were given six preset values: 0%, 50%, 80%, 100%, 120%, 150%.

After this statement (which was used to measure the perceived degree of nepotism of team leaders in bonus distribution), participants were presented with three items similar to those in

Vignette 1, pertaining to promotion, honorable title, and favor from top leaders.

In accordance with the earlier procedure, the item scores were coded and computed.

(3) Vignette 3: Colleague's friend (guanxi-based favor)

"Imagine your team is doing a double-blind trial lung cancer drug experiment, the drug has inspiring experimental data in country Q, but it's the first time of experiment in China. The experiment will divide patients to control or treatment group. A colleague of yours has a good friend, which has lung cancer and is selected to participate in the experiment. Your colleague wants to get the friend in the treatment group. However, this violates the academic rules and if found out, could influence the accuracy of the experiment, and delay the official launch of this drug. Your team leader is the only one that can manipulate who goes to which group. Today when you passed by your team leader's office, you accidentally heard your colleague asking the team leader to let the friend in the treatment group.

Q3: What is the most possible reply of the team leader? The team leader will:"

The participant is expected to answer based on six options ranging from 1 (the team leader will surely disagree with the request from the subordinate) to 6 (will surely agree).

Same as before, next three questions pertain to promotion, honorable titles, and favor from top leaders.

In accordance with the earlier procedure, the item scores were coded and computed.

For psychometric quality of the vignettes, a PCA revealed a valid three-factor solution (KMO=0.801, Bartlet's $\chi^2(36)=10441.962$, $p<0.001$), accounting for 96.6% of the total variance after varimax rotation. The component table indicated that items clustered around the underlying dilemma rather than the specific decision types, such as promotion, honor, or goodwill. The components in this solution demonstrated strong convergent validity ($AVE_{Finger}=0.942$; $AVE_{Guanxi}=0.961$; $AVE_{Friend}=0.942$) and high reliability (Cronbach's α for Finger is 0.982, for Guanxi is 0.983, and for Friend is 0.982). The overall scale reliability was also acceptable (Cronbach's α=0.834). Table 5.1 presents these figures together with the factor loadings.

The three identified factors appear to capture distinct dilemmas centered around determining which entity warrants greater loyalty. The first factor reflects the tension between loyalty to the TMT and loyalty to patients. The second factor pertains to guanxi dynamics, highlighting how the organization recognizes and rewards individual decisions that prioritize organizational loyalty over loyalty to members of one's inner circle. The third factor deals with the conflict between loyalty to the organization and loyalty to team members.

Table 5.1 Rotated component matrix for ethical rewards

	Component		
	F1 Finger	F2 Guanxi	F3 Friend
Item	Vig1	Vig2	Vig3
EReward_finger_promotion	**.973**	.053	.133
EReward_finger_goodwill	**.972**	.067	.141
EReward_finger_honor	**.967**	.028	.156
EReward_guanxi_goodwill	.059	**.982**	.058
EReward_guanxi_promotion	.033	**.981**	.053
EReward_guanxi_honor	.052	**.978**	.052
EReward_friend_promotion	.134	.049	**.972**
EReward_friend_goodwill	.154	.064	**.971**
EReward_friend_honor	.059	.058	**.982**
AVE	.942	.961	.942
Cronbach's α	.982	.983	.982
Overall scale Cronbach's α	.834		

A CFA of this three-factor solution demonstrated good fit indices ($\chi^2(24)=44.218$, $p=0.007$; $\chi^2/df=1.842$; CFI=0.998; TLI=0.997; RMSEA=0.035; 90% CI [.018, .050]; PClose=0.945; SRMR=0.0103), as illustrated in Figure 5.7 below.

Given that the three factors representing different types of dilemmas are uncorrelated, we posit that a formative index can be constructed to capture the overall ethical rewards signaled by the TMT to middle managers, supported by the acceptable reliability of the overall scale. Consequently, we calculated the average score across these three factors.

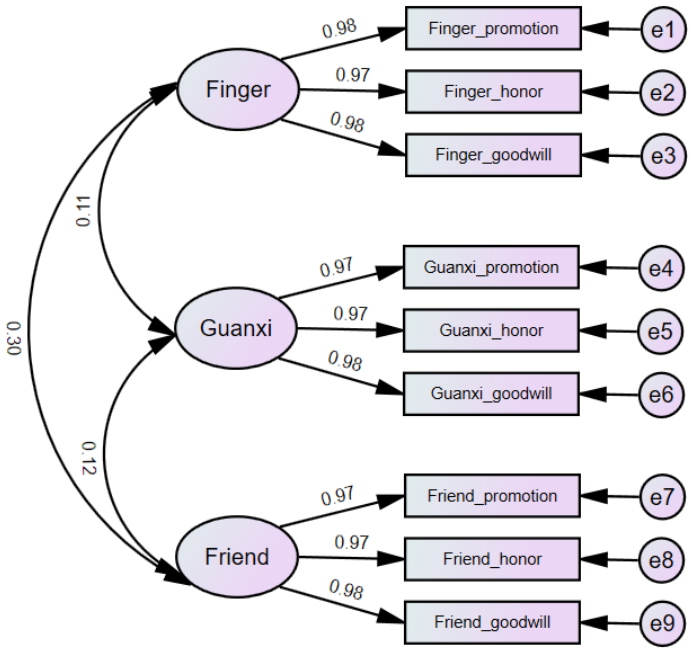


Figure 5.7 CFA for ethical rewards

Control variables: Drawing on existing literature, we included controls for gender (1=Male, 2=Female), age (1=25 and below, 2=26-30, 3=31-35, 4=36-40, 5=41-45, 6=46-50, 7=51-55, 8=56-60, 9=61 and above), education (1=Junior college and below, 2=Bachelor's degree,

3=Master's degree, 4=Doctor's degree) (Benlahcene et al., 2022; Lim, 2024; Tomova Shakur et al., 2024). For descriptive and control purposes, we also measured team tenure (measured with a single item "For how many years have you been working within current team"), and organization tenure (measured with a single item "For how many years have you been working within current organization"). In line with team-focused research, we controlled team size (measured with a single item "How many members are there in your team") (Cheng & Wang, 2015; Kim & Vandenberghe, 2023). The last control variable, social desirability (wave 3), was measured with the Brief Social Desirability Scale developed by Haghighat (2007) to control social desirability bias. The scale consists of four items (e.g., "would you smile at people every time you meet them"). We followed Brislin's (1970) back-translation method to translate into Chinese. Each item was scored as 1 for "Yes" and 0 for "No". The sum of these scores indicated the level of social desirability. As this is a dichotomic variable, reliability was assessed with the Kuder-Richardson 20 formula, yielding an acceptable value (KR20=0.724).

5.3.5 Aggregability

By deploying the procedures recommended by Woehr et al. (2015), we found that the team-level conceptualized variables (ethical leadership and instrumental ethical climate) as well as the one at the organizational level can be aggregated (Table 5.2).

Table 5.2 Aggregability indicators for team and organizational level variables

Measure	$r_{wg(j).\ uniform}$			$r_{wg(j).\ measure\text{-}specific}$				
	Mean	SD	S^2E	Mean	SD	F ratio	ICC(1)	ICC(2)
Team level								
Ethical leadership	0.95	0.02	0.90	0.79	0.17	36.83*	0.89	0.97
IEC	0.90	0.08	0.90	0.65	0.25	11.80*	0.71	0.92
Organizational level								
Ethical rewards	0.73	0.23	6.32	0.21	0.35	2.66*	0.25	0.62

*p <0.001, shape is moderate skew

5.3.6 Measurement model

The measurement model, encompassing all latent constructs, demonstrated a good fit ($\chi^2(566)=1183.431$, $p<0.001$; $\chi^2/df=2.091$; CFI=0.961; TLI=0.957; RMSEA=0.039; 90% CI [.036, .043]; PClose=1.000; SRMR=0.0533, Holter .05=370; Holter .01=385, AIC=1158.784) and all alternative models exhibited worse fit indices compared to this model, as indicated in Table 5.3.

Table 5.3 Measurement model comparison

Model	*χ2/df*	CFI	TLI	RMSEA	90% CI	PClose	SRMR	AIC	Holter .05/.01	$\Delta\chi^2(\Delta df)$ Baseline1	ΔCFI
Baseline (1st order factors) χ^2 846.784 (510)	**1.660**	**.979**	**.974**	**.031**	**[.027;.034]**	**1.000**	**.0365**	**1158.784**	**468/488**	**-**	**-**
Baseline (2nd order factors) χ^2 1183.431 (566)	2.091	.961	.957	.039	[.036;.043]	1.000	.0533	1383.431	370/385	-	
Model A ER+EL χ^2 1076.314 (551)	1.953	.967	.962	.037	[.034;.040]	1.000	.0565	1306.314	397/413	229.53(41)***	.012
Model B (Model A+IEC) χ^2 1390.261 (566)	2.456	.948	.942	.046	[.042;.049]	.993	.0690	1590.261	315/328	543.477 (56)***	.031
Model C (Mod B+JE) χ^2 1713.026 (577)	2.969	.929	.922	.053	[.050;.056]	.480	.0758	1891.026	261/271	866.242 (67)***	.050
Model D (Mod C + UPB) χ^2 1925.163 (584)	3.297	.916	.909	.057	[.054;.060]	.000	.0810	2089.163	235/244	1078.379(74)***	.063
Model E (Mod C + UBSS) χ^2 2029.056 (586)	3.191	.909	.902	.059	[.056;.052]	.000	.0877	2189.056	223/232	1182.272(76)***	.070
Model F single factor χ^2 2109.395 (587)	3.594	.904	.897	.061	[.058;.064]	.000	.0883	2267.395	215/224	1262.611(77)***	.075

*** p<0.001, A model (ER fused with EL), B model (EL, ER, an IEC fused), C model (EL, ER, IEC, JE fused), D model (EL, ER, IEC, JE, UPB fused), E model (EL, ER, IEC, JE, UBSS fused), F Model (all constructs fused).

5.4 Results

5.4.1 Descriptive statistics

This section begins by presenting descriptive and bivariate statistics. Given the three levels of analysis involved, two correlation tables, Table 5.4 and Table 5.5, are provided to illustrate relationships across individual and team levels (L1-L2), as well as team and organizational levels (L2-L3).

At the individual level, job embeddedness is reported to be high (M=4.05, SD=0.62), while perceived unethical behaviors, both self-serving (M=2.02, SD=0.52) and pro-organizational (M=2.02, SD=0.68), are moderately low. At the team level, ethical leadership is perceived as moderately high (M=3.59, SD=0.67), and the instrumental ethical climate is moderately low (M=2.12, SD=0.69).

No clear pattern of association emerges between individual-level sociodemographic variables and those in the conceptual model. Similarly, at the team level, although some minor significant correlations are observed between UBSS and team mean age and tenure, the overall pattern remains weak. Correlations within the conceptual model reveal a negative relationship between job embeddedness and unethical behaviors, particularly UPB (r=-0.577, p<0.01), as well as with the team-level instrumental ethical climate (r=-0.358, p<0.01). A moderate negative correlation is found between team-level ethical leadership and instrumental ethical climate (r=-0.352, p<0.01), along with modest negative correlations between these team-level variables and both dimensions of unethical behavior. These findings support the hypothesized cross-level effects in the conceptual model at both team and individual levels. Table 5.4 displays the descriptive and bivariate statistics.

Regarding organizational-level variables, specifically ethical rewards, shows a perceived moderate level, as the index is close to zero (M=0.09), though there are notable variations across hospitals (SD=1.18), ranging from a mean of -2.49 to +2.70, indicating shared perceptions of either moderately low or moderately high ethical reward.

Table 5.4 Descriptives and bivariate statistics for L1-L2

	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Gender	63.4%M	0.48	1														
2.	Age	2.56	1.07	.028	1													
3.	Edu	2.07	0.25	-.022	.135**	1												
4.	OrgTen	4.73	3.96	.015	.816**	.011	1											
5.	TeamTen	3.03	3.16	.005	.808**	.017	.917**	1										
6.	TAge_mean	2.56	0.75	-.003	.696**	.024	.646**	.619**	1									
7.	TAge_sd	0.80	0.36	-.047	.467**	.018	.509**	.508**	.672**	1								
8.	TGen_sd	0.50	0.13	.172**	.034	.012	.039	.037	.049	-.045	1							
9.	TEdu_mean	2.07	0.11	.040	.037	.459**	-.019	-.013	.053	.038	.025	1						
10.	TOrgTen_mean	4.73	3.02	-.019	.590**	-.012	.762**	.705**	.848**	.668**	.051	-.025	1					
11.	TTen_mean	3.03	2.34	-.031	.582**	-.008	.725**	.741**	.836**	.686**	.050	-.017	.952**	1				
12.	JE	4.05	0.62	.031	-.005	-.006	.052	.057	-.046	.035	.045	-.111**	.063	.083*	1			
13.	UBSS	2.02	0.52	-.029	-.064	-.001	-.094*	-.066	-.112**	-.063	-.068	-.020	-.137**	-.108**	-.348**	1		
14.	UPB	2.02	0.68	-.041	.047	.029	.002	.014	.084*	.041	-.052	.047	.008	.013	-.577**	.371**	1	
15.	EL_team	3.59	0.67	.024	.027	-.002	.015	-.015	.039	.056	.080*	-.003	.020	-.021	.179**	-.120**	-.265**	1
16.	IEC_team	2.12	0.69	-.017	-.040	-.016	-.055	-.032	-.058	-.122**	.072	-.035	-.072	-.044	-.358**	.152**	.242**	-.352**

*p<0.05 level (2-tailed), **p<0.01 level (2-tailed)

Table 5.5 Descriptives and bivariate statistics for L2-L3

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. TAge_mean	2.56	0.75	1												
2. TAge_sd	0.80	0.36	.672**	1											
3. TGen_sd	0.50	0.13	.049	-.045	1										
4. TEdu_mean	2.07	0.11	.053	.038	.025	1									
5. TOrgTen_mean	4.73	3.02	.848**	.668**	.051	-.025	1								
6. TeamTen_mean	3.03	2.34	.836**	.686**	.050	-.017	.952**	1							
7. Team size	14.06	7.18	.015	-.075*	.138**	-.055	.006	-.023	1						
8. Age_org	2.56	0.35	.472**	.375**	.007	.057	.402**	.430**	-.248**	1					
9. Gen_sd_org	0.49	0.02	-.083*	-.200**	.200**	.099**	-.101**	-.118**	.043	-.176**	1				
10. OrgTen_org	4.73	1.36	.419**	.355**	-.010	.047	.452**	.439**	-.213**	.888**	-.223**	1			
11. Team_tenure_org	3.03	1.09	.437**	.402**	-.032	.089*	.427**	.465**	-.226**	.925**	-.255**	.945**	1		
12. EL_mean	3.59	0.67	.039	.056	.080*	-.003	.020	-.021	.066	-.030	.012	-.029	-.070	1	
13. IEC_mean	2.12	0.69	-.058	-.122**	.072	-.035	-.072	-.044	-.005	-.010	.092*	-.066	-.035	-.352**	1
14. ERtotal	0.09	1.18	.088*	.012	-.036	.017	.045	.029	-.117**	.186**	.118**	.101**	.062	.460**	-.141**

*p<0.05 level (2-tailed), **p<0.01 level (2-tailed)

Ethical rewards show no discernible pattern of association with team-level sociodemographic variables but exhibit positive, albeit modest, associations with organizational-level sociodemographic variables. The strongest correlation is with mean organizational age (r=0.186, p<0.01), and females tend to report higher levels of perceived ethical rewards (r=0.118, p<0.01), as do organizations with longer tenures. Cross-level correlations reveal a substantial positive association between organizational-level ethical rewards and team-level ethical leadership (r=0.460, p<0.01), and a modest negative correlation with team-level instrumental ethical climate (r=-0.141, p<0.01). The direction of these correlations between team and organizational levels supports the hypothesized conceptual model.

5.4.2 Hypotheses testing

Unethical behavior (both pro-organizational and self-serving dimensions) and job embeddedness are individual-level variables nested within team-level variables (team ethical leadership and team instrumental ethical climate), which in turn are nested within the organizational level (comprising organizational ethical rewards). Therefore, the results are presented separately for within-level and cross-level effects (cross-level 2 and cross-level 3), distinguishing between direct and indirect cross-level impacts. Table 5.6 provides estimates, p-values, and 95% confidence intervals for each effect.

None of the control variables showed a significant association with any of the individual level independent variables, nor did social desirability and team size exhibit any significant cross-level 2 effects, indicating that the findings are not attributable to these factors.

Hypothesis 1 posits a negative direct effect of team instrumental ethical climate on individual job embeddedness. Findings show a significant estimate of -.355 (p<0.01, 95% CI [-.505, -.205]), which supports this hypothesis.

Hypothesis 2 posits a positive direct effect of team instrumental ethical climate on both UBSS (H2a) and UPB (H2b) experienced at the individual level. The estimate for UBSS is .170 (p<0.05, 95% CI [.041, .299]), which supports H2a, while the estimate for UPB is .293 (p< .01, 95% CI [.145, .442]), which supports H2b. This fully supports Hypothesis 2.

Table 5.6 Within and between-level effects estimates including control variables

	Level-2						Level-1								
	EL	*p*-val	CI 95%	IEC	*p*-val	CI 95%	UPB	*p*-val	CI 95%	UBSS	*p*-val	CI 95%	JE	*p*-val	CI 95%
Within-level effects															
Gender							-.039	.421	[-.11;.05]	-.056	.157	[-.13;02]	.044	.309	[-.04;.12]
Age							-.013	.814	[-.11;.09]	-.018	.687	[-.10;.06]	.106	.092	[-.01;.23]
Educ							-.029	.752	[-.20; .14]	.062	.451	[-.09;.22]	.080	.327	[-.08;.24]
OrgTen							.010	.563	[-.02;.04]	.008	.641	[-.02;.04]	.003	.841	[-.02;.03]
TeamTen							-.004	.887	[-.05;.04]	.012	.523	[-.02;.05]	-.028	.157	[-.06;.01]
SocDes							-.010	.517	[-.04;.02]	-.010	.504	[-.04;.02]	-.004	.790	[-.03;.02]
Cross level-2 effects															
IEC							.293	.001	[.14;.44]	.170	.010	[.04;.29]	-.355	.000	[-.50;-.20]
SocDes	-.261	.229	[-.68;.16]	-.270	.252	[-.73;.19]									
T Size	.012	.105	[-.00;.02]	.007	.418	[-.01;.02]									
EL				-.713	.001	[-1.08;-.34]									
Cross level-3 direct effects															
ER	.313	.001	[.16;.45]												
Indirect cross level effects															
EL-IEC-UPB							-.209	.006	[-.35;-.06]						
EL-IEC-UBSS										-.121	.029	[-.23;-.01]			
EL-IEC-JE													.253	.003	[.08;.41]
ER-EL-IEC				-.223	.005	[-.37; -.06]									
ER-EL-IEC-UPB							-.065	.022	[-.12;-.01]						
ER-EL-IEC-UBSS										-.038	.053	[-.07; .01]			
ER-EL-IEC-JE													.079	.016	[.01;.14]

Note: ER-Ethical rewards, EL-Ethical leadership, JE-Job embeddedness

Hypothesis 3 posits a cross-level indirect positive effect of ethical leadership on job embeddedness via instrumental ethical climate following a 2-2-1 model. Findings show an estimate of .253 (p<0.01, 95% CI [.087, .419]), which supports this hypothesis.

Hypothesis 4 posits an indirect negative effect of ethical leadership on unethical behavior via instrumental ethical climate in a 2-2-1 model tested twice. As regards UBSS, findings show an estimate of -.121 (p<0.05, 95% CI [-.230, -.013]), which supports hypothesis H4a. As regards UPB, findings show an estimate of -.209 (p<0.01, 95% CI [-.357, -.061]), which supports hypothesis H4b. This fully supports hypothesis 4.

Hypothesis 5 suggests a direct cross-level positive effect of ethical rewards measured at the organizational level on ethical leadership measured at the team level. Findings show a significant estimate of .313 (p<0.001, 95% CI [.167, .458]), which supports this hypothesis.

Hypothesis 6 posits an indirect negative effect of ethical rewards on instrumental ethical climate via ethical leadership in a 3-2-2 model. Findings show an estimate of -.223 (p<0.01, 95% CI [-.379, -.066]), which supports this hypothesis.

Hypothesis 7 proposes a sequential positive cross-level indirect effect on job embeddedness via ethical leadership and team instrumental ethical climate, respectively, in a 3-2-2-1 model. The corresponding estimate is .079 (p<0.05, 95% CI [.015, .143]), which supports this hypothesis.

Hypothesis 8 hypothesizes a sequential negative cross-level indirect effect on both UBSS (H8a) and UPB (H8b) in a simultaneous test for two 3-2-2-1 models. The estimates are -.038 (p=0.053, 95% CI [-.077, .001]) and -.065 (p<0.05, 95% CI [-.121, -.009]) respectively. This rejects H8a but supports H8b.

5.5 Discussion and conclusion

Organization's espoused ethical values reflect its ethical stance, which holds undeniable significance in the medical field. To transform organizational goals from abstract concepts into tangible practices, organizations frequently employ reward and punishment mechanisms as implementation tools, which also embody ethical values. While a reward mechanism can be deemed effective for increasing the likelihood of achieving goals, it may concurrently foster or allow unethical behaviors. A scientifically crafted and effectively implemented ethical reward system stands as the core vehicle through which organizations communicate their espoused ethical values to employees.

Previous research underscores the pivotal role of leadership in organizational ethics.

However, the way middle managers shape their behaviors based on the ethical rewards provided by the organization, along with the subsequent chain effects on teams and employees, has not been thoroughly examined. The findings of this study offer valuable insights for organizations seeking to enhance their ethical management practices. By gathering and analyzing survey data from 157 teams and 704 physicians across 31 public hospitals in China, we constructed a three-level (organizational, team, and individual) theoretical model. The results reveal that organizational ethical rewards, mediated by team-level ethical leadership and instrumental ethical climate, positively correlate with employees' job embeddedness at the individual level, negatively correlate with UPB, and show no significant correlation with UBSS.

At the organizational and team levels, ethical rewards empower team leaders to prioritize ethical considerations in team management and foster a positive ethical climate.

At the team and individual levels, team ethical leadership diminishes individual UPB and bolsters job embeddedness by moderating the team instrumental ethical climate. This supports the central role of team leaders in shaping team ethics, specifically influencing employees' attitudes and behaviors through the team ethical climate.

From a three-level perspective, the organization's ethical orientation cascades downward through middle managers, who mold the team ethical climate to influence individual attitudes and behaviors. This top-down transmission of ethical information is particularly critical in the context of resource constraints in Chinese public hospitals, where middle managers' ethical decisions permeate the team ethical climate and affect frontline physicians' decisions in various ethical dilemmas (Gramma et al., 2023).

Given the complex ethical dilemmas in healthcare, organizations must establish a top-down ethical management system through institutional design, such as ethical rewards, rather than relying solely on individual moral awareness. The three-level model in this study emphasizes the significance of the tone at the top, offering hospital managers a practical roadmap, from designing organizational ethical reward systems to fostering team ethical leadership and climate, ultimately translating into employees' work-related attitudes and ethical behavior norms.

Notably, variables like ethical rewards exhibit strong convergent validity at the organizational level, while ethical leadership and instrumental ethical climate do so at the team level, with high consistency in member performance on these variables, providing robust support for cross-level research. This also suggests that leaders can devise targeted ethical management strategies based on the overall conditions of teams or organizations.

5.6 Contribution

5.6.1 Theoretical contributions

Firstly, this study enriches the literature on ethical leadership by highlighting ethical rewards as a key antecedent of ethical leadership. Reward mechanisms are vital in steering organizational members' behavior (Zhang & He, 2024). Through ethical rewards, top managers signal the organization's ethical stance to middle managers, prompting leaders to exhibit leadership behaviors that align with the organization's reward criteria. Focusing on common ethical dilemmas faced by middle managers in Chinese public hospitals, we developed a measurement tool for ethical rewards. The results demonstrate a significant link between ethical rewards and ethical leadership, with both material and non-material rewards showing consistent effects. This sheds light on how ethical orientation at the top of an organization is transmitted downwards. Moreover, unlike most existing research that focuses on ethical leadership at the top management level, this study confirms the mediating role of middle-level leaders in the ethical transmission mechanism from organizational ethical rewards to individual behaviors, marking a novel contribution.

Secondly, we explored how organizational ethical rewards impact individual attitudes and behaviors. While Rui and Qi (2021) highlighted the trickle-down effect of ethical leadership, their research did not fully elucidate how team leaders influence employees' individual attitudes and behaviors. This study reveals the mediating role of instrumental ethical climate between team ethical leadership and individual attitudes and behaviors. The team ethical climate, shaped by shared cognitions and agreements between team leaders and members, reflects the organization's ethical reward orientation and influences individual ethical perceptions and behaviors within the team.

Finally, the study deepens the understanding of UBSS. Although organizational ethical rewards do not exhibit a significant mediated relationship with UBSS, team ethical leadership is negatively associated with such behavior via the instrumental ethical climate. This indicates that while organizational rewards have a limited direct impact, team leadership and climate are crucial inhibitors of self-serving behavior. This finding is consistent with McCorvey and Woehr's (2022) conclusion, which underscores the influence of morally exemplary team leaders in prompting employees to reconstruct their moral cognition and awareness, thereby reducing behaviors that violate ethical rules for personal gain. Given the stronger counter-normative nature of self-serving motives compared to pro-organizational motives, it is reasonable to infer

that individual trait such as honesty, humility or consciousness may play a role in understanding when such sequential mediation leads to unethical behavior.

5.6.2 Practical contributions

Firstly, the findings of this study regarding ethical rewards as an antecedent variable of team ethical leadership provide organizations with specific approaches to ethical management. As implementers of organizational policies and leaders of teams, middle-level managers play a connecting role in the organization (Cheng et al., 2019). Organizational ethical rewards can motivate middle-level managers to prioritize ethical management and transmit the organization's ethical orientation to frontline employees. Therefore, organizations need to improve the ethical reward mechanism to ensure it is fair, equitable, and serves as a reasonable incentive for middle-level managers. As indicated by the high consistency of the scenario case results in this study, reward methods should not be limited to monetary compensation and promotions but should also include non-material forms, such as honorary titles and praise from senior management. This approach aligns with the reality of tight financial resources in Chinese public hospitals (Wang, 2022). However, as Umphress et al. (2010) cautioned, an excessive focus on ethical rewards may lead to the instrumentalization of ethical behavior, causing employees to prioritize obtaining organizational rewards over making decisions based on intrinsic moral judgment in ethical dilemmas.

Secondly, this study provides approaches for ethical management at the team level. Team leaders are key to shaping the team's ethical climate and influencing employees' work attitudes and behaviors within the team. Therefore, it is necessary to carry out ethical leadership training for middle-level managers in hospitals, such as department directors and head nurses. Through systematic training, middle-level managers can be improved in both aspects of ethical leadership: being a "moral person" and a "moral manager". They should not only take the lead in strictly abiding by the rules, thereby setting a good example, but also promptly reward and punish various ethical behaviors of team members. This clarifies for everyone what behaviors are appropriate and what are not.

Finally, we developed a measurement tool for ethical rewards applicable to physicians, consisting of three scenario cases covering three types of ethical dilemmas. The measurement integrated both material and non-material rewards and demonstrated good reliability and validity in our study, showing convergent results at both the team and organizational levels. As ethical rewards are currently not operationally defined at organizational level, this instrument translates abstract ethical values into quantifiable reward dimensions, providing a practical

measurement reference for cross-level research.

5.7 Limitations and future studies

This study has developed a new measurement tool for organizational ethical rewards. In future research, further testing of this tool should consider other ethical dilemmas faced by medical professionals, which may help improve the measurement tool. Research by Sanner et al. (2018) shows that the most pressing issues mentioned by hospital managers include staff shortages, insufficient hospital beds, and patient queuing problems. Chinese public hospitals often face dilemmas caused by limited resources (such as funds, human resources, and equipment) (Boutcher et al., 2022). Society expects the fair distribution of medical resources, but in practice, middle-level managers in hospitals sometimes must prioritize between patient needs and budget constraints, that is, make a choice between loyalty to patients and loyalty to the organization (Tønnessen et al., 2017). When hospitals use departmental profits in the performance evaluation of middle-level managers, these managers may compromise between patients' interests and the hospital's profit goals (Yue et al., 2017). For example, to avoid the high costs borne by the hospital, expensive drugs with uncertain efficacy may be discontinued for terminally ill patients (Gramma et al., 2023).

Moreover, the study found that there is no significant correlation between organizational ethical rewards and individual UBSS. However, team ethical leadership has a significant negative correlation with individual UBSS through the mediating effect of the instrumental ethical climate. This indicates that there may be other unconsidered variables that can link organizational ethical rewards with individual UBSS. Future research can further explore possible mediating or moderating factors to help organizations manage frontline employees' UBSS.

Due to limited of research resources, this study did not directly survey middle-level and senior managers in Chinese public hospitals. Moreover, we did not collect individual data of team leaders, such as gender, age, and educational background, nor control these variables, which may affect the accuracy and objectivity of some data at the team and organizational levels. In addition, due to the social consideration of "Mianzi", which is prevalent in Chinese culture, the risk of self-reporting on ethics-related constructs is also a limitation of this study (Y. Chen et al., 2024).

Lastly, this study only focused on Chinese public hospitals and did not consider other types of medical institutions, such as private hospitals and community health service centers. Future

research can supplement comparative studies on different types of medical institutions to verify the universality of the mechanism of organizational ethical rewards. Despite this focus, people's ethical dimensions are likely similar across different contexts. These contexts may lead to different understandings of ethical norms, but they should follow the same cross-level process in terms of ethical rewards and subsequent behavioral outcome variables at the team and individual levels.

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Chapter 6: Discussion and Conclusion

6.1 Conclusion

This study focuses on healthcare professionals in Chinese public hospitals. Through three progressive studies, comprising "measurement tool verification-team level research-three level transmission mechanism", it systematically investigates the relationships among team ethical climate, its antecedent variable (organizational ethical rewards, team ethical leadership), and outcome variables such as individual work-related attitudes and behaviors. The main conclusions are as follows:

In Study 1 we conducted a comparative test of the traditional ECQ by Victor and Cullen (1988) and the ECQ 2.0 proposed by Weber and Opoku-Dakwa (2022). Using job embeddedness and work engagement as outcome variables, we evaluated the validity of these two measurement tools. The research results indicated that ethical climates measured by the two measurement tools could both be aggregated at the team level, but they differed in predictive efficacy: the ECQ was more effective in predicting job embeddedness, while the ECQ 2.0 was more suitable for predicting work engagement. This finding laid a reliable foundation for the measurement tools used in subsequent research.

Building on the findings from Study 1, Study 2 conducted an empirical study at the team level to explore how four types of team ethical climates (ECQ 2.0) in Chinese public hospitals influenced team work engagement via moral distress, drawing on the COR Theory perspective. The research results revealed that different types of team ethical climates had varying directions and intensities of impact on team work engagement, with team moral distress playing a mediating role. Notably, occupational difference moderated this mechanism. Nurses were significantly more sensitive than physicians in the above-mentioned relationships, reflecting the influence of occupational role differences on ethical perception.

Study 3 extended the research perspective to the organizational level, incorporated ethical rewards as organizational-level antecedent, focused on the physician group, and constructed an organization-team-individual cross-level model. Findings demonstrated that organizational ethical rewards enhance team ethical leadership, weaken the instrumental ethical climate, and consequently improve the job embeddedness level of physicians while reducing UPB. It

revealed the cross-level transmission path of ethical orientation from the organization to the grassroots level.

6.2 Theoretical contribution

Study 1 marked the initial verification of the applicability of the ECQ 2.0 in the Chinese healthcare setting, providing empirical support for cross-cultural ethical climate measurement and enriching research on ethical climate in China. Furthermore, confirmatory factor analysis of the ECQ 2.0 supported a four-factor structure. This finding is significant for verifying and refining the ethical climate framework proposed by Weber and Opoku-Dakwa (2022), which is based on moral development theory. Nevertheless, the findings confirm the continued relevance of the ECQ by Victor and Cullen (1988) as a suitable measure for predicting attitudinal constructs such as job embeddedness, whereas motivational states like work engagement appear to be better predicted by the ECQ 2.0.

Study 2 revealed the mediating mechanism through which team ethical climate affects team work engagement via team moral distress, offering a new perspective for understanding how ethical perceptions within Chinese healthcare teams are translated into shared work motivational states, in line with Deschenes et al. (2020) and Henrich et al. (2017). It also provided new evidence for moral distress acting as a "constructive stress" among healthcare professionals, in line with the study of Tigard (2019), but with boundary conditions such as occupational role (nurse or physician).

Study 3 has several contributions to theory. Firstly, it developed and showed that ethical rewards at organizational level is an important antecedent of ethics-based constructs such as ethical leadership, in line with Lim's (2024) contention. Secondly, it constructed a three-level model and verified the important role of team-level ethical leadership and ethical climate in the ethical transmission mechanism from organizational ethical rewards to individual behaviors, deepening the understanding of the cross-level transmission process of ethical factors in the context of Chinese public hospitals. Moreover, this study enriches research on the cross-level transmission role of leadership within organizational hierarchies, echoing discussions on the trickle-down effect of leadership styles and further confirming the universality of this cross-level leadership influence transmission mechanism (Rui & Qi, 2021).

6.3 Management implications

Firstly, hospitals should implement differentiated moral distress management for different healthcare professional groups. Given that moral distress varies across professional groups, public hospitals must ensure that their moral distress management measures are both targeted and effective. For instance, considering nurses' high sensitivity to ethical climates, hospitals should emphasize providing channels for nurses to communicate and voice their moral distress. Specifically, hospitals should strengthen emotional support from teams and the organization to alleviate the moral distress caused by frequent direct contact with patients. This can be achieved through measures such as encouraging assistance within nursing teams and holding ethical dilemma workshops. For physicians, the focus should be on complex ethical decision-making in conflicts. This can involve developing contingency plans, using typical cases to prompt in-depth reflection on resolving conflicts between ethical principles (e.g., resource allocation and patient informed consent), and familiarizing them with potential solutions in advance.

Secondly, this study shows that ethical rewards at the organizational level and the emphasis on ethics at the team level can promote work attitudes and ethical behaviors of teams and individuals. This finding is of great significance for improving the quality of medical services in Chinese public hospitals. Therefore, Chinese public hospitals should promote substantive ethical rewards at the organizational level. It is essential to design a reasonable and fair internal ethical reward system. For example, organizations should give priority to moral role models in excellence evaluations or granting honorary titles. Moreover, organizations must genuinely enforce these ethical reward rules, ensuring they are not mere empty documents. Strict management of employee behavior is required, with prompt handling of unethical conduct. Hospital management should take the lead in upholding ethical rules, setting an example through consistent words and deeds to convey to middle managers and frontline staff the organization's commitment to ethics.

Finally, hospitals should strengthen the cultivation of ethical leadership among middle managers. The ethical leadership of hospital middle managers (such as department directors and head nurses) directly influences the ethical climate within their teams. Hospitals can adopt systematic ethical leadership training and continuously emphasize ethical rules in work meetings, thereby enhancing middle managers' attention to ethical issues. Hospitals should require middle managers to take the lead in abiding by ethical rules, proactively identify and resolve ethical dilemmas faced by team members, provide support for ethical decision-making, and foster a positive ethical climate within the team. Through proactive ethical management of

middle managers, hospitals can ensure that the organization's ethical requirements are effectively transmitted to the grassroots level.

6.4 Limitations

The sample in this study was drawn exclusively from Chinese public hospitals, and did not include other types of healthcare institutions such as private hospitals and community health centers. Additionally, the sample was limited to two occupation groups: physicians and nurses, without including other occupational groups within hospitals.

Instead of directly surveying middle and senior managers in Chinese public hospitals, this study indirectly collected data at the team and organizational levels through surveys of team members. This approach may compromise the accuracy and objectivity of the data, which is particularly concerning given that self-reported morality-related data is prone to bias (Donaldson & Grant-Vallone, 2002). Furthermore, individual characteristics of team leaders (e.g., gender, age, educational background) were not controlled for in the analysis.

The explanation for occupational differences was confined to differences in sensitivity attributed to closeness to the patients, without exploring the underlying root causes, such as differences in occupational role expectations.

6.5 Future directions

Firstly, future research may benefit from expanding the sample scope to include different types of medical institutions and conduct a comparative analysis of contextual differences in ethical climate. Additionally, future research may extend the research subjects to other healthcare workers, such as medical technicians and administrative staff, to explore the similarities and differences in the mechanisms through which ethical climate affects different professional groups in hospitals.

Secondly, as organizational ethical rewards are comparatively underexplored especially compared to ethical leadership, inductive qualitative studies would enhance our understanding of the mechanisms underlying the ethical transmission process. For example, investigate how healthcare professionals interpret organizational ethical orientations and identify the primary causes of moral distress in their work. In this way, researchers can analyze the root causes of differences in sensitivity to moral distress.

Lastly, due to the relatively novelty of measurement tools for organizational level ethical

rewards, there is room for further developing and refining the current measurement tool (vignettes) or alternative measures that can better capture all the nuances of ethical rewards.

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Annex A: Questionnaire of Study 1

Dear Respondents,

We are conducting a research survey on the influencing factors of work engagement among medical staff. Please fill in this questionnaire truthfully based on your personal actual situation and feelings. There is no right or wrong answer to each question, and your genuine thoughts will be of great help to this study. This questionnaire is anonymous. We will strictly keep your personal information confidential, and the data will only be used for academic research. Thank you for your support and cooperation!

This questionnaire is intended for in-service doctors and nurses who work in public hospitals within China and have signed labor contracts. Interns, part-time staff, and retired personnel are kindly requested not to respond.

Demographic variables

1. Your current occupation: A Nurse; B Doctor; C Neither of the above

2. Your gender: A Male; B Female

3. Your age: A Under 25; B 26-30; C 31-35; D 36-40; E 41-45; F 46-50; G 51-55; H 56-60; I 61 and above

4. Your highest educational degree: A Junior college or below; B Bachelor's degree; C Master's degree; D Doctor's degree

5. Your years of working experience in medical or nursing fields: A Less than 3 years; B 3-5 years; C 6-10 years; D 11-20 years; E More than 20 years

6. How many members are there in your team? (Calculate in years; less than 1 year counts as 1 year)

ECQ 2.0 scale

This scale consists of 6 subscales. Please select the option that best matches your actual feelings based on the description of each question. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree

1) Egoism

1. In this organization, people protect their own interests.

2. People are mostly out for themselves in this organization.

3. In this organization, each person is responsible for their own survival.

4. In this organization, your own safety and personal gain are a major consideration.

5. People are expected to protect their own interests in this organization.

6. Getting ahead is the major consideration in this organization. People protect their own interests.

2) Conventional

7. In this organization, people look out for each other's good.

8. The most important concern is the good of all the people in the organization.

9. Work is considered substandard only when it hurts the organization's interests.

10. People are expected to do anything to further the organization's interests.

11. What is best for everyone in the organization is the major consideration.

12. Members of this organization consider equally our duty to all relevant organizational stakeholders (e.g., owners, employees, customers, suppliers, the environment, the local community, and the general public).

3) Principled

13. When making decisions, people in this organization are encouraged to weigh justice, fairness, human rights, and the effects of their actions on the greater good.

14. In this organization, we take responsibility for the impacts of our actions regardless of who is affected.

15. In this organization, people are expected to be fair and act in the interest of society and humanity.

16. In this organization, people are expected to always do what is right for society.

17. A respect for the rights of all is a major consideration in this organization.

18. The long-term effects of decisions and actions are a major consideration in this organization.

4) Individual locus of analysis

1. In this organization, people are expected to follow their own personal and moral beliefs.

2. ach person in this organization decides for themselves what is right and wrong.

3. The most important concern in this organization is each person's own sense of right and wrong.

4. In this organization, people are guided by their own per- sonal ethics.

5) Local locus of analysis

5. People in this organization tend to follow the organization's rules and procedures.

6. People in this organization strictly adhere to the organization’s policies and standards.

7. In this organization, people are guided more by the organization’s standards than by external rules and standards

8. In this organization, the first consideration is whether a decision violates the organization’s rules or standards.

6) Cosmopolitan locus of analysis

9. In this organization, external standards (such as laws, professional codes, cultural and religious norms, international standards, or moral principles) are a major consideration.

10. In this organization, people are guided to a large extent by external standards (e.g., laws, professional codes, cultural or religious norms, international standards, or moral principles).

11. In this organization, a primary consideration is whether a decision violates an external standard (e.g., legal, professional, cultural, religious, international, or moral standard).

12. In this organization, people are guided more by external rules and standards than by the organization’s specific rules and standards.

Social desirability scale

Please select "Yes" or "No" based on whether each statement matches your situation. There is no right or wrong answer.

1. When I can't do things my own way, I sometimes feel resentful. (R)

2. Sometimes, I give up on things because I feel my abilities are limited. (R)

3. I sometimes like to gossip. (R)

4. Sometimes I want to confront authorities, even if I know they are right. (R)

5. I am a good listener no matter who I talk to.

6. I remember times when I "pretended to be sick" to avoid certain things. (R)

7. I have used others to get things done. (R)

8. Once I make a mistake, I always admit it.

9. Sometimes I strive for fairness instead of forgiving someone or forgetting about it. (R)

10. I am always polite when interacting with others, even with those who are difficult to get along with.

11. I never feel annoyed when others have different opinions from mine.

12. Sometimes I feel very jealous of others' good fortune. (R)

13. Sometimes I get angry when others ask me for help. (R)

14. I have never intentionally said something to hurt others' feelings.

ECQ Scale

Please select the option that best matches your actual feelings based on the description of each question. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree.

1) Instrumental ethical climate

1. In this company, people protect their own interests above all else.
2. In this company, people are mostly out for themselves.
3. There is no room for one's own personal morals or ethics in this company.
4. People are expected to do anything to further the company's interests, regardless of the consequence.
5. People here are concerned with the company's interests-to the exclusion of all else.
6. Work is considered substandard only when it hurts the company's interests.

2) Caring ethical climate

1. What is best for everyone in the company is the major consideration here.
2. The most important concern is the good of all the people in the company as a whole.
3. Our major concern is always what is best for the other person.
4. In this company, people look out for each other's good.
5. In this company, it is expected that you will always do what is right for the customer and public.

Job embeddedness scale

Please select the option that best matches your actual feelings based on the description of each question. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree.

1. I feel attached to this organization.
2. It would be difficult for me to leave this organization.
3. I’m too caught up in this organization to leave.
4. I feel tied to this organization.
5. I simply could not leave the organization that I work for.
6. It would be easy for me to leave this organization. (R)
7. I am tightly connected to this organization.

Work engagement scale

The following questions are statements related to your feelings at work. Please read them carefully and determine whether you have ever had such feelings during work. If you have never had such feelings, please select "Never". If you have had such feelings, please choose the

corresponding option that best describes the frequency of your feelings. A-Never; B-Almost never; C-Rarely; D-Sometimes; E-Often; F-Very often; G-Always.

1. At my work, I feel bursting with energy.
2. At my job, I feel strong and vigorous.
3. I am enthusiastic about my job.
4. My job inspires me.
5. When I get up in the morning, I feel like going to work.
6. I feel happy when I am working intensely.
7. I am proud of the work that I do.
8. I am immersed in my work.
9. I get carried away when I'm working.

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Annex B: Questionnaire of Study 2

Dear Respondents,

We are conducting a research survey on the influencing factors of work engagement among medical staff. Please fill in this questionnaire truthfully based on your personal actual situation and feelings. There is no right or wrong answer to each question, and your genuine thoughts will be of great help to this study. This questionnaire is anonymous. We will strictly keep your personal information confidential, and the data will only be used for academic research. Thank you for your support and cooperation!

This questionnaire is intended for in-service doctors and nurses who work in public hospitals within China and have signed labor contracts. Interns, part-time staff, and retired personnel are kindly requested not to respond.

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2. Your gender: A Male; B Female

3. Your age: A Under 25; B 26-30; C 31-35; D 36-40; E 41-45; F 46-50; G 51-55; H 56-60; I 61 and above

4. Your highest educational degree: A Junior college or below; B Bachelor's degree; C Master's degree; D Doctor's degree

5. How many years have you worked with your current team leader?

6. How many members are there in your team?

ECQ 2.0 scale

Please select the option that best matches your actual feelings based on the description of each question. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree

1. Cosmopolitan

(1) In this organization, external standards (such as laws, professional codes, cultural and religious norms, international standards, or moral principles) are a major consideration.

(2) In this organization, a primary consideration is whether a decision violates an external standard (e.g., legal, professional, cultural, religious, international, or moral standard).

(3) In this organization, people are guided more by external rules and standards than by the organization's specific rules and standards.

2. Benevolence

(1) In this organization, people look out for each other's good.

(2) Members of this organization consider equally our duty to all relevant organizational stakeholders (e.g., owners, employees, customers, suppliers, the environment, the local community, and the general public).

(3) What is best for everyone in the organization is the major consideration.

3. Clan

(1) People are expected to do anything to further the organization's interests.

(2) Work is considered substandard only when it hurts the organization's interests.

4. Principled

(1) When making decisions, people in this organization are encouraged to weigh justice, fairness, human rights, and the effects of their actions on the greater good.

(2) In this organization, people are expected to be fair and act in the interest of society and humanity.

Social desirability scale

Please select "Yes" or "No" based on whether each statement matches your situation. There is no right or wrong answer.

1. When I can't do things my own way, I sometimes feel resentful. (R)
2. Sometimes, I give up on things because I feel my abilities are limited. (R)
3. I sometimes like to gossip. (R)
4. Sometimes I want to confront authorities, even if I know they are right. (R)
5. I am a good listener no matter who I talk to.
6. I remember times when I "pretended to be sick" to avoid certain things. (R)
7. I have used others to get things done. (R)
8. Once I make a mistake, I always admit it.
9. Sometimes I strive for fairness instead of forgiving someone or forgetting about it. (R)
10. I am always polite when interacting with others, even with those who are difficult to get along with.
11. I never feel annoyed when others have different opinions from mine.
12. Sometimes I feel very jealous of others' good fortune. (R)
13. Sometimes I get angry when others ask me for help. (R)

14. I have never intentionally said something to hurt others' feelings.

Note that you will respond to each item by checking the appropriate column for two dimensions: Frequency and Level of Distress.

The frequency options increase from 0 to 4, indicating "never", "occasionally", "usually", "frequently", "very frequently" respectively.

The degree of distress options is in ascending order from 0 to 4, indicating "none", "mild", "fair", "severe " and "very severe". If you have not experienced a situation, please indicate how distressed you would be if it occurred in your practice.

1. Witness healthcare providers giving “false hope” to a patient or family.

2. Follow the family’s insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient.

3. Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments.

4. Be unable to provide optimal care due to pressures from administrators or insurers to reduce costs.

5. Continue to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it.

6. Be pressured to avoid taking action when I learn that a physician, nurse, or other team colleague has made a medical error and does not report it.

7. Be required to care for patients whom I do not feel qualified to care for.

8. Participate in care that causes unnecessary suffering or does not adequately relieve pain or symptoms.

9. Watch patient care suffer because of a lack of provider continuity.

10. Follow a physician’s or family member’s request not to discuss the patient’s prognosis with the patient/family.

11. Witness a violation of a standard of practice or a code of ethics and not feel sufficiently supported to report the violation.

12. Participate in care that I do not agree with, but do so because of fears of litigation.

13. Be required to work with other healthcare team members who are not as competent as patient care requires.

14. Witness low quality of patient care due to poor team communication.

15. Feel pressured to ignore situations in which patients have not been given adequate information to ensure informed consent.

16. Be required to care for more patients than I can safely care for.

17. Experience compromised patient care due to lack of resources/equipment/bed capacity.

18. Experience lack of administrative action or support for a problem that is compromising patient care.

19. Have excessive documentation requirements that compromise patient care.

20. Fear retribution if I speak up.

21. Feel unsafe/bullied amongst my own colleagues.

22. Be required to work with abusive patients/family members who are compromising quality of care.

23. Feel required to overemphasize tasks and productivity or quality measures at the expense of patient care.

24. Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care.

25. Work within power hierarchies in teams, units, and my institution that compromise patient care.

26. Participate on a team that gives inconsistent messages to a patient/family.

27. Work with team members who do not treat vulnerable or stigmatized patients with dignity and respect.

Work engagement scale

The following questions are statements related to your feelings at work. Please read them carefully and determine whether you have ever had such feelings during work. If you have never had such feelings, please select "Never". If you have had such feelings, please choose the corresponding option that best describes the frequency of your feelings. A-Never; B-Almost never; C-Rarely; D-Sometimes; E-Often; F-Very often; G-Always.

1. At my work, I feel bursting with energy.

2. At my job, I feel strong and vigorous.

3. I am enthusiastic about my job.

4. My job inspires me.

5. When I get up in the morning, I feel like going to work.

6.I feel happy when I am working intensely.

7. I am proud of the work that I do.

8. I am immersed in my work.

9. I get carried away when I’m working.

Annex C: Questionnaire of Study 3

Dear Respondent,

We are conducting research on the influencing factors of the ethical climate among doctors in public hospitals. Please fill in the questionnaire according to your true situation and feelings. There are no right or wrong answers to the questions, and your true thoughts will be of great help to this research. This questionnaire is anonymous, and we will strictly keep your personal information confidential. The data will only be used for academic research. Thank you for your support and cooperation!

Demographic variables

1. Your gender: A Male; Female

2. Your age: A Under 25; B 26-30; C 31-35; D 36-40; E 41-45; F 46-50; G 51-55; H 56-60; I 61 and above

3. Your highest educational degree: A Junior college or below; B Bachelor's degree; C Master's degree; D Doctor's degree

4. Your years of working experience as a physician____

5. Your years of working experience in current hospital____

6. How many years have you been working in the current team (If the team has changed leaders after you joined, calculate from the time when the current leader joined the team) ____

7. How many members are there in your team? _____

Vignettes

(1) Vignette 1: Director's grandson

"You work in an emergency department of a hospital. Tonight, a patient was admitted due to having had a finger severed by a machine at work and needs immediate replantation of the finger. After preparation for the surgery, one of the hospital directors came with his grandson. The child was hurt by playing with a knife and also needed replantation of finger immediately. The director asked your team leader to handle his grandson first. Because short of hands tonight, only one physician is capable of finger replantation, and your hospital is far from other hospitals.

Q1) Imagine that this situation is occurring in your hospital. Which will be the team leader's

decision?

Answer based on six options ranging from point 1 (the team leader will surely disagree with the request from the subordinate) to 6 (will surely agree).

Consider the profile of the team leader and the decision you signaled. Let's call it Team Leader X. Consider now a Team Leader Y which shows the opposite choice. How likely is it that in the future: Answer based on a 5-point scale ranging from 1 (X before Y) to 5 (Y before X)

Q1.1) About getting promoted in the career (all other things equal).

Q1.2) About receiving an honorable title (for example "Best physician of the year").

Q1.3) About being looked at favorably by top leaders.

(2) Vignette 2: Guanxi-based bonus

Assume in your team, colleague A has a good relationship with the team leader X, the best in the team. However, that colleague has the worst task performance in the team (although it still reaches the minimum performance level). The team leader has the power to decide the annual bonus for the team members. All team members receive an annual bonus that ranges from 0% to 150%.

Q2 If we take the average bonus level as 100%, what is the most likely bonus A will get?

A 0%　　B 50%　　C 80%　　D 100%　　E 120%　　F 150%

Consider the profile of the team leader X and the decision you signaled. Consider if the top leaders of the hospital know the conditions well, how will they decide:

Each item is scored on a 5-point Likert scale ranging from 1(very likely) to 5 (very unlikely).

2.1) About X getting promoted in the career.

2.2) About X receiving an honorable title (for example "Best physician of the year").

2.3) About X being looked at favorably by top leaders.

(3) Vignette 3: Colleague's friend

Imagine your team is doing a double-blind trial lung cancer drug experiment, the drug has inspiring experimental data in country Q, but it's the first time of experiment in China. The experiment will divide patients to control or treatment group. A colleague of yours has a good friend, which has lung cancer and is selected to participate in the experiment. Your colleague wants to get the friend in the treatment group. However, this violates the academic rules and if

found out, could influence the accuracy of the experiment, and delay the official launch of this drug. Your team leader is the only one that can manipulate who goes to which group. Today when you passed by your team leader's office, you accidentally heard your colleague asking the team leader to let the friend in the treatment group.

Q3: What is the most possible reply of the team leader?

Answer based on six options ranging from 1 (the team leader will surely disagree with the request from the subordinate) to 6 (will surely agree).

Consider the profile of the team leader and the decision you signaled. Let's call it Team Leader X. Consider now a Team Leader Y which shows the opposite choice. How likely is it that in the future: Answer based on a 5-point scale ranging from 1 (X before Y) to 5 (Y before X)

Q3.1) About getting promoted in the career (all other things equal).

Q3.2) About receiving an honorable title (for example "Best physician of the year").

Q3.3) About being looked at favorably by top leaders.

Ethical leadership scale

Please choose the option that best matches your actual feelings based on your actual experience. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree

1. My team leader is open to criticism and different opinions from employees.
2. My team leader will not obtain illegal personal benefits through relationships or back doors.
3. My team leader will not use his/her power to seek privileges for himself/herself.
4. My team leader will regulate subordinates' behaviors that violate moral standards.
5. My team leader places employees' interests in the most important position.
6. My team leader will make fair decisions that balance interests.
7. My team leader will discuss ethical and value issues with employees.
8. My team leader sets a good example of handling problems morally.
9. My team leader defines success not only based on results but also on the ways to achieve them.
10. My team leader is trustworthy.

Instrumental ethical climate scale (Same items as in Study 1).

Job embeddedness scale (Same items as in Study 1).

Self-serving unethical behavior scale

Although most people rarely exhibit unethical behaviors, sometimes such behaviors may still be observed due to certain situations or personal choices. In the working environment of your hospital, how often do doctors engage in the following behaviors? A-Never; B-Rarely; C-Sometimes; D-Often; E-Commonly

1. Shift blame for work mistakes to innocent colleagues.
2. Take credit for others' work.
3. Use hospital resources for personal purposes.
4. Conceal personal mistakes.
5. Give gifts/provide benefits in exchange for special treatment.
6. Disclose sensitive and private information.
7. Fail to report others' violations of hospital policies and regulations.
8. Instruct or require subordinates to violate hospital regulations.
9. Steal hospital supplies and goods.
10. Accept gifts/benefits in exchange for special treatment.
11. Forge content (time, quality, or quantity) in reports and documents.

Unethical pro-organizational behavior scale

Please evaluate and judge each of the following descriptions according to your actual feelings and experiences, and select the most appropriate option. A-Strongly Disagree; B-Disagree; C-Neutral; D-Agree; E-Strongly agree

1. If it helps my hospital, I will modify the facts to maintain the hospital's good image.
2. If it helps my hospital, I will exaggerate the hospital's service level to patients.
3. If it is beneficial to my hospital, I will conceal negative information about the hospital from patients.
4. If the hospital needs it, I will write a good recommendation letter for an incompetent employee, so that he can take his troubles to another place and not stay with us.
5. In case of accidentally overcharging patients, I will delay the refund process if the hospital has relevant requirements.
6. If necessary, I will conceal information from the public that may have a negative impact on my hospital.

Social desirability scale

Please evaluate and judge each of the following descriptions according to your actual feelings and experiences. Choose Yes or No.

1. Do you smile every time you see someone?

2. Are you always consistent in words and deeds?

3. If you promise someone that you will do something, do you always keep your promise, no matter how difficult it is?

4. Have you ever lied to someone?