

ANALYSIS OF WORKFORCE STABILITY FACTORS IN PHARMACY ORGANIZATIONS

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The aim of this study is to determine the level of need for pharmacists to ensure optimal functioning of pharmacy organizations, as well as to analyze the current state of workforce planning and its impact on the effectiveness of pharmaceutical structures.

Materials and methods. A survey of 121 employees of the pharmacy organization in Almaty city (Kazakhstan) using Likert scale was conducted. Pearson's χ^2 criterion was used to analyze the data. The methodology was based on adaptation of Job Satisfaction Survey (JSS), "WISN" method, "360° degree" assessment and Australian Bureau of Statistics (ABS) data. The study was approved by the local ethical committee of Al-Farabi Kazakh National University (Protocol No. IRB-A871).

Results. The analysis revealed that staff turnover, workforce replenishment and seasonal shortage of staff are the key problems of retail pharmacy organizations. Significant factors affecting the stability of the workforce composition were identified, and their association with the workplace environment was statistically confirmed.

Conclusions. The article examines the factors contributing to staff turnover in retail pharmacy organizations. A structured employee survey was conducted, identifying the primary reasons for resignation, including low wages (18.43%), limited opportunities for career advancement (19.22%), and unfavourable working conditions (31.37%). The findings also indicate that the work environment and management practices significantly influence employee satisfaction. Dynamics highlighted the impact of turnover, workplace conditions, and career prospects on organisational stability. Statistical analysis ($\chi^2 = 13.96$; $p = 0.00019$) confirmed a significant association between the work atmosphere and human resource policies. Optimizing HR strategies is essential to enhance employee satisfaction and reduce turnover

Keywords: workforce policy, pharmacy organizations, staff turnover, employee satisfaction, survey

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1. Introduction

Modern pharmaceutical organizations are required to enhance human resource management (HRM) practices, driven not only by growing market competition but also by evolving qualification standards for healthcare professionals. The progression from basic administrative functions to strategic HRM reflects a broader shift toward more sophisticated personnel policies focused on the development of human capital [1]. At the same time, traditional models that emphasize organizational structure over employee needs are becoming obsolete and ineffective [2].

The relevance of the study lies in the fact that the quality of pharmaceutical workforce management directly influences the competitiveness of pharmacy organizations, as well as the accessibility and quality of pharmaceutical care. Deficiencies in HR policies result in serious organisational inefficiencies, including service times, non-compliance with standard operating procedures, delays in documentation processes and inadequate staff awareness. These issues collectively lead to decreased customer satisfaction and undermine the operational stability of pharmacy chains [3].

A key challenge facing the pharmaceutical sector is the absence of a comprehensive and systematic approach to human resource management. This is evidenced by a survey conducted in Brazil, where 47.7% of respondents (53 individuals) reported that pharmacies lack strategic integration in human resource management, including training, education, recruitment and retention, development of competencies and service standardization [4]. Such structural shortcomings in HR processes can contribute to different levels of job and career satisfaction among pharmaceutical professionals.

International studies confirm that workplace environment factors are critical antecedents of employee turnover in the pharmaceutical sector. Thus, McDermott et al. investigated the determinants of turnover intentions among pharmacy technicians and identified the lack of opportunities for professional development, limited professional autonomy, and overall job dissatisfaction as primary predictors of attrition. According to their survey results, respondents reported high levels of satisfaction with autonomy in choosing work methods (72%), collegial relationships (about 80%), and work schedules (74%).

In contrast, only 38% expressed satisfaction with their opportunities for promotion and career advancement [5]. These findings emphasize that salary considerations, organizational culture and leadership style and professional development prospects play pivotal roles in employee retention within pharmaceutical organizations.

In the same study, respondents were also asked to evaluate the level of stress associated with different aspects of their work. The most stressful factor reported was staff shortages, with 57% of respondents experiencing either “a lot of stress” or “extreme stress” due to this issue. Workload was the next most common stressor (50%), while interpersonal conflicts with colleagues were found to be comparatively insignificant, with 63% stating that disagreements caused “no stress” or “minimal stress.” These results highlight the importance of adequate staffing levels and balanced workload distribution in fostering employee well-being and reducing turnover rates

In addition to structural inefficiencies, international evidence points to the detrimental effects of excessive workloads, seasonal shortages, and a negative psychological climate on employee retention. A systematic review published in PLOS ONE (2022) highlights how chronic stress and high work demands among pharmacists increase the likelihood of professional errors and contribute to turnover intentions due to burnout and emotional exhaustion [6]. Similarly, Lan et al. (2019) demonstrated that organisational climate, job-related stress, and burnout are significantly correlated with staff attrition, suggesting that improvements in psychosocial conditions within the workplace can substantially enhance workforce stability [7].

Satisfaction, both with professional activity and with career fulfilment are two closely related but conceptually distinct constructs. The former refers to an employee's emotional state derived from daily professional experience, and interactions with the employing organization. It reflects the subjective assessment of current working conditions and the professional environment [8–10]. In contrast, satisfaction with career trajectory is rooted in the individual's perception of their professional journey, the quality of the career path and its alignment with personal values and life goals. Pharmacy professionals in Eastern Mediterranean countries have been shown to exhibit significantly lower levels of career satisfaction compared to their counterparts in European countries ($p = 0.024$) and South-East Asia ($p = 0.009$) [11]. Insufficient job satisfaction is strongly associated with decreased performance and increased staff turnover [12]. In the UK, approximately 80% of employed pharmacists reported experiencing job-related stress – an increase of six percentage points since 2015. Among those working in pharmacy chains 75% attributed these challenges to administrative burdens, compared to only 40% among those employed in independent pharmacies [13]. Such stress is frequently linked to manifestations of professional burnout, which can negatively affect job performance and the quality of service.

A sociological survey conducted among pharmacists in New Zealand further underscores the importance

workplace factors in ensuring quality and safety of pharmacy practice. Over 95% of participants agreed that key elements such as professional knowledge, fatigue, lack of awareness, inattention, distractions, stress, complacency, lighting, availability of appropriate equipment, proper medication arrangement, and communication with patients and colleagues had a significant impact on performance. Notably, 99.4% ($n = 159$) cited fatigue, reduced concentration, stress, and insufficient awareness as the most critical factors impairing the quality of practice. Among the ten most frequently cited factors, five were found to be statistically significant ($p < 0.05$), indicating their primary importance in maintaining optimal pharmacy performance within the New Zealand context [14].

In today's healthcare environment, it is important not only to determine the demand for pharmaceutical professionals, but also to foster an environment conducive to their professional development. This includes opportunities for skill enhancement, personal growth, improved communication abilities and the cultivation of supportive socio-psychological workplace climate. This includes opportunities for skill enhancement, personal growth, improved communication abilities, and the cultivation of a supportive socio-psychological workplace climate.

Despite the growing international body of research on pharmaceutical human resource management, there remains a significant gap in region-specific data, particularly within the healthcare systems of post-Soviet countries. The Republic of Kazakhstan, and specifically the city of Almaty in particular, presents a distinctive context due to its transitional healthcare infrastructure, rapid urbanization, and evolving regulatory framework. As the largest country's metropolitan area, Almaty concentrates a high density of pharmaceutical organizations and is characterized by both increased competition in the labour market and a high demand for skilled personnels. However, systematic empirical studies examining the specific factors influencing workforce stability in this setting remain limited.

The novelty of this study lies in its focus on the staff retention dynamics within pharmaceutical organizations in Almaty, using a comprehensive multi-factorial analysis to explore both organizational and individual-level determinants of workforce stability. Unlike existing research that often takes a generalized approach, this study integrates socio-demographic, psychological, and organizational parameters to develop a more nuanced understanding of job satisfaction and career sustainability. The findings aim to contribute to the development of evidence-based human resource strategies tailored to the specific socio-economic conditions of pharmacy practice in Kazakhstan.

The aim of the study. To determine the demand for qualified pharmacists required for the optimal functioning of retail pharmacy organizations, and to analyze the current state of workforce planning with particular attention to its impact on the efficiency of pharmaceutical structures.

2. Research planning (methodology)

Step 1. Literature review. A comprehensive review of international and regional publications related to phar-

maceutical workforce management was conducted. The objective of this stage was to identify key factors influencing employee retention, job satisfaction, opportunities for career advancement, and workplace climate. These insights served as the theoretical foundation for designing the study.

Step 2. Questionnaire development and expert validation. Based on the literature review, a questionnaire was constructed using internationally recognised methods in human resource management. The draft version of the questionnaire underwent expert evaluation by subject-matter specialists to assess its content validity, structural coherence, and alignment with the study's objectives. Following revisions based on expert feedback, the final version of the survey tool was approved.

Step 3. Respondent survey. The finalized questionnaire was distributed to the target respondent group. During this stage, data were collected, the completeness of responses was verified, and incomplete or invalid submissions were excluded from the final set.

Step 4. Statistical analysis and Interpretation. The collected data were processed using appropriate statistical methods. Descriptive and inferential statistical techniques were applied to interpret the findings. The results were compared with those of existing studies and discussed within the framework of pharmaceutical human resource management.

3. Materials and methods

To achieve the objectives of the study, a structured questionnaire was developed to assess key dimensions of workforce planning, job satisfaction, and factors of personnel stability. The questionnaire included open-ended, closed-ended, and semi-structured questions, and a five-point Likert scale [15, 16]. The methodological framework of the questionnaire was based on validated instruments: the Job Satisfaction Survey (JSS) [17, 18], the Workload Indicators of Staffing Needs (WISN) method [19, 20], the 360-degree feedback model [21, 22], and classifications from the Australian Bureau of Statistics (ABS) [23]. For statistical analysis, Pearson's chi-squared test [24] was applied using standard statistical software.

The study population comprised employees of retail pharmacy organizations operating in Almaty, Kazakhstan. A total of 121 professionals directly engaged in retail-level pharmaceutical practice participated in the survey. The study included pharmacy organizations not affiliated with hospitals, specifically private (commercial) pharmacies licensed to provide pharmaceutical services and offering open access to the general population. The questionnaire was distributed and completed in an online format, which facilitated broader participation among respondents working in various retail pharmacy settings. Sample size adequacy was determined using the Cochran formula [25], with a 95% confidence level. The calculated margin of error was approximately $\pm 8.7\%$, subsequently adjusted using a finite population correction factor to improve the precision of parameter estimates. In line with established standards in applied sociological research, an error margin within $\pm 10\%$ is

considered acceptable under conditions of limited respondent accessibility and resource constraints.

The survey was conducted in 2024 and was approved by the Local Ethics Committee of Al-Farabi Kazakh National University (Protocol No. IRB-A871, 19.09.2024).

To ensure the scientific validity and reliability of the questionnaire, an expert validation procedure was implemented prior to data collection. The validation focused on both content and construct validity. A panel of seven experts was assembled, including one associate professor, five PhD, and one practising pharmacist, all with more than 10 years of experience in the pharmaceutical field. Each questionnaire item was evaluated on a four-point Likert-type scale (1 = not relevant to 4 = highly relevant) across four dimensions: relevance, clarity, simplicity, and accuracy [26, 27].

The literature review underpinning the methodological design of this study focused on contemporary tools and models used in pharmaceutical HR research. The selection criteria included peer-reviewed publications from 2015 to 2025, with particular emphasis on methodological rigour and thematic relevance. Sources were screened to ensure alignment with the study's objectives related to workforce retention, job satisfaction, career development, and workplace environment in the pharmaceutical sector.

4. Results

To generate meaningful insights into workforce stability in pharmacy organizations, the questionnaire was intentionally structured to reflect multiple dimensions of personnel dynamics. Its design incorporated components addressing demographic profiles, job satisfaction (JSS), interpersonal and managerial relations (360° feedback), workload distribution (WISN), and classification standards (ABS). This methodological structure ensured that the data collected would reflect not only employee opinions, but also provide actionable input for analyzing both structural and behavioural factors.

Based on this integrated design, a comprehensive analysis of the survey results was conducted. The findings reveal key patterns and challenges within human resource management in pharmacy organizations. Both quantitative and qualitative indicators are presented below, offering a multidimensional perspective on staff satisfaction, turnover dynamics, and organizational performance.

The questionnaire consisted of 30 structured items, categorized according to five core methodological approaches (Fig. 1):

- 8 questions covering general characteristics of the respondents;
- the «Job Satisfaction Survey» (JSS) methodology is a structured psychometric tool designed to quantitatively assess the level of employee job satisfaction. According to this methodology, the questionnaire includes 9 questions;
- the “360°” method is a multifaceted system for evaluating an employee's professional performance, where data is collected from various stakeholders: supervisors, colleagues, subordinates, and the employee themselves. This method allows for a comprehensive assess-

ment of the employee's behavior and professional competencies within the organization. The questionnaire items typically cover the following areas: communication skills, leadership abilities, level of responsibility, teamwork orientation, and potential for professional development. According to this methodology, 7 questions correspond to its criteria;

– the “Workload Indicators of Staffing Need” (WISN) methodology is a scientifically grounded tool developed by the World Health Organization (WHO) to assess the need for human resources. This method is based on actual workload and is aimed at analyzing the adequacy of staffing levels in healthcare or pharmaceutical institutions. Out of the total number of questions, 5 correspond to the WISN methodology;

– 1 question based on Australian Bureau of Statistics (ABS) data, which provides a standardized approach to the collection of statistical information.

This structure enabled a detailed breakdown of the organizational, psychological, and functional dimensions of human resource management in pharmacy settings.

Therefore, the collected data possess a sufficient level of reliability and are appropriate for further analysis within the framework of the stated research objectives. Among the employees surveyed, 76.03% were women and 23.97% were men. The largest age group was 20–24 year (27.27%), followed by 30–34 years (21.49%). The majority of respondents held higher education degrees in pharmacy or pharmaceutical manufacturing technology (Table 1).

To ensure the scientific validity and measurement accuracy of the developed questionnaire instrument, an expert evaluation of its content and construct validity was conducted. Content validity reflects the extent to which the questionnaire items adequately represent the concept under investigation, while construct validity pertains the logical structure of the instrument and the internal consistency of its components.

The results of the expert review indicated that the average Content Validity Index (CVI) for all items exceeded the thresh-

old value of 0.80 (Fig. 2), thereby demonstrating a high level of content validity of the instrument and confirming that no additional revisions were required.

Table 1
Socio-demographic characteristics of respondents

Parameter	Significance (%)	<i>n</i>
Sex		
Females	76.03	92
Males	23.97	29
Age		
15–19 years	2.48	3
20–24 years	27.27	33
25–29 years	18.18	22
30–34 years	21.49	26
35–39 years	14.05	17
40–44 years	7.44	9
45–49 years	4.13	5
50 and older	4.96	6
Education		
Higher education in pharmacy	37.19	45
Higher in production technology	38.01	46
Medical education	4.96	6
Higher education (other)	5.79	7
Secondary education	14.05	17

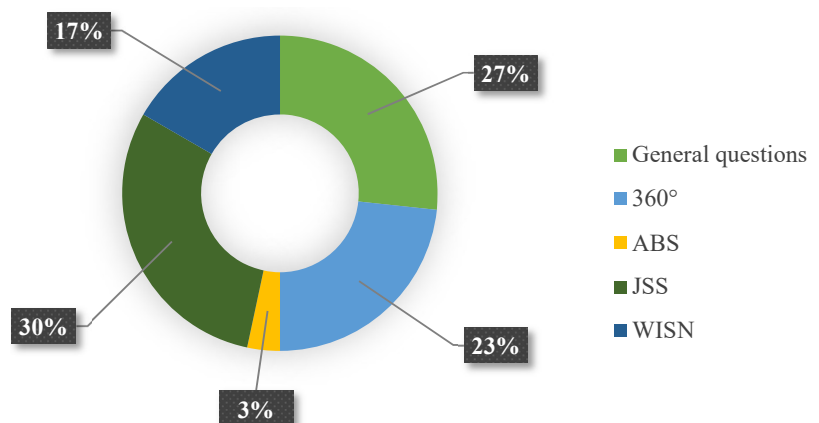


Fig. 1. Structural distribution of the questionnaire questions by methodological approaches

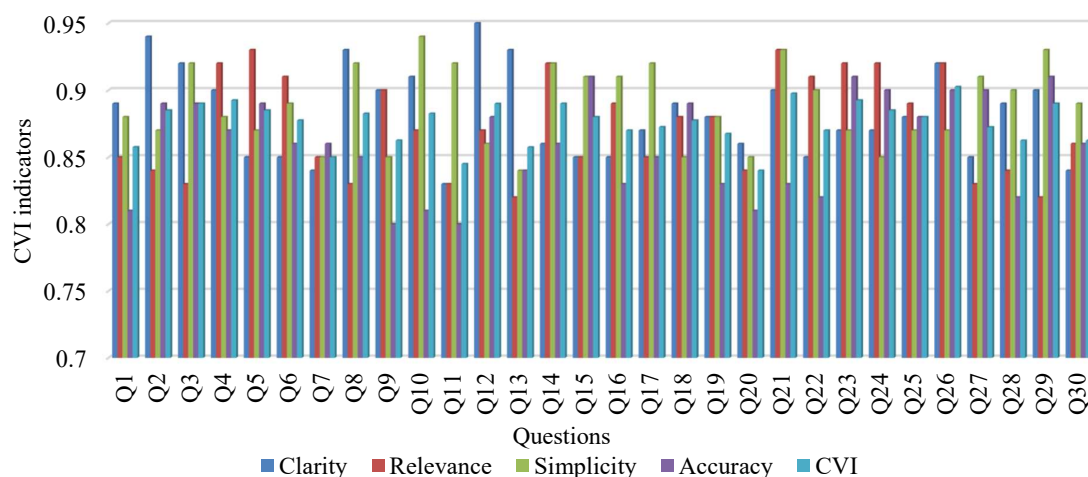


Fig. 2. CVI scores for each question as evaluated by the expert panel

The Content Validity Index (CVI) values for all questionnaire items (Fig. 2) exceeded the recommended threshold of 0.80, reflecting strong consensus among the expert panel regarding the instrument's relevance, clarity, and accuracy. These results confirm the methodological robustness of the survey tool and provide a reliable basis for subsequent analysis of the collected data.

Following validation, the collected data were analyzed to assess staffing dynamics within pharmacy organizations during 2023–2024. Fig. 3 presents the distribution of three key indicators characterizing the human resource situation in the pharmaceutical organization: staff turnover, new employee recruitment, and seasonal staff shortages across six employee categories. The categories 1–6 reflect the number of pharmacists affected by the respective indicator (staff turnover, staff reception or seasonal shortage). These categories do not correspond to different professional groups but were used solely as analytical units within the framework of the study.

For example, 19% of respondents indicated category “1”, meaning that in their organization one pharmacist was involved in the respective process during the study period; similarly, category “2” corresponds to two pharmacists, category “3” to three pharmacists and so forth. The same principle applies to all three indicators.

The highest turnover rates were recorded in categories “1”, “2”, and “3” (19%, 19% and 20.66% respectively). Category “3” is of particular concern, as it demonstrates both elevated turnover and the most pronounced seasonal shortage (18.18%), suggesting excessive workload and insufficient retention mechanisms.

In contrast, categories “4” and “5” exhibit substantially lower turnover rates – 12.39% and 11.6%, respectively – suggesting greater workforce stability and better employee adaptation in these groups.

Recruitment trends reveal that category “4” had the highest intake of new personnel (19%),

followed by categories “3” and “5” (16.52% each). The lowest recruitment rate (1.65%) was observed in category “6”, potentially due to either limited demand or the specialized qualifications required for this group.

An analysis of seasonal shortages revealed that category “3” experiences the most acute deficit (18.18%), followed by categories “4” (14.88%) and “1” (14.05%), highlighting their vulnerability during peak operational periods.

Thus, categories “1” and “3” can be considered the most critical in terms of staffing stability, whereas categories “4” and “5” demonstrate relatively favourable performance across all three indicators.

To evaluate the operational impact of staff dismissals, respondents rated the severity of associated difficulties using a five-point scale (Fig. 4). Only 9.92% rated the issue as “very low,” while the majority indicated moderate (30.58%) to high levels (46.28%) of difficulty. These findings are consistent with other indicators and confirm the operational relevance of staff turnover and shortage dynamics.

According to the results of the survey, the most significant factor influencing employees’ decision to leave their workplace was unfavourable working conditions, cited by 31.37% of respondents (Table 2).

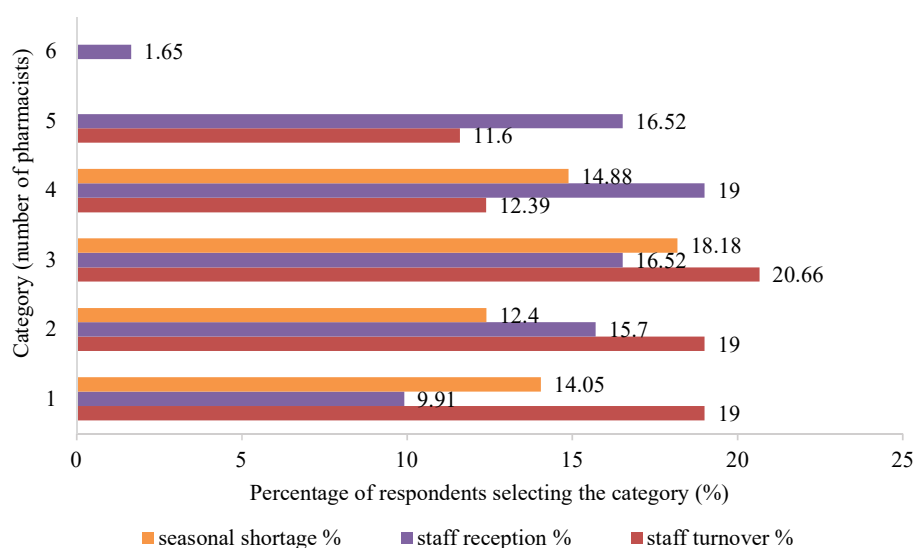


Fig. 3. Comparative annual analysis of staff turnover in the pharmacy organization

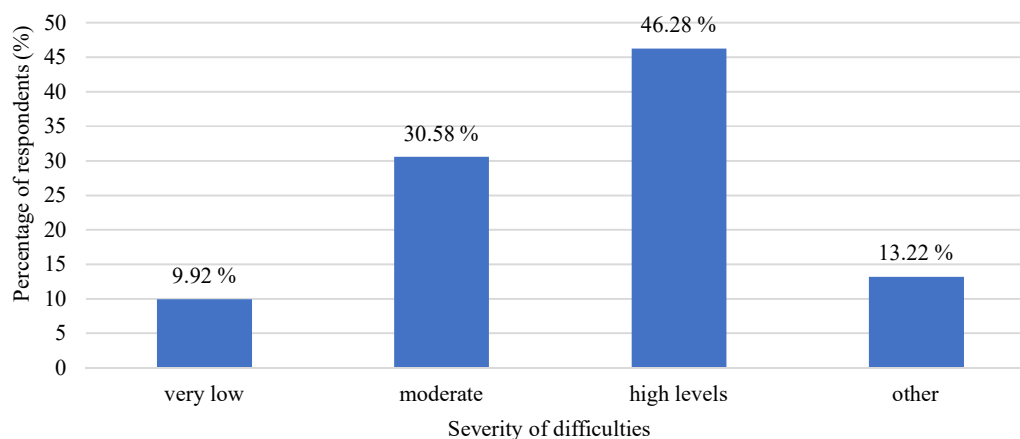


Fig. 4. Evaluation of operational impact of staff dismissals

Table 2
Factors influencing employee resignation

No.	Factors affecting resignation	%
1	Unfavourable working conditions	31.37
2	Limited opportunities for career advancement	19.22
3	Low wages	18.43
4	Psycho-emotional climate within the team	18.04
5	Difficulties in communication with management or administration	11.76
6	Other reasons	1.18

This highlights the urgent need to improve the work environment and create conditions conducive to professional growth. The next most frequently mentioned factors were limited opportunities for career advancement (19.22%) and low wages (18.43%). These findings underscore the importance of ensuring a competitive level of remuneration in order to retain staff in pharmaceutical organizations. Additionally, 18.04% of respondents identified the strained psycho-emotional climate within the team as a primary reason for resignation, emphasizing the significance of a supportive workplace atmosphere and effective interpersonal relationships among colleagues. Difficulties in communication with management or administration were noted by 11.76% of participants, indicating that such issues have a direct impact on job satisfaction and employees' willingness to remain with the organization. The smallest proportion of respondents (1.18%) selected "other reasons," suggesting that the survey instrument effectively captured the key factors contributing to staff turnover.

An analysis of work schedules showed that 52.06% of employees worked standard day shifts, with others distributed across evening, night, and rotating for-

mats (Table 3). However, a comparison with employee's preferred schedules revealed notable misalignments.

When compared to preferred working schedules, the standard day shift (08:00–18:00) was most desired, selected by 30.58% of participants. However, many employees remained in non-preferred shifts, though 26.44% indicated satisfaction with their current schedule (Table 4). This mismatch may contribute to reduced job satisfaction and productivity over time.

A Pearson's chi-squared test was used to evaluate the relationship between employees' perceptions of workplace atmosphere and their evaluation of HR policies (Table 5). The test yielded $\chi^2 = 13.96$ ($df = 1$), surpassing the critical value of 3.841 at $\alpha = 0.05$, with a p-value of 0.00019. This confirms a statistically significant relationship between the variables.

The corresponding chi-squared distribution is visualized in Fig. 5. The red marker represents the observed χ^2 value (13.96), which falls far beyond the critical threshold of 3.84, well into the rejection region. This supports the existence of a statistically significant association between employees' perception of the working atmosphere and their evaluation of personnel policy.

Table 3
Distribution of respondents by working period

Period of work		n	%
From morning to afternoon		12	9.92
From lunchtime to evening		7	5.78
Day shift	(08:00–18:00)	48	39.67
	(08:00–22:00)	10	8.26
	(09:00–22:00)	2	1.65
	(10:00–22:00)	3	2.48
Night shift		7	5.78
Daily schedule		32	26.45
		Total: 52.06	

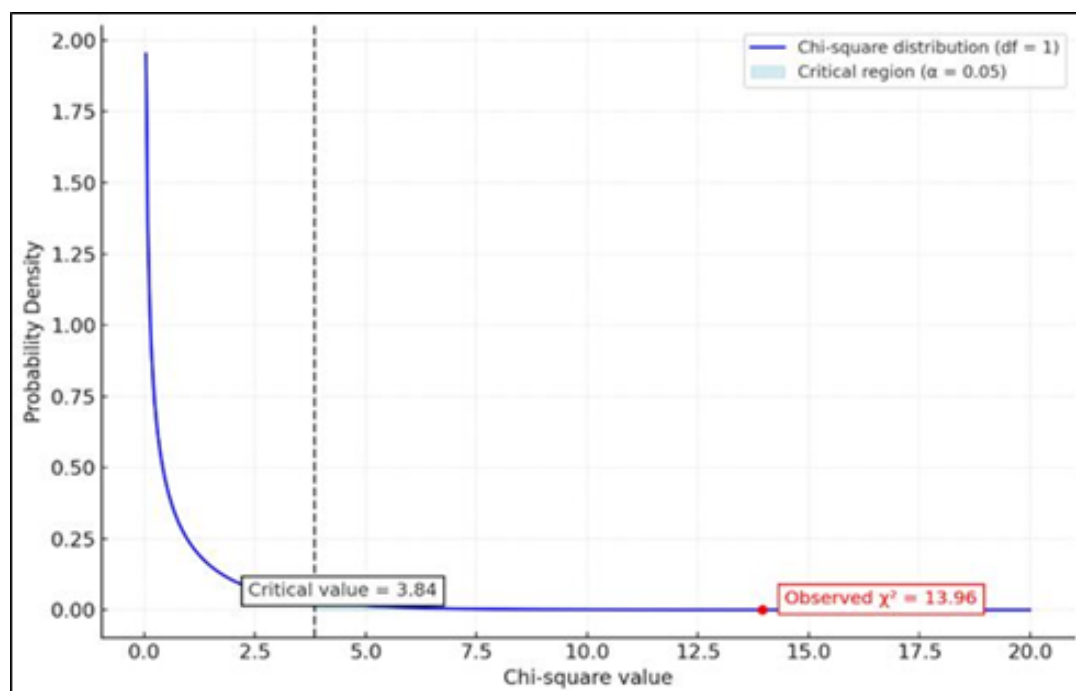


Fig. 5. Distribution of χ^2 analysis of the relationship between working atmosphere and evaluation of personnel policy

Distribution of respondents by working period

Preferred work schedule	<i>n</i>	%
From morning to afternoon	32	26.45
From lunchtime to evening	9	7.44
Day shift (08:00–18:00)	37	30.58
Night shift	6	4.96
Daily schedule	5	4.13
Satisfied with the current schedule	32	26.44

Table 4

Relationship between perception of working atmosphere and evaluation of personnel policies: observed (O) and expected (E) frequencies

Work environment	Satisfied with HR policy (Yes) (O)	Dissatisfied with the HR policy (No) (O)	Total (R)	Satisfied with HR policy (Yes) (E)	Dissatisfied with the HR policy (No) (E)	$\frac{(O - E)^2}{E}$
Comfortable	51	17	68	40.86	27.14	2.52
Uncomfortable	22	31	53	32.14	20.86	3.87
Total (C)	73	48	121	–	–	–

Table 5

The observed χ^2 value (13.96) substantially exceeds the critical threshold (3.84), placing it well within the rejection zone of the null hypothesis. This result provides robust evidence of a significant association between the internal workplace climate and employee attitudes toward organizational governance. As such, workplace conditions should be regarded as a strategic element of human resource management.

5. Discussion

The findings of this study provide a comprehensive and in-depth understanding of the human resource situation in pharmaceutical organizations in Almaty, revealing both alignment with global trends and distinct region-specific characteristics. A key observation pertains to the demographic composition of the workforce, which is predominantly composed of young professionals, particularly within the 20–24 and 30–34 age groups. This structure reflects global labour market patterns, where younger cohorts increasingly enter the pharmaceutical sector. However, in the local context, the predominance of early-career staff may point to a lack of institutional continuity, potentially contributing to higher turnover rates. Similar conclusions have been reported in international studies, which emphasized the impact of limited career advancement and low job satisfaction on employee attrition [5, 7]. Evidence from previous studies underscores the impact of workplace stressors and organizational inefficiencies on pharmaceutical practice outcomes [14]. Our findings reveal a comparable pattern among pharmacy professionals in Almaty. High turnover, dissatisfaction with work schedules, and a statistically significant association between a negative work environment and unfavourable assessments of HR policy confirm the predominant influence of these factors in the Kazakhstani context. Furthermore, 18.04% of respondents emphasized the impact of a strained psycho-emotional climate, underlining the importance of fostering a supportive and collegial workplace environment.

Similar to international experience, particularly in the United Kingdom, one of the primary sources of professional strain in Almaty is the discrepancy between actual and preferred work schedules. While a significant proportion of employees expressed a preference for the standard day shift (08:00–18:00), many were assigned to alternative time slots. This mismatch has also been documented in UK chain pharmacies, where rigid administrative structures and a lack of scheduling flexibility contribute to growing dissatisfaction among staff [5].

At the same time, the seasonal shortage of personnel identified in this study represents a distinctive feature of the Kazakhstani pharmaceutical sector. In contrast to the chronic understaffing commonly observed in high-income countries, the pronounced vulnerability of staff categories “1” and “3” during peak periods points to systemic shortcomings in workforce planning. These challenges are likely compounded by rapid urbanization and fluctuating demand, factors particularly relevant in the context of a transitional economy. Accordingly, the present study addresses a notable gap in the existing literature, as workforce stability in post-Soviet healthcare systems remains insufficiently explored.

The statistically significant correlation ($\chi^2 = 13.96$; $p < 0.0002$) between employees’ perceptions of the workplace climate and their evaluation of HR policy further reinforces the established view that psychosocial factors are central to employee satisfaction and retention. This finding aligns with the conclusions from the PLOS ONE (2022) systematic review, which underscored the impact of chronic stress, poor communication, and organizational dysfunction as key drivers of burnout and turnover intentions [26].

It is also important to note points of divergence from international trends. While many global studies cite salary dissatisfaction as a leading cause of staff turnover, the present findings suggest that in the context of Kazakhstan, non-financial factors – such as interpersonal climate, leadership style, and organizational communication culture – play a more decisive role. This may reflect evolving expectations among healthcare professionals or the specific regulatory and socio-economic characteristic of Kazakhstan’s pharmaceutical sector.

As a practical response to the key challenges identified during the study – such as staff instability, seasonal shortages, limited opportunities for professional growth, and an unfavourable psycho-emotional work environment – a comprehensive model for managing workforce stability is proposed. This model integrates three strategic components: a motivation and reward system, a flexible work schedule, and the cultivation of a positive emotional climate in the workplace. Each component targets specific barriers to staff retention, and together they form a holistic framework for the sustain-

able development of human resources in pharmaceutical organizations. It is worth noting that similar models have been successfully implemented in the HR policies of countries such as the United Kingdom, Germany, Canada, and New Zealand, where flexible working arrangements, employee well-being initiatives, and non-financial incentives serve as foundational elements of workforce stability [33]. Adapting these best practices to the Kazakhstani healthcare system offers a valuable opportunity to strengthen the pharmaceutical sector and ensure long-term resilience of its human resource base (Fig. 6).

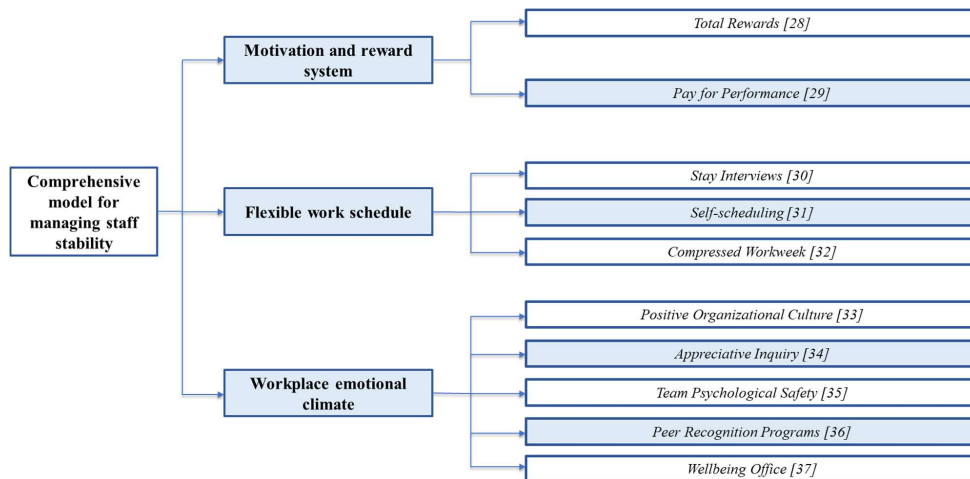


Fig. 6. Comprehensive model for managing workforce stability

Practical significance of the study. The practical significance of this study lies in the applicability of its findings to the real-world operations of pharmaceutical organizations, HR departments, pharmacy chain management, and educational institutions involved in training the healthcare workforce. Based on the identified factors, work schedules can be adjusted to employee preferences, more effective internal communication models can be implemented, HR policies can be revised with an enhanced focus on psychosocial well-being, and targeted programs for professional development and career advancement can be designed. Moreover, the data may inform staffing level planning, particularly in accounting for seasonal fluctuations. Collectively, these measures have the potential to increase employee satisfaction, reduce turnover, and ultimately improve the quality of pharmaceutical care delivery.

Limitations of the study. This study has several objective limitations that should be considered when interpreting the results. Firstly, the geographical limitation: the sample size was restricted to pharmaceutical organizations located in Almaty city. Although Almaty represents the largest pharmaceutical hub in the country, its socio-economic and workforce characteristics may differ from those of other regions, particularly rural and monocentric areas. This limits the generalisability of the findings at the national level. Secondly, the reliance of self-reported data: the primary data collection method – questionnaire-based surveying – depended on respondents' self-assessments, which introduces the potential for bias

due to subjective perceptions, social desirability effects, or limited awareness of internal management processes.

Future research directions. Future studies should consider expanding the geographical scope to include regions with varying densities of pharmacy networks and diverse socio-economic contexts. Longitudinal research would also be valuable to monitor trends in employee satisfaction, levels of professional burnout, and the long-term effectiveness of implemented HR interventions. Additionally, future investigations could explore the relationship between workforce stability and the quality of pharmaceutical care delivered to the population.

6. Conclusions

The analysis of the staffing situation in pharmacy organizations confirmed that staff turnover, recruitment patterns, and seasonal shortages are critical factors affecting institutional stability and operational efficiency. Key determinants of staff retention include working conditions, opportunities for career development, and the internal organizational climate. The statistically significant relation-

ship between perceptions of work environment and evaluation of HR policies ($\chi^2=13.96$; $p=0.00019$) empirically confirms the role of organizational culture as a central variable in workforce stability.

Additionally, the study revealed that excessive workload and misalignment between actual work schedules and employee preferences contribute to decreased satisfaction and increased attrition risk. These findings support the need for flexible, individualized planning mechanisms in pharmaceutical HR management. The insights gained from this research provide a foundation for the development of targeted HR interventions aimed at reducing turnover, enhancing job satisfaction, and ensuring sustainable performance in pharmacy organizations.

Conflicts of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this article.

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Data availability

This manuscript has no associated data.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the current work.

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