Exploratory Research in Clinical and Social Pharmacy 14 (2024) 100458

Contents lists available at ScienceDirect

Exploratory Research in Clinical and Social Pharmacy

journal homepage: www.elsevier.com/locate/rcsop

Quality of work life (QWL) of community pharmacists and its association with subjective evaluations of pharmaceutical services☆

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ARTICLE INFO

Keywords:
Pharmacist
Pharmacy
Quality of work life
Japan
Pharmaceutical service

ABSTRACT

Background: In Japan, pharmacists' role has drastically changed in recent years. However, previous studies have not performed internal marketing analysis for Japanese community pharmacists so that they improve the quality of work life (QWL) and be satisfied with it. Further, few studies are conducted on Japanese community pharmacists' QWL and its effect on the quality of pharmaceutical services.
Objectives: This study aimed to reveal associations between community pharmacists' QWL and their subjective evaluations of pharmaceutical service.
Methods: A questionnaire survey was conducted among 2027 pharmacists, with the cooperation of 20 corporations that run pharmacies. The collected data were subjected to multiple regression analysis, using SPSS 29.
Results: Standard multiple regression shows that 27.4% of variance in pharmacists' subjective evaluations of their service was explained by QWL and other control variables, such as age, gender, and employee status ($p < .001$, $R^2 = 0.274$). This analysis showed that factors behind pharmacists' QWL, "meaning of existence in the workplace" and "pride in work," explained pharmacists' subjective evaluations of pharmaceutical service ($\beta = 0.307$, $p < .001$, $\beta = 0.277$; $p < .001$, respectively).
Conclusion: This study shows that improving QWL, especially "mental and physical effects on work" and "pride in work," might contribute to improving community pharmacists' services.

1. Background

In Japan, the role of community pharmacists has drastically changed in recent years. In 2015, the Japanese Ministry of Health, Labor, and Welfare (MHLW) declared its "Pharmacy Vision for Patients", suggesting that community pharmacists should shift from a drug-oriented approach to a patient-oriented one.[1] As part of this vision, community pharmacists are expected to promote residents' health specifically by offering home healthcare services and acting as family pharmacists in health support pharmacies and by collaborating with physicians and other healthcare providers. Since its inception, various initiatives and changes have been adopted to support this vision. For example, the "Your Pharmacist Reimbursed Program" was introduced in 2016, in which pharmacists are incentivized to conduct medication-therapy management in collaboration with physicians and offer comprehensive care that aligns with the goals of the "Pharmacy Vision for Patients." This program includes specific reimbursement fees for pharmacists who meet stringent criteria in patient care, such as continuous and exclusive medication therapy management in cooperation with a family physician.[2] However, while the "Your Pharmacist Reimbursed Program" has made some progress, it still falls short of fully realizing the "Pharmacy Vision for Patients".[3]

The Japanese healthcare system has traditionally been physician-centered, and pharmacists have focused on drug-oriented practices, such as accurate dispensing. Therefore, human resource management, including sustaining community pharmacists' quality of work life (QWL), might be challenging because of recent drastic changes in their work volume and content despite incentives to encourage pharmacists to play a new role. To effectively promote a "Pharmacy Vision for Patients", besides providing financial incentives as i"Your Pharmacist Reimbursed Program, " human-resource management strategies should be focused on.

Individuals are the most important assets of any organization,[4] so the

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https://doi.org/10.1016/j.rcsop.2024.100458
Received 29 March 2024; Received in revised form 15 May 2024; Accepted 27 May 2024
Available online 31 May 2024

way an organization manages its employees strongly influences organizational performance.[5] However, research has not focused on what kind of human-resource management improves Japanese community pharmacists'' (JCP) service. Therefore, this study aimed to reveal associations between community pharmacists' QWL and their subjective evaluations of pharmaceutical service and advance scholarly knowledge on the effects of the subjective components of pharmacists' satisfaction with QWL on the quality of their service.

2. Literature review

QWL is a comprehensive concept by which the quality of life in occupational and non-occupational areas is evaluated.[6–9] It embraces the effects of the workplace on individuals' job satisfaction; their satisfaction in non-work life domains; and their satisfaction with overall life, personal happiness, and subjective well-being.[10] Organizations often struggle to fulfill employees' personal needs and values. QWL is a philosophy and set of principles that holds that individuals are the most important resource within an organization, as they are trustworthy, responsible, and capable of making valuable contributions, and they should be treated with dignity and respect.[11] The concepts of QWL for JCPs were recently revealed: "influence of work on mind and body," "relationships with colleagues," "relationship with the boss," "meaning of existence in the workplace," and "pride in work".[12]

Improving employees' QWL might positively affect an organization's productivity. Work and personal life influence each other, and problems in these areas lead to professional difficulties, job dissatisfaction, stress, and organizational unproductivity.[13] A study conducted on companies in the American S&P 500 index found that those with high QWL showed higher profitability and growth than other companies. The results of this study indicate a positive association between QWL and job performance.[14] More specifically, previous studies[9,15] found that feeling respected is a predictor of individuals' QWL, self-esteem, variety in daily routine, a challenging job, autonomy, safety, rewards, and good future opportunities. Thus, an improved QWL is expected to lead to higher productivity.[16]

Additionally, healthcare workers also found relationships between QWL and job performance, including other QWL-related aspects. In the context of nurses, a direct and significant relationship between job performance and QWL has been observed in all aspects, which should be considered to improve their productivity and performance.[17] For health support workers, QWL, perceptions of supervisor support, and perceptions of workplace safety might influence work outcomes.[18] Better QWL is the key to attracting and retaining qualified and motivated employees and can potentially lead to enhanced quality of services in healthcare organizations.[19] Within a nursing context, other studies have also shown that improving employees' QWL leads to improved productivity.[20,21]

The patient consultation performance of community pharmacists was positively associated with cognitive (applying skills and knowledge) and monitoring demands and negatively associated with external demands (interruptions, rushing).[22] Research has shown that job satisfaction is positively associated with pharmaceutical service quality and that there is an equivocal relationship between workload and quality of care provided to patients.[23–27] Thus, several studies have investigated the relationship between pharmacists' QWL and their job performance.

3. Methods

3.1. Subjects

We emailed questionnaire to community pharmacists with the help of pharmacy companies that participated in the study between May and June 2022. Participation was voluntary and confidentiality was assured, as participants were informed that their responses would remain anonymous and would not be visible to their employers. After reviewing an explanatory document, pharmacists who agreed to participate submitted their completed questionnaires directly to our research team through the Microsoft Forms system.

3.2. Developing questionnaires

The questionnaire was written in Japanese and consisted of three parts: 1) QWL questionnaire for JCPs; 2) subjective-evaluations-of-pharmaceutical-service questionnaire; and 3) general information questionnaire.

1) **QWL questionnaire for Japanese community pharmacists;** The QWL questionnaire for JCPs consists of five dimensions and 18 items answered on a six-point Likert scale[12]: (1) I strongly disagree, (2) I mostly disagree, (3) I disagree a little, (4) I agree, (5) I mostly agree, and (6) I strongly agree. Based on the answers, each participant's individual QWL score was calculated, with higher scores indicating higher levels of satisfaction with the QWL.

This study examined JCP's QWL based on the following dimension derived from the questionnaire:

i) **Influence of Work on Mind and Body:** This dimension assesses employees' stress levels related to their workload, working hours, staffing, working conditions, and their satisfaction with work-life balance.
ii) **Relationship with Colleagues:** This dimension evaluates pharmacists' satisfaction with workplace communication, specifically focusing on their knowledge sharing and collaborative problem-solving among colleagues.
iii) **Relationship with Boss:** This dimension gauges the extent to which employees feel respected by and satisfied with their superiors' attitudes towards them.
iv) **Meaning of Existence at the Workplace:** This dimension assesses a motivational dimension that measures satisfaction derived from recognizing one's role and autonomy within the workplace.
v) **Pride in Work:** This dimension measures another motivational dimension that quantifies the level pharmacists' pride in their profession and their motivation for personal growth and professional improv1ement.

These dimensions collectively frame our analysis of how various aspects of a pharmacist's work environment contribute to their overall QWL.

2) **Subjective-evaluations-of-**pharmaceutical-**service questionnaire;** This study developed the subjective-evaluations-of-pharmaceutical-service questionnaire to measure how well they feel that they are fulfilling their professional role as an alternative to measuring the quality of their service. The subjective-evaluations-of-pharmaceutical-service questionnaire, which inquired about pharmaceutical service related to interpersonal factors, such as the quality of consulting with patients, analyzing patients' prescriptions, and collaborating with doctors, was developed by interviewing several community pharmacists. The questionnaire consists of seven items on a six-point Likert scale: (1) I strongly disagree, (2) I mostly disagree, (3) I disagree a little, (4) I agree, (5) I mostly agree, and (6) I strongly agree. This study calculated each participant's subjective evaluations score, with higher scores indicating higher levels of subjective evaluations.

3) **General information questionnaire;** The general information questionnaire included questions about the participants' age, gender, employment status, duration of service in a company, workplace location, years of experience as a pharmacist, working hours per week, position, level of service, average number of

prescriptions filled, number of pharmacists during business hours, number of non-pharmacists during business hours, and the number of pharmacies experienced.

3.3. Analysis

This study adopted multiple regression analysis using IBM SPSS 29 to reveal the QWL components influencing employees' perception of job performance. The analytical model presented in Fig. 1 includes several control variables that could potentially act as moderators or mediators: age, gender, employment status, duration of service in a company, workplace (pharmacy) location, working hours per week, position (manager or not), service (if an employee is acting as a family pharmacist or home healthcare service), average number of prescriptions filled per a day, number of pharmacists during business hours, and the number of pharmacies where you have working experiences.

Multicollinearity occurs when two or more predictors in a regression model are moderately or highly correlated, which can lead to unreliable and unstable estimates of regression coefficients. This study calculated the Variable Inflation Factors (VIF) — a crucial measure used in multiple regression analyses to identify the presence of multicollinearity among the independent variables. Johnston et al. (2018) suggested that a VIF ≧ 2.5 indicates considerable multicollinearity.[28] When items displayed high correlation, this study excluded one of these items from the analysis to prevent multicollinearity. This decision was based on the standard deviation and the VIF from the multiple regression analysis.

4. Results

4.1. Sample and descriptive statistics

Twenty companies participated in this study, and questionnaires were distributed to 2027 community pharmacists. Exclusion of data from 65 pharmacists who submitted incomplete responses resulted in a final sample of 1962 (96.8%) participants for analysis. Details about the participants and the companies involved are presented in Tables 1 and 2, respectively. The average response rate across all companies was 18.7%, with individual company response rates detailed in Table 2.

4.2. Association between QWL / control variable and subjective evaluations of pharmaceutical service

Before conducting the multiple regression analysis, Cronbach's alpha was calculated to confirm the reliability of the subjective-evaluations-of-pharmaceutical-service questionnaire. The value was 0.847, indicating sufficient reliability.

An independent sample *t*-test and correlation analysis were conducted. Significant associations whose r-value is >7.0 were found between "years of experience as pharmacists" and "age," and between "years of experience as pharmacists" and "duration of service in a company" ($r = 0.795$, $p < .001$; and $r = 0.719$, $p < .001$, respectively. Additionally, a high correlation was observed between the number of pharmacists and non-pharmacists during business hours ($r = 0.889$, $p < .001$). To prevent multicollinearity, the items in "years of experience as pharmacists" and "the number of non-pharmacists during business hours" were excluded from the multiple regression analysis.

A standard multiple regression was performed between the subjective evaluations of pharmaceutical service as the dependent variable and the five dimensions of QWL (influence of work on mind and body; relationship with colleagues; relationship with boss; meaning of existence in the workplace; and pride in work) and the control variable as the independent variable.

The variable inflation factors (VIF) values were <2.5 (the results ranged from 1.012 to 2.116) for all independent variables. Therefore, this model was considered acceptable (Johnston et al. (2018)).

Altogether, 27.4% of subjective evaluations of pharmaceutical service was explained by the scores of the five QWL dimensions and control variables, such as age, gender, employment status, duration of service in a company, location of the pharmacy where the pharmacists work, working hours per week, position (manager or not), service (acting as a family pharmacist or providing home healthcare service), average number of prescriptions filled per day, number of pharmacists during business hours, and number of pharmacies experienced ($F = 43.71$ with $p < .001$,$R = 0.523$, $R^2 = 0.274$, Adjusted $R^2 = 0.268$, Std. Error of the

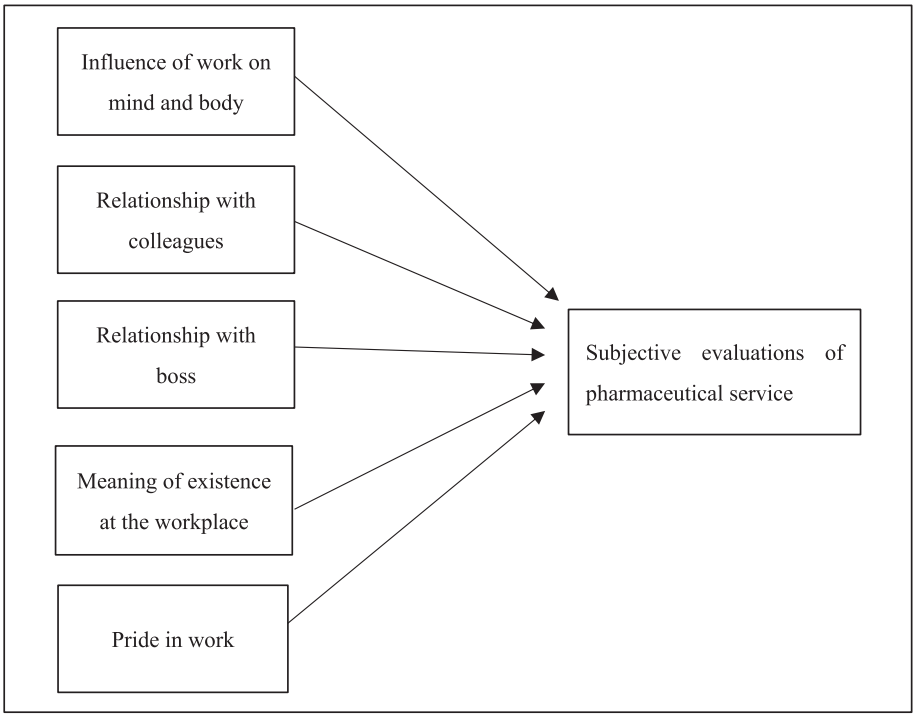

Fig. 1. The analytical model.

Table 1
Sample and descriptive statistics.

Gender	Male	Female			
	721	1241			
Age	20's	30's	40's	50's	60's or more
	486	836	383	182	75
Employment status: Full-time and Part-time	Full-time	Part-time			
	1710	256			
Duration of service in a company (year)	<1	1- <3	3- <5	5- <10	10- <15
	139	358	285	542	338
	15- <20	20 or more			
	176	124			
Location of pharmacy: Near hospital or not	Yes	No			
	1774	188			
Years of experience as a pharmacist	<1	1- <3	3- <5	5- <10	10- <15
	92	240	197	498	370
	15- <20	20 or more			
	247	318			
Working hours per week	<12	12- <24	24- <32	32- <40	40 or more
	36	52	149	384	1341
Manager or not	Yes	No			
	905	1057			
Acting as a family pharmacist	Yes	No			
	891	1071			
Average number of prescriptions filled per day	<40	40–80	80–120	120–160	160–200
	257	698	542	192	131
	200–300	300–500	500 or more		
	99	22	21		
Providing home healthcare services	Yes	No			
	1041	921			
The number of employees during business hours (Average)	The number of pharmacists during business hours (Average)	The number of non-pharmacists during business hours (Average)			
	4.24	3.13			
The number of pharmacies where you have working experiences	Average				
	3.78				

Table 2
Basic information on participating companies.

Company (20 participating companies)	Number of samples (n = 1966)	Number of pharmacies in each company (company size)	Response rate (%)
A	1	100	100
B	9	22	10.0
C	6	2	60
D	102	60	83.1
E	157	145	19.5
F	160	1100	53.3
G	387	800	19.2
H	153	900	51.0
I	263	430	20.2
J	4	150	0.70
K	105	92	52.5
L	131	760	54.3
M	68	100	65.3
N	55	235	27.5
O	98	600	4.73
P	210	400	10.1
Q	43	22	66.2
R	9	4	100
S	1	300	100

Estimate = 0.515).

"Meaning of existence in the workplace" provided the largest standard beta (β) value in this case, 0.307 ($p < .001$), followed by "pride in work" ($\beta = 0.277$; $p < .001$). This means that the "meaning of existence in the workplace" variable uniquely explains the subjective evaluations of pharmaceutical service when the variance explained by all other variables in the model was controlled for. Moreover, it should be noted that from the control variables tested in the model, "acting as a family pharmacist" and "providing home healthcare service" had a significant and weak positive effect on subjective evaluations of pharmaceutical service ($\beta = 0.081$; $p < .001$, $\beta = 0.128$; $p < .001$, respectively). In addition, "gender" and "duration of service in a company" also significantly affected subjective evaluations of pharmaceutical service, but all had extremely low β coefficients ($\beta = -0.066$; $p < .0.05$, $\beta = 0.060$; $p < .005$, respectively). Table 3 and Fig. 2 shows a summary of the results.

5. Discussions

This study aimed to clarify the relationship between QWL dimensions and pharmacists' subjective evaluations of pharmaceutical service. The findings showed a positive and significant association between QWL, including control factors, and subjective evaluations. The determination coefficient (R^2 value) is 0.274, meaning that 27.4% of pharmacists' subjective evaluations of pharmaceutical service can be explained by the independent variables (QWL dimensions and control variables), with the remaining variables affected by other factors and variables. This finding supports those of previous studies, in which the R^2 values ranged between 0.168 and 0.735.[29–31]

The factor, "Meaning of existence at the workplace" from QWLQ for JCP, is one of the motivational dimensions, which measures the degree of pharmacists' satisfaction with QWL through the recognition of their role and autonomy at their workplace. In this study, the factor, "meaning of existence in the workplace," mostly contributes to pharmacists' subjective evaluations of pharmaceutical service ($\beta = 0.307$). The results also supported the statement that community pharmacists' patient consultation performance was positively associated with the cognitive function of their work.[22] If employees have incentives, such as recognition and a sense of achievement, their productivity increases.[15] Our findings confirm previous research and suggest that "meaning of existence in the workplace" might have the strongest positive impact on employees' performance among JPCs. "Pride in work" from QWLQ is

Table 3
Summary of the results from multi regression analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
Variable	B	Std. Error	Beta (β)			
(Constants)	1.667	0.140	–	11.890	<0.001	–
QWL (Quality of Work Life)						
Influence of work on mind and body	−0.018	0.016	−0.025	−1.072	0.284	1.491
Relationships with colleagues	0.026	0.019	0.034	1.383	0.167	1.621
Relationships with boss	−0.004	0.016	−0.006	−0.232	0.816	1.639
Meaning of existence in the workplace	0.238	0.017	0.307**	14.366	<0.001	1.222
Pride in work	0.201	0.016	0.277**	12.765	<0.001	1.261
Control variables						
Gender	−0.082	0.027	−0.066*	−3.111	0.002	1.208
Control Variable	–	–	–	–	–	–
Age	0.006	0.016	0.010	0.376	0.707	2.013
Employment status	−0.098	0.050	−0.055	−1.954	0.051	2.116
Duration of service in a company	0.022	0.010	0.060*	2.298	0.022	1.816
Location of pharmacy	−0.031	0.040	−0.015	−0.787	0.431	1.012
Working hours per week	0.013	0.018	0.020	0.756	0.450	1.784
Manager	−0.027	0.031	−0.022	−0.851	0.395	1.809
Acting as a family pharmacist	0.098	0.029	0.081**	3.421	<0.001	1.500
Number of prescriptions filled	0.018	0.011	0.043	1.606	0.108	1.917
Providing home healthcare service	0.154	0.026	0.128**	5.975	<0.001	1.219
Number of pharmacists	0.007	0.004	0.046	1.762	0.078	1.809
Number of pharmacies experienced	0.005	0.005	0.025	1.108	0.268	1.324

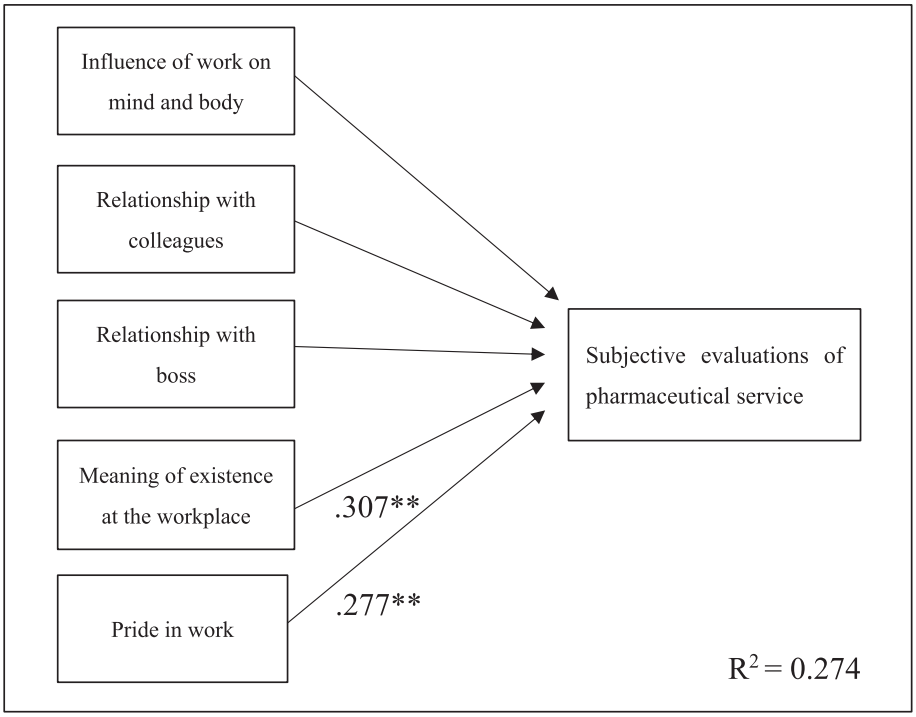

Fig. 2. QWL components influencing the subjective evaluations of pharmaceutical service.

also one of the motivational dimensions and measures the degree of JPCs' satisfaction and pride in being pharmacists and their will to grow in that role. In this study, "pride in work" contributed to subjective evaluations of pharmaceutical service (β = 0.277), which supports the findings, revealing a positive and significant influence of workers being professionally respected in the sense of feeling productive.[32] Further, our results support the argument that employees' sense of pride and commitment, in relation to being valued as professionals, increases their workplace contribution.[33] Furthermore, if employees are positively motivated, they drastically improve both their effectiveness and efficiency to achieve organizational goals.[34] Thus, as mentioned in previous studies, this study revealed that these motivational factors might contribute to improving the quality of community pharmacists' pharmaceutical services.

"Influence of work on mind and body" from QWLQ measures the degree of JCPs' satisfaction with the workload, working conditions, and work-life balance. This factor was not a significant predictor of the subjective evaluations of pharmaceutical service, which did not support previous studies. In terms of workload and work conditions, previous studies have reported that patient-consultation performance is negatively associated with external task demands (interruptions and rushing) in the context of community pharmacies.[22,35] Further, work-life balance is an important factor in QWL and an improved QWL is expected to lead to higher productivity.[36,37] Our findings did not support the results of

previous studies but did not reject them. The bias of this study towards a younger population might affect findings because Japanese pharmacists' age distribution in community pharmacies was 20,334; 47,465; 44,436; 37,234… and 37,513 in their 20s, 30s, 40s, 50s, and 60s or older, respectively.[38] Kossek, E. E., and Ozeki, C. (1998) reported that life stage significantly affects how work and family responsibilities impact job and life satisfaction, with younger workers experiencing different levels of conflict and satisfaction owing to lesser familial obligations.[39] Moreover, younger employees at the beginning stages of their career might prioritize career advancement opportunities over immediate work-life balance.[40] In fact, Kato (2022) reported that QWL related to community pharmacists' workload tends to a decline as the number of years they work at a company increases.[41]Conversely, according to Kato (2024), younger pharmacists' (like 20's) subjective evaluations of their service tend to be rated lower than that of others, which might contribute to lowering the subjective evaluations of pharmaceutical service score.[42] Therefore, in this study, the sample's bias towards younger individuals might have led to an underestimation of how the "influence of work on mind and body" affects "the subjective evaluations of pharmaceutical service."

Factors—"Relationship with colleagues" and "relationship with boss"—explain the degree of pharmacists" satisfaction with communication within the workplace. Our results did not support the argument that a lack of employee relationships forms a framework that discourages success and productivity.[43] These results might also be influenced by the age distribution in this study which is biased towards the younger generation, as explained by Kato's (2022) above observation about the potential decline of QWL related to workplace relationships among community pharmacists with an increase in years they work in a company.[41] Conversely, as mentioned above, they tend to underestimate their subjective evaluations of pharmaceutical service (Kato (2024)). The sample in this study was skewed towards the younger generation, which might have influenced the results.

Control variables, "providing home healthcare service" and "acting as a family pharmacist," also significantly affected pharmacists' subjective evaluations of pharmaceutical service ($\beta = 0.128$ and $\beta = 0.081$, respectively). Pharmacists who act as family pharmacists or provide home healthcare service are responsible for providing comprehensive and continuous pharmaceutical care that's closely aligned with the needs of individual patients and their families more deeply than those of other pharmacists. As a result, they often deliver higher quality services, which aligns with the findings of this study. In addition, "gender" and "duration of service in a company" also significantly influence the subjective evaluations of pharmaceutical service, which makes those evaluations higher for women and those with longer tenure. However, since both had extremely low β coefficients ($\beta = -0.066$, $\beta = 0.060$, respectively), it was considered that these variables had little association with the subjective evaluations of pharmaceutical service in this study.

6. Limitation and future direction

This study has several limitations. First, it used a self-report survey to collect data, leaving the interpretation to the participants. While this study provides valuable quantitative insights into QWL and pharmaceutical service, it is important to acknowledge its limitations in fully capturing pharmacists' subjective experiences. While quantitative methods are useful for assessing broad patterns and providing generalizable data, they might not adequately explore the depth and nuances of individual perceptions and experiences. Therefore, a mixed-methods approach, in which quantitative data is integrated with qualitative insights, needs to be adopted to provide a more comprehensive view.

Second, in sample selection, the study was biased towards community pharmacists from large companies and younger pharmacists, and the effect of company size on subjective evaluations of pharmaceutical services could not be examined. Regarding the number of pharmacies that a company has in Japan, 14.8% of companies have 1 pharmacy, 28% have 2–5 pharmacies, 17.6% have 6–19 pharmacies, and 38.4% have 20 or more pharmacies.[44] QWL of pharmacists employed by large companies and those who work for small and medium-sized enterprises (SMEs) might vary. For example, according to Kotey et.al (2011), differences in learning strategies among the pharmacies appeared to be associated with the size and number of pharmacies owned by pharmacists.[45] The scope of this study—centering primarily on pharmacists employed by large companies that own 20 or more pharmacies—may not fully capture the experiences of pharmacists in other settings.

Third, this study did not consider objective performance evaluations, such as sales and patient satisfaction, to measure community pharmacists' performance. There is still room to further investigate the association between QWL and community pharmacists' performance.

Lastly, future research should also explore mediators, such as job satisfaction or professional commitment, to understand how they help explain the processes through which QWL impacts pharmacists' evaluations of pharmaceutical service. This investigation could reveal deeper mechanisms at play, enhancing our understanding of what drives pharmacists' perceptions and satisfaction with their work environment.

7. Conclusions

This is a pioneering study on the relationship between QWL and pharmaceutical among community pharmacists in Japan. The findings showed that factors, such as "meaning of existence in the workplace" and "pride in work" in pharmacists' QWL dimensions, showed a significant relationship with their subjective evaluations of their service. This research also showed that some demographic factors of community pharmacists might influence their performance. Managers and authorities in community pharmacies should try to enhance QWL by considering the impacts of its dimensions on pharmacists' satisfaction and the quality of pharmaceutical service.

Role of the funding source

None.

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Life Science Research Ethics and Safety Office at the University of Tokyo, Japan. The front page of each questionnaire included a written explanation of the study objective, the risks and benefits to the participants, and their ensured confidentiality. Informed consent was obtained from the participants after they returned the completed questionnaire.

Consent for publication

I give my consent for the publication of Exploratory Research in Clinical and Social Pharmacy.

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Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

YK collected the initial ideas, designed the study, and compiled the data assessment instruments. He conducted the statistical analyses and drafted the first version of this manuscript. TS conducted the statistical analyses and critically reviewed and revised the manuscript. RI and YH designed the study and assessed the data. HS and HK reviewed and revised the manuscript. All authors have approved the final manuscript for submission.

CRediT authorship contribution statement

Yuta Kato: Conceptualization, Methodology, Formal analysis, Data curation, Writing – original draft, Project administration. **Takashi Sekiya:** Validation, Writing – review & editing, Supervision. **Ryo Ishii:** Investigation, Writing – review & editing. **Yoji Hirako:** Investigation, Writing – review & editing. **Hiroki Satoh:** Writing – review & editing, Supervision. **Hiromichi Kimura:** Writing – review & editing, Supervision.

Declaration of competing interest

The authors declare no conflicts of interest directly relevant to the content of this article.

Acknowledgments

The authors thank all pharmacists for their participation. This study would not have been possible without assistance. This study was supported by the Nippon Pharmacy Association of Japan.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.rcsop.2024.100458.

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