

The Relationship between Optometrist Communication Competence and Eyeglass Prescription Accuracy in Subjective Refraction Examination

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Abstract

Introduction: Subjective refraction requires technical skills and effective communication to ensure accurate eyeglass prescriptions. Communication competence is essential for optometrist performance. **Objective:** This study examined the relationship between optometrists' communication competence and eyeglass prescription accuracy during subjective refraction. **Method:** This cross-sectional observational study involved 50 adult patients at Optik Melawai Mall Kelapa Gading 2 in June 2026, selected through accidental sampling. Communication competence was assessed using a 15-item Guttman questionnaire, while prescription accuracy was evaluated using a 9-item observation checklist. **Results and Discussion:** Mean communication competence was 12.06 (SD = 3.96), while mean prescription accuracy was 6.16 (SD = 2.35). Pearson correlation showed a strong, significant positive relationship between communication competence and prescription accuracy ($r = 0.740$; $p < 0.001$). **Conclusion:** Better communication competence was associated with greater prescription accuracy, highlighting its importance in optometrist human resource development and improving subjective refraction service quality.

Introduction

Refraction examination is an important component of optometric services because it aims to determine appropriate vision correction through eyeglass or contact lens prescriptions. The accuracy of examination results is an important aspect because it relates to the patient's ability to obtain optimal and comfortable vision in carrying out daily activities. Inaccurate correction can cause visual complaints and reduce patient comfort in daily activities (Mahruri, Budiana, & Nugraha, 2024). Refraction examination consists of objective and subjective examinations. Objective examination provides an initial estimate of refractive condition, while subjective examination involves the patient's direct response to lens changes given by the examiner. At the subjective stage, patients must be able to understand instructions and provide responses based on their perceived visual perception. Therefore, the quality of communication between the optometrist and the patient is an important part of the examination process (Budiana, 2022; Nugroho et al., 2022).

Subjective refraction has characteristics that differ from examination procedures that rely entirely on instruments. The final correction decision is obtained through interaction between the optometrist and the patient. The optometrist gives instructions, asks questions, listens to responses, performs clarification, and determines the correction based on the information provided by the patient. If the patient has difficulty understanding instructions or distinguishing changes in vision, the responses given may become less consistent and potentially affect the examination results (Rizki Abdillah, Nugraha, & Budiana, 2023).

Effective communication in health services is not only related to the ability to convey information, but also includes the ability to listen, give patients the opportunity to ask questions, provide clear instructions, show a responsive and empathetic attitude, and ensure that patients understand the information provided. In optometric services, this competence supports the formation of two-way interaction so that patients can convey their visual perceptions more clearly during the examination. From a Human Resource Management (HRM) perspective, communication ability can be viewed as part of the behavioral competence that supports job performance. HR competence includes not only mastery of technical knowledge and skills, but also interpersonal abilities that enable professionals to carry out their duties effectively. In the context of optometry, technical refraction competence needs to go hand in hand with communication competence because the service process involves direct interaction with patients.

The position of communication competence becomes increasingly important when service quality is assessed not only from technical results, but also from the service process experienced by patients. Good communication can help build trust, increase comfort, and encourage patient engagement in the examination process. Ansyori (2022) explained that effective communication in health services is related to the quality of the relationship between health workers and patients. Findings by Haskas and Fauzia (2023) also demonstrated a relationship between therapeutic communication and patient satisfaction. In subjective refraction examination, communication functions as a mechanism that connects the optometrist's clinical competence with the patient's response. Clear instructions can reduce ambiguity, while active listening ability enables the optometrist to obtain more complete information. This interaction can help optometrists make correction decisions based on patient responses more accurately.

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Previous research also indicates the importance of interaction in refraction services. Rachmatulloh et al. (2024) reported that the implementation of refraction services is related to compliance with standard operating procedures and interaction between optometrists and patients. Rizki Abdillah et al. (2023) showed that the use of simple language and clear instructions helps patients provide better responses during refraction examination (Rizki Abdillah et al., 2023). Nevertheless, research that quantitatively examines the relationship between optometrist communication and eyeglass prescription accuracy remains limited, particularly in the context of optical services in Indonesia. Previous studies have focused more on the technical aspects of examination, instrument use, procedural standards, and the characteristics of refraction results. This condition indicates room for research to examine the human resource aspect, particularly communication competence, in relation to the quality of the refraction service process.

Preliminary observations at Optik Melawai Mall Kelapa Gading 2 showed variation in the communication process between optometrists and patients. Some patients still required repeated instructions or explanations regarding lens options, causing the examination process to take longer. This condition indicates that communication needs to be considered as part of human resource quality in optometric services. This research was then directed at analyzing the relationship between optometrist communication competence and eyeglass prescription accuracy in subjective refraction examination. This research is expected to provide empirical evidence that optometrist HR development should not only be directed at improving technical skills, but also at developing communication competence as part of service quality.

Based on the description above, the objective of this study was to analyze the relationship between optometrist communication competence and eyeglass prescription accuracy in subjective refraction examination among adult patients at Optik Melawai Mall Kelapa Gading 2.

Method

This study employed a quantitative approach with an analytical observational design and a cross-sectional approach to analyze the relationship between optometrists' communication competence and the accuracy of spectacle prescriptions in subjective refraction examinations. The study was conducted at Optik Melawai Mall Kelapa Gading 2 in June 2026. The study population consisted of adult patients undergoing subjective refraction examinations, with a sample of 50 respondents selected using accidental sampling. The inclusion criteria were respondents aged ≥ 18 years, who had completed the subjective refraction examination, were able to communicate effectively, and were willing to participate in the study. Optometrists' communication competence as the independent variable was measured using a 15-item closed-ended questionnaire with a Guttman scale, while spectacle prescription accuracy as the dependent variable was assessed using a 9-item observation sheet with a Guttman scale, covering correction suitability, visual comfort, achievement of optimal visual acuity, and absence of complaints after correction. Instrument content validity was assessed through expert judgment by two validators, while reliability was evaluated using Cronbach's Alpha with a criterion of ≥ 0.70 . Data were collected after obtaining research permission and respondents' informed consent. Univariate analysis was used to describe the study variables through minimum, maximum, mean, median, and standard deviation values. Bivariate analysis used Pearson's correlation with a significance level of $\alpha=0.05$ to determine the direction, strength, and significance of the relationship between

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optometrists' communication competence and spectacle prescription accuracy. The study adhered to the principles of informed consent, anonymity, and confidentiality.

Result and Discussion

1. Result

Characteristics of Research Variable Scores, a total of 50 respondents participated in the study, and all data could be analyzed. No data were excluded from the analysis.

Table 1
Descriptive Statistics of Research Variables

Variable	Minimum	Maximum	Mean	Median	SD
Optometrist communication competence	1.00	15.00	12.06	14.00	3.96
Eyeglass prescription accuracy	0.00	8.00	6.16	7.00	2.35

Source: Primary study data, 2026.

The optometrist communication competence score had a mean value of 12.06 out of a score range of 0 to 15. A median of 14 indicates that most respondents' scores were at a relatively high value. Meanwhile, the eyeglass prescription accuracy score had a mean of 6.16 with a median of 7, out of a score range of 0 to 9.

Relationship between Optometrist Communication Competence and Eyeglass Prescription Accuracy, the results of the analysis using Pearson correlation showed a correlation coefficient of 0.740 with a p-value <0.001.

Table 2
Correlation between Optometrist Communication Competence and Eyeglass Prescription Accuracy

Variable	r	p-value	Direction	Strength
Optometrist communication competence and eyeglass prescription accuracy	0.740	<0.001	Positive	Strong

These results indicate a strong and significant positive relationship between optometrist communication competence and eyeglass prescription accuracy. Thus, the research hypothesis was accepted.

2. Discussion

The results of this study show a strong and significant positive relationship between optometrist communication competence and eyeglass prescription accuracy in subjective refraction examination ($r = 0.740$; $p < 0.001$). This finding indicates that respondents who experienced a more effective communication process with the optometrist tended to obtain higher prescription accuracy results. The magnitude of the correlation coefficient indicates that communication is an aspect that needs attention in the management of optometrist competence. This finding can be understood from the characteristics of subjective refraction examination, which is highly dependent on patient response. In this examination, the optometrist not only performs technical procedures but must also obtain information from the patient regarding their visual perception of lens changes. This process takes place through two-way communication. The optometrist provides instructions and questions, while the patient provides responses based on what they see and feel.

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The quality of communication is important because patient response is one of the main sources of information in determining subjective correction. Unclear instructions can lead to different interpretations, while the use of overly technical language can make it difficult for patients. Conversely, simple, systematic, and consistent instructions can help patients understand what to do and how to respond. The results of this study are consistent with Rizki Abdillah et al. (2023), which showed that communication during refraction examination plays a role in helping patients provide more accurate responses. The use of simple language and clear instructions can help patients follow the examination process. These findings support the results of this study, indicating that communication is not merely an accompanying activity in examination, but is part of the process that enables the patient's subjective information to be obtained more optimally.

Rachmatulloh et al. (2024) also placed interaction between optometrists and patients as an important part of the implementation of refraction services. Services that follow procedures but are not supported by good interaction still have the potential to encounter problems in patient responses. Therefore, refraction service standards need to consider both technical and interpersonal competence simultaneously. Viewed from a Human Resource Management perspective, the findings of this study have broader implications. Communication competence can be positioned as part of optometrist HR competence. This competence is not only relevant to interpersonal relationships but also supports the implementation of work that requires direct interaction with service users.

The research results, with a correlation value of 0.740, indicate that this aspect has a fairly strong relationship with the prescription accuracy indicators used in this study. This finding can serve as a basis for optical facilities to incorporate communication competence into employee development programs, particularly for optometrists who interact directly with patients. Competence development programs can be carried out through clinical communication training, patient interaction simulation, role play, observation of service practice, feedback provision, and periodic evaluation. This approach can be directed toward the seven communication aspects used in this study, namely clarity of information, opportunity to ask questions, listening ability, clarity of instructions, responsiveness and attitude, explanation of examination results and prescriptions, and communication comfort.

In the context of service management, the research results can also be used as input for the development of HR performance indicators. Communication competence can be translated into observable behavioral indicators, such as the ability to provide clear instructions, ensure patient understanding, provide opportunities to ask questions, and clarify patient responses. Thus, communication does not remain an abstract concept but can be developed into a competence that can be trained and evaluated. Another implication relates to quality assurance. The quality of optical services is determined not only by examination equipment and technical procedures but also by the quality of the human resources who carry out the service process. This finding supports the need for quality evaluation that incorporates optometrist communication competence as part of the service process.

Nevertheless, the results of this study cannot be interpreted as evidence of a causal relationship. The cross-sectional design only shows the relationship between variables at the time of measurement. Therefore, the terms “affects” or “causes” are not used to explain the results of this study. The value of $r = 0.740$ indicates a strong relationship but does not prove that communication is the sole factor determining prescription accuracy. There are a number of other factors that may potentially be related to refraction

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examination accuracy, such as patient characteristics and level of cooperation, the optometrist's clinical experience, room conditions, patient visual condition, and technical examination factors. These factors were not analyzed in this study. This limitation needs to be considered when interpreting the results.

Another limitation relates to the use of accidental sampling and a study location limited to a single optical facility. With a sample of 50 respondents, the research results provide an empirical picture within the context of the study location, but generalization to all optical facilities should be made with caution. In addition, the prescription accuracy instrument used an observation sheet with several clinical indicators. Future research needs to clarify reference criteria or a gold standard for determining prescription accuracy so that outcome measurement becomes clinically more robust. The use of a larger sample and a multicenter design could also provide stronger evidence regarding the relationship between communication competence and the quality of refraction examination outcomes.

Overall, this study reinforces the view that the quality of optometrist human resources cannot be assessed solely on the basis of technical competence. Communication competence is part of the professional ability relevant to the service process. Developing this competence can be one of the HR management strategies for improving the quality of optometric services.

Study Limitations

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design only identifies associations between optometrist communication competence and eyeglass prescription accuracy, without establishing a causal relationship. Second, the relatively small sample size of 50 respondents and the use of accidental sampling at a single optical facility limit the generalizability of the findings to broader optometric settings. Third, communication competence was measured using a self-reported Guttman-scale questionnaire, which may introduce response bias and may not fully reflect actual communication practices. Fourth, prescription accuracy was assessed using an observation checklist rather than an established clinical gold standard, potentially affecting measurement validity. Additionally, several potential confounding factors, including optometrists' clinical experience, patients' visual conditions, cooperation levels, and examination environments, were not controlled. These factors may independently influence prescription accuracy. Future studies should involve larger samples, multiple optical facilities, validated assessment instruments, and longitudinal or experimental designs to provide stronger evidence regarding the relationship between communication competence and prescription accuracy in subjective refraction examinations and support more effective optometrist competency development programs

Conclusion

This study shows that optometrist communication competence has a strong and significant positive relationship with eyeglass prescription accuracy in subjective refraction examination. A Pearson correlation coefficient of 0.740 with $p < 0.001$ indicates that the better the optometrist's communication competence, the higher the eyeglass prescription accuracy score obtained in this study. This finding indicates that communication is one of the important competencies in the implementation of subjective refraction services. From a Human Resource Management perspective, communication competence can be positioned as part of the optometrist's behavioral competence that

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needs to be developed through training, coaching, competence evaluation, and service quality improvement programs. However, the research results cannot be used to conclude a causal relationship because the study used a cross-sectional design. Further research with a larger sample, multicenter locations, and control of confounding factors is needed to obtain stronger evidence.

Declaration of AI Assistance

AI tools, including ChatGPT, Gemini, or Claude AI, were used during the preparation of this manuscript for grammar checking, paraphrasing, and translation. The authors reviewed and verified the final content and take full responsibility for its accuracy and scientific integrity

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