2025 Doctoral Dissertation (Abstract)

Factors Associated with Medication Compliance in Middle-Aged and Older Adults with Chronic Diseases: A Mixed-Methods Study Based on Social Cognitive Theory

Yasuko OSHIKIRI

Introduction

In middle and older adulthood, the risk of chronic diseases such as cancer, cardiovascular disease, diabetes, and chronic obstructive pulmonary disease increases. Pharmacotherapy remains the cornerstone of treatment, requiring monitoring of efficacy, adverse effects, and polypharmacy. Yet treatment success ultimately depends on patients' compliance with prescribed regimens, and many prescribed medications remain unused. Understanding determinants of compliance is therefore critical for improving health outcomes.[1)]

Previous quantitative studies on compliance present three main limitations. First, theories such as Social Cognitive Theory and the Theory of Planned Behavior[2-4)] have often been applied in a limited manner, with limited comprehensive testing of interactions among constructs. Second, although patients' active participation in healthcare has gained attention, few studies have modeled and empirically tested this factor within compliance frameworks. Third, little is known about whether such models vary by age group.

Qualitative research also faces gaps. Few studies have depicted the process by which patients achieve compliance—including stages such as cognition, motivation, enactment, and maintenance—or identified critical turning points.[5–7)] Moreover, participants' behaviors have rarely been validated as compliant, raising uncertainty about whether identified concepts contribute to compliance. To address these gaps, this study adopted a dual approach: Study 1 used quantitative methods to test a model grounded in Social Cognitive Theory, while Study 2 used qualitative methods to clarify the process of achieving compliance among middle-aged and older patients with chronic diseases.

Study 1: Quantitative Analysis of Factors Related to Compliance Based on Social Cognitive Theory

Study 1 investigated psychosocial determinants of medication compliance among patients with chronic diseases, applying Social Cognitive Theory. This study had three main contributions. First, it proposed a model in which the social environment—measured as communication with healthcare providers and family support— influences compliance indirectly via efficacy and outcome expectations rather than through direct pathways. Second, it introduced *active participation in healthcare* as a new factor,

hypothesizing that it affects compliance both directly and indirectly via efficacy and outcome expectations. Third, it tested model validity across middle-aged (40–64 years) and older (65 years and above) groups using multi-group analysis.

A questionnaire survey was conducted at 17 community pharmacies in Tokyo in early 2021, targeting patients aged 40 years or older. Of 394 distributed questionnaires, 253 were returned (64.2%), with 248 valid responses analyzed. The mean age was 69.6 years, 40.1% were men, and the average number of medications was 4.8.

Structural equation modeling showed that provider communication and active participation had significant indirect effects on compliance via efficacy expectations. Outcome expectations and family support showed no significant effects. Sensitivity analysis revealed that active participation improved compliance among older adults but was negatively associated with compliance among middle-aged adults.

These findings underscore the importance of efficacy expectations in shaping compliance and highlight the need for age-specific approaches to patient participation.

Study 2: Qualitative Analysis of the Process of Achieving Compliance

Study 2 explored how middle-aged and older patients with chronic diseases achieve medication compliance, using the Modified Grounded Theory Approach (M-GTA)[8]. The study focused on continuity with Social Cognitive Theory, examining how efficacy expectations, outcome expectations, and social support emerged from patient narratives, while also integrating new concepts. A life-course perspective was applied to capture how transitions in education, occupation, family, and health shaped compliance behaviors[9]. Only patients with high levels of compliance were recruited to ensure that identified concepts contributed directly to the acquisition process.

Semi-structured interviews were conducted with 14 participants (8 older, 6 middle-aged). Older adults initially expressed resistance to relying on medication, but acceptance was triggered by recognition of disease severity and the limits of lifestyle modification. Trust in physicians' treatment plans played a central role, and compliance was sustained through *experience of effectiveness* and practical strategies. Middle-aged adults also began with resistance but emphasized active involvement in treatment decisions. They gathered information, negotiated with healthcare providers, and maintained compliance through perceived benefits and habit formation. Some also showed passive reliance on physicians' judgment.

Overall, both groups followed a trajectory from resistance to acceptance and maintenance, but initiation triggers differed: older adults relied on physician trust, while

middle-aged adults relied on decision-making. These findings highlight distinct age-specific pathways shaped by efficacy expectations and outcome expectations.

General Discussion

This study demonstrated that medication compliance among middle-aged and older adults is shaped by efficacy expectations, outcome expectations, and the social environment. Communication with healthcare providers indirectly enhanced compliance through efficacy expectations, highlighting the importance of supportive and trust-based interactions. Active participation showed mixed effects: it improved compliance among older adults, reflecting agreement and trust in physicians' treatment plans, but reduced compliance among middle-aged adults, where participation was linked to autonomous decision-making and sometimes refusal of prescribed regimens.

Outcome expectations showed limited influence, consistent with the idea that perceived ability to act drives motivation more strongly. Family support did not show significant effects, possibly due to its ambivalent impact. These findings emphasize the need for age-sensitive strategies: enhancing efficacy expectations through provider communication, encouraging realistic outcome expectations, and tailoring support to different meanings of participation across age groups.

Conclusion

This study clarified factors influencing medication compliance among middle-aged and older adults through both quantitative and qualitative approaches. Communication with healthcare providers promoted compliance indirectly via efficacy expectations, while outcome expectations and family support showed limited influence. Active participation in healthcare improved compliance among older adults but reduced it among middle-aged adults, reflecting different meanings of participation by age. These results suggest that enhancing efficacy expectations through supportive provider communication and a realistic understanding of treatment is essential. Age-sensitive strategies are needed to integrate patient participation into practice while supporting sustainable medication use.

References

1) Bandura A: Social foundations of thought and action: A social cognitive theory. Prentice Hall, (1986).
2) Holmes EA, Hughes DA, Morrison VL: Predicting adherence to medications using health psychology theories: A systematic review of 20 years of empirical research. Value in Health, 17(8): 863–876 (2014).
3) Ajzen I: The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50: 179–211 (1991).
4) Jannuzzi FF, Rodrigues RCM, Cornélio ME, São-João TM, Gallani MCBJ: Beliefs related to adherence to oral antidiabetic treatment according to the Theory of Planned Behavior. Revista Latino-Americana de Enfermagem, 22(4): 529–537 (2014).
5) Munro SA, Lewin SA, Smith HJ, Engel ME, Fretheim A, Volmink J: Patient adherence to tuberculosis treatment: a systematic review of qualitative research. PLoS Medicine, 4(7): e238 (2007).
6) Rashid MA, Edwards D, Walter FM, Mant J: Medication taking in coronary artery disease: a systematic review and qualitative synthesis. Annals of Family Medicine, 12(3): 224–232 (2014).
7) McDonald S, Ferguson E, Hagger MS, Foss AJE, King AJ: A theory-driven qualitative study exploring issues relating to adherence to topical glaucoma medications. Patient Preference and Adherence, 13: 819–828 (2019).
8) Kinoshita Y: Live Lecture on M-GTA: Practical Qualitative Research Method. Kaneko Shobo, (2007).
9) Okubo K: Basic concepts of life course analysis. Japanese Journal of Educational Sociology, 46: 53–70 (1990).