Brief Report

DOI: 10.5582/ddt.2026.01065

Patients' perceptions of hypnotic medications and factors associated with the desire to discontinue among regular users: A cross-sectional questionnaire survey in community pharmacies

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SUMMARY: Long-term use of hypnotic medications is associated with adverse events, and clinical guidelines recommend periodic reassessment and deprescribing when appropriate. However, little is known about patients who perceive hypnotic medications as necessary while wishing to discontinue treatment. This study investigated the association between perceived necessity and the desire to discontinue treatment and factors associated with discontinuation desire among patients who perceived hypnotics as necessary. A cross-sectional anonymous questionnaire survey was conducted among patients receiving regular hypnotic therapy at community pharmacies in June 2026. The questionnaire assessed perceived necessity, desire to discontinue, concerns about adverse effects, sleep quality, and treatment satisfaction. The association between perceived necessity and discontinuation desire was evaluated using the chi-square test. Factors associated with discontinuation desire among patients who perceived hypnotics as necessary were examined using multivariable logistic regression. Among 193 patients, 163 (84.5%) perceived hypnotic medications as necessary every day; of these, 56 (34.4%) wished to discontinue treatment. In contrast, 19 of 30 patients (63.3%) who did not perceive hypnotic medications as necessary every day expressed a desire to discontinue treatment ($p = 0.003$). Among patients perceiving hypnotics as necessary, concerns about adverse effects were associated with discontinuation desire (odds ratio, 4.01; 95% confidence interval, 1.92–8.38; $p < 0.001$). These exploratory findings demonstrate that perceived necessity and discontinuation desire can coexist and warrant prospective investigation of patients' perceptions and subsequent deprescribing behavior.

Keywords: Insomnia, hypnotic medications, patient perceptions, community pharmacy, adverse effects

1. Introduction

Insomnia is one of the most common sleep disorders among older adults and is an important health concern associated with reduced quality of life (QOL), impaired daytime functioning, depressive symptoms, cognitive impairment, and an increased risk of falls (*1-3*). Pharmacological treatment for insomnia includes benzodiazepines (BZs), non-benzodiazepines (Non-BZs), melatonin receptor agonists, and dual orexin receptor antagonists (DORAs), all of which have demonstrated efficacy in improving sleep symptoms (*4*).

However, long-term use of hypnotic medications has been associated with various adverse outcomes, including falls, cognitive impairment, delirium, and drug dependence, particularly among older adults because of age-related changes in pharmacokinetics and pharmacodynamics (*5-7*). Therefore, both Japanese and international clinical guidelines recommend avoiding unnecessary long-term use of hypnotics and periodically reassessing their efficacy and safety to determine whether dose reduction or discontinuation should be considered (*8-10*).

We previously reported, using the National Database of Health Insurance Claims and Specific Health Checkups of Japan (NDB) Open Data, that the use of DORAs has increased rapidly in recent years, whereas BZs and Non-BZs continue to be widely prescribed in Japan (*11*). These prescribing trends suggest that promoting the appropriate use of hypnotic medications requires not only appropriate drug selection but also a better understanding of how patients perceive their

medications.

Horne and colleagues proposed the Necessity–Concerns Framework, which suggests that patients' medication-taking behavior is influenced by the balance between their perceived necessity of treatment and their concerns about medication (*12*). A subsequent meta-analysis further demonstrated that this framework provides a useful theoretical model for understanding medication adherence across chronic diseases (*13*). More recently, a study of patients receiving hypnotic medications reported that many patients who considered hypnotics necessary nevertheless wished to reduce or discontinue treatment because of concerns regarding adverse effects and drug dependence (*14*). However, little is known about the characteristics of patients who perceive hypnotic medications as necessary while simultaneously wishing to discontinue treatment, or about the factors associated with this desire.

Therefore, the present study investigated the association between perceived necessity of hypnotic medications and the desire to discontinue treatment and factors associated with this desire among patients who perceived hypnotics as necessary.

2. Materials and Methods

2.1. Study design and participants

This cross-sectional questionnaire survey was conducted at 12 community pharmacies belonging to the Cosmo Pharma Group across eight prefectures in Japan (Hokkaido, Yamagata, Fukushima, Tochigi, Gunma, Saitama, Chiba, and Nagano). Patients who visited one of the participating community pharmacies between June 1 and June 30, 2026, and who were receiving regular treatment with hypnotic medications were eligible for inclusion. Regular hypnotic therapy was defined as having received a hypnotic prescription at two or more pharmacy visits, with at least a 14-day supply prescribed at each visit. Patients receiving hypnotic medications only on an as-needed basis were excluded. During the study period, pharmacists consecutively approached patients who met the eligibility criteria and invited them to participate in the survey. Before participation, pharmacists explained the purpose and procedures of the study, and those who agreed to participate completed an anonymous self-administered questionnaire. The total number of eligible patients approached and the number who declined participation were not recorded; therefore, an overall response rate could not be calculated.

The questionnaire was designed to be brief and easily completed during routine community pharmacy visits to minimize respondent burden. The survey assessed patients' perceptions of the necessity of hypnotic medications, desire to discontinue treatment, concerns about adverse effects, sleep quality, and satisfaction with hypnotic therapy. The exact wording of the questionnaire items and response options was as follows: (1) "Do you feel that you need sleeping medication every day?" (Yes/No); (2) "Do you want to stop taking sleeping medication?" (Yes/No); (3) "Are you concerned about the adverse effects of sleeping medication?" (Yes/No); (4) "How would you rate your overall sleep quality?" (4 = no problem [satisfied], 3 = slight problem, 2 = considerable problem, and 1 = very serious problem [dissatisfied]); and (5) "Are you satisfied with your current sleeping medication?" (4 = no problem [satisfied], 3 = slight problem, 2 = considerable problem, and 1 = very serious problem [dissatisfied]).

The question regarding the desire to discontinue treatment assessed a general desire to stop taking hypnotic medication and did not distinguish among immediate discontinuation, future discontinuation, dose reduction, or willingness to attempt deprescribing under medical supervision. The questionnaire referred to hypnotic medication use in general rather than to a specific medication. For patients receiving more than one hypnotic medication, the questionnaire did not identify whether responses referred to all hypnotics or to a specific medication.

Demographic information, including age and sex, and information on currently prescribed hypnotic medications were also collected. Hypnotic medications were classified into three pharmacological categories: novel hypnotics (dual orexin receptor antagonists and melatonin receptor agonists), non-benzodiazepines (Non-BZs), and benzodiazepines (BZs). Patients receiving more than one hypnotic medication were counted in each applicable pharmacological category.

This study was approved by the Ethics and Clinical Research Review Committee of Sainokuni Higashi-Omiya Medical Center (Approval No. 78). Written information describing the study was provided to all participants, and informed consent was obtained prior to participation.

2.2. Statistical analysis

Patient characteristics and questionnaire responses were summarized using descriptive statistics. First, among all patients included in the analysis, the association between perceived necessity of hypnotic medications and the desire to discontinue treatment was evaluated using Pearson's chi-square test. Subsequently, analyses were restricted to patients who answered that hypnotic medications were necessary every day. Among these patients, characteristics associated with the desire to discontinue treatment were examined by comparing the desire-to-discontinue and no-desire-to-discontinue groups, followed by multivariable logistic regression analysis. Categorical variables were analyzed using Pearson's chi-square test without continuity correction, age was compared using Student's *t*-test, and sleep quality and satisfaction with hypnotic therapy were

compared using the Mann–Whitney *U* test.

The primary multivariable logistic regression model included age, sex, concerns about adverse effects, sleep quality, and satisfaction with hypnotic therapy as explanatory variables. Sleep quality and satisfaction with hypnotic therapy were entered as ordinal scores ranging from 1 to 4, with the odds ratio (OR) representing the change in odds associated with a 1-point increase. Results are presented as ORs with 95% confidence intervals (CIs). Because some patients received more than one class of hypnotic medication, the distribution of single-class and combination therapy was examined. A sensitivity analysis was performed by adding the use of novel hypnotics, Non-BZs, and BZs as separate binary variables to the primary model. This approach allowed each patient to remain a single independent observation while accounting for the use of multiple hypnotic classes. Because treating the 4-point sleep quality and treatment satisfaction scales as linear terms assumes a constant change in the log odds across score levels, an additional sensitivity analysis was performed in which sleep quality and treatment satisfaction were each categorized as scores 1–2, 3, or 4. Scores 1 and 2 were combined because of the small number of patients in these categories.

All statistical analyses were performed using Python version 3.13.5 with SciPy version 1.17.0 and statsmodels version 0.14.6. All tests were two-sided, and a p value < 0.05 was considered statistically significant.

3. Results and Discussion

A total of 205 patients participated in the survey. Twelve questionnaires were excluded because at least one of the five questionnaire items was missing, leaving 193 patients for the final analysis. Of these participants, 81 (42.0%) were male and 112 (58.0%) were female, with a mean age of 69.9 ± 17.1 years. Regarding hypnotic medication use, 67 patients received novel hypnotics, 83 received non-benzodiazepines (Non-BZs), and 61 received benzodiazepines (BZs). Overall, 175 patients (90.7%) received a single hypnotic class and 18 (9.3%) received two classes; none received all three. Single-class therapy comprised novel hypnotics (n = 54), Non-BZs (n = 68), and BZs (n = 53), while combination therapy comprised novel hypnotics plus Non-BZs (n = 10), novel hypnotics plus BZs (n = 3), and Non-BZs plus BZs (n = 5). Overall, 163 patients (84.5%) reported that hypnotic medications were necessary every day, 75 (38.9%) expressed a desire to discontinue treatment, and 61 (31.6%) reported concerns about adverse effects (Table 1).

The association between perceived necessity of hypnotic medications and the desire to discontinue treatment is shown in Table 2. Among the 163 patients who reported that hypnotic medications were necessary every day, 56 (34.4%) wished to discontinue treatment. In contrast, among the 30 patients who did not perceive hypnotic medications as necessary every day, 19 (63.3%) wished to discontinue treatment. There was a significant association between perceived necessity of hypnotic medications and the desire to discontinue treatment (p = 0.003).

We next compared patient characteristics and questionnaire responses between patients who wished to discontinue treatment (desire-to-discontinue group, n = 56) and those who did not (no-desire-to-discontinue group, n = 107) among the 163 patients who perceived hypnotic medications as necessary every day (Table 3). The proportion of patients expressing concerns about adverse effects was significantly higher in the desire-to-discontinue group than in the no-desire-to-discontinue group. In addition, the use of Non-BZs was significantly more frequent, whereas the use of BZs was significantly less frequent, in the desire-to-discontinue group. No significant differences were observed between the two groups with respect to age, sex, use of novel hypnotics, or sleep quality. Satisfaction with hypnotic therapy was

Table 2. Association between perceived necessity of hypnotic medications and the desire to discontinue treatment

	Desire to discontinue		p value
	Yes	No	
Perceived hypnotics as necessary every day			0.003
Yes	56	107	
No	19	11	

P values were calculated using the chi-square test.

Table 1. Patient characteristics and perceptions of hypnotic medications

Sex	Male:81, Female:112
Age (years)	69.9 ± 17.1
Hypnotic medication class (patients receiving multiple medications were counted in each applicable class)	
Novel hypnotics	67
Non-benzodiazepines (Non-BZs)	83
Benzodiazepines (BZs)	61
Perceived hypnotics as necessary every day	163
Desired to discontinue hypnotic medications	75
Concerned about adverse effects of hypnotic medications	61
Sleep quality	3.39 ± 0.72
Satisfaction with hypnotic therapy	3.56 ± 0.64

slightly lower in the desire-to-discontinue group (p = 0.0499).

In the primary multivariable logistic regression analysis, concerns about adverse effects remained associated with the desire to discontinue treatment after adjustment for age, sex, sleep quality, and satisfaction with hypnotic therapy (OR, 4.01; 95% CI, 1.92–8.38; $p < 0.001$) (Table 4). In a sensitivity analysis additionally adjusting for the use of novel hypnotics, Non-BZs, and BZs as separate binary variables, the association between concerns about adverse effects and the desire to discontinue treatment remained statistically significant (OR, 5.06; 95% CI, 2.24–11.46; $p < 0.001$). These findings indicate that the observed association was robust to additional adjustment for hypnotic medication class. In an additional sensitivity analysis, sleep quality and satisfaction with hypnotic therapy were categorized as scores 1–2, 3, or 4 rather than entered as linear terms. Concerns about adverse effects remained associated with the desire to discontinue treatment (OR, 4.09; 95% CI, 1.95–8.60; $p < 0.001$), whereas no statistically significant associations were observed across the categories of sleep quality or satisfaction with hypnotic therapy.

The present study showed that approximately one-third of patients who perceived hypnotic medications as necessary every day nevertheless expressed a desire to discontinue treatment. Concerns about adverse effects remained associated with this desire after adjustment for the variables included in the model, suggesting that perceived necessity and discontinuation desire may coexist.

Importantly, concerns about adverse effects were not reported by all patients who wished to discontinue treatment. Among the 56 patients who perceived hypnotic medications as necessary every day and expressed a desire to discontinue treatment, 29 reported concerns about adverse effects, whereas 27 did not. Therefore, concerns about adverse effects should not be interpreted as the sole or predominant reason for the desire to discontinue treatment. Other factors not assessed in the present survey may also contribute to patients' desire to stop taking hypnotic medications.

According to the Necessity–Concerns Framework, medication-taking behavior is influenced by the balance between perceived necessity and concerns about potential adverse consequences (*12,13*). Although the present study did not evaluate this framework using a validated instrument, our findings are consistent with the concept that necessity and concerns can coexist within the same individual.

Our findings are also consistent with those of Tully *et al.*, who reported that many patients receiving hypnotic medications wished to reduce or discontinue treatment despite perceiving these medications as necessary, and that this intention was associated with concerns regarding dependence (*14*). Although differences in

Table 3. Comparison between patients with and without the desire to discontinue treatment among those who perceived hypnotic medications as necessary every day

	Desire to discontinue (n=56)	No desire to discontinue (n=107)	*p* value
Sex	Male:17, Female:39	Male:45, Female:62	0.144
Age (years)	70.8 ± 15.3	69.8 ± 18.2	0.729
Novel hypnotics	15	38	0.259
Non-benzodiazepines (Non-BZs)	34	37	0.001
Benzodiazepines (BZs)	12	43	0.016
Concerned about adverse effects of hypnotic medications	Yes:29 (No: 27)	Yes:21 (No:86)	< 0.001
Sleep quality	3.29 ± 0.73	3.47 ± 0.69	0.094
Satisfaction with hypnotic therapy	3.43 ± 0.68	3.62 ± 0.62	0.0499

Values are presented as mean ± SD or n. *P* values were calculated using Student's *t*-test for age, the Mann–Whitney *U* test for sleep quality and satisfaction with hypnotic therapy, and Pearson's chi-square test without continuity correction for categorical variables.

Table 4. Factors associated with the desire to discontinue hypnotic medications among patients who perceived hypnotic medications as necessary every day

Variable	Primary model OR (95% CI)	*p* value	Sensitivity model OR (95% CI)	*p* value
Age (per 1-year increase)	1.01 (0.99–1.03)	0.504	1.01 (0.99–1.03)	0.358
Male	0.80 (0.38–1.67)	0.548	0.66 (0.30–1.45)	0.300
Concerned about adverse effects	4.01 (1.92–8.38)	< 0.001	5.06 (2.24–11.46)	< 0.001
Sleep quality (per 1-point increase)	0.85 (0.48–1.51)	0.576	0.79 (0.43–1.47)	0.465
Satisfaction with hypnotic therapy (per 1-point increase)	0.88 (0.46–1.66)	0.685	0.94 (0.47–1.86)	0.851
Novel hypnotic use	—	—	0.39 (0.10–1.53)	0.179
Non-BZ use	—	—	1.23 (0.32–4.70)	0.764
BZ use	—	—	0.22 (0.05–0.98)	0.047

OR, odds ratio; CI, confidence interval; Non-BZ, non-benzodiazepine; BZ, benzodiazepine. The primary model included age, sex, concerns about adverse effects, sleep quality, and satisfaction with hypnotic therapy. The sensitivity model additionally included novel hypnotic, Non-BZ, and BZ use as separate binary variables. Patients receiving more than one hypnotic class were coded as users of each applicable class.

study populations and survey methods preclude direct comparison, both studies suggest that perceived necessity and the desire to discontinue treatment are not mutually exclusive. Notably, our study extends these previous findings by demonstrating that approximately one-third of community pharmacy patients who considered hypnotic medications necessary nevertheless wished to discontinue treatment and by identifying an association between concerns about adverse effects and the desire to discontinue treatment.

In the univariate analysis, Non-BZ use was more frequent and BZ use was less frequent among patients who wished to discontinue treatment. Because some patients received medications from more than one hypnotic class, we additionally performed a sensitivity analysis in which novel hypnotic, Non-BZ, and BZ use were entered as separate binary variables. The association between concerns about adverse effects and the desire to discontinue treatment remained statistically significant after additional adjustment for these medication variables. Although BZ use was also statistically associated with lower odds of expressing a desire to discontinue treatment in this sensitivity analysis, this finding should be interpreted cautiously given the limited sample size, the small number of patients receiving combination therapy, and the exploratory nature of the analysis. Further studies with larger samples and more detailed information on individual medications, doses, and treatment duration are needed to clarify the relationship between hypnotic medication class and patients' desire to discontinue treatment. Age, sex, sleep quality, and satisfaction with hypnotic therapy were not statistically associated with the desire to discontinue treatment in the multivariable analysis. However, differences in statistical significance should not be interpreted as indicating that concerns about adverse effects are more important than sleep quality or treatment satisfaction. The present study was not designed to compare the relative importance of these factors.

Long-term use of benzodiazepine receptor agonists, including both benzodiazepines and non-benzodiazepines, has been associated with daytime sedation, falls, fractures, cognitive impairment, and other adverse outcomes (*15*). Evidence-based deprescribing guidelines recommend gradual tapering, particularly in older adults, while emphasizing the importance of involving patients in shared decision-making and ensuring that they understand the rationale for deprescribing (*16*). Furthermore, recent clinical practice guidelines for insomnia recommend continuous evaluation of treatment effectiveness and safety while considering patient characteristics and preferences when selecting pharmacological therapy (*4*). Accordingly, the presence of a desire to discontinue treatment should not automatically lead to medication discontinuation. Instead, healthcare professionals should comprehensively evaluate the patient's clinical condition, treatment response, adverse effects, duration of therapy, and severity of insomnia before deciding whether to continue, modify, taper, or discontinue hypnotic medications.

Community pharmacies may represent an appropriate setting for identifying patients with ambivalent attitudes toward hypnotic medications because pharmacists have repeated opportunities to interact with patients receiving long-term pharmacotherapy. In routine pharmaceutical care, pharmacists may therefore benefit from assessing three complementary aspects: (1) whether patients perceive hypnotic medications as necessary, (2) whether they have concerns about adverse effects, and (3) whether they wish to reduce or discontinue treatment. Importantly, perceiving hypnotic medication as necessary does not necessarily indicate a willingness to continue treatment. Exploring these three perspectives and sharing information with prescribing physicians may facilitate patient-centered shared decision-making regarding continued treatment or deprescribing. Previous studies have also emphasized the importance of collaboration among patients, physicians, pharmacists, and other healthcare professionals in deprescribing benzodiazepine receptor agonists (*17*).

This study has several limitations. First, this was a cross-sectional study conducted at community pharmacies belonging to a single pharmacy group in Japan. Because the study population and practice settings were limited, caution is warranted when generalizing the findings to other populations. In addition, the total number of eligible patients and the number who declined participation were not recorded; therefore, the overall response rate could not be determined, and potential selection bias could not be fully assessed. Moreover, the cross-sectional design precludes any inference regarding causal relationships between concerns about adverse effects and the desire to discontinue treatment. Second, the questionnaire assessed patients' perceptions using single-item questions rather than validated instruments. In particular, the question regarding the desire to discontinue treatment assessed only a general desire to stop taking hypnotic medication and did not distinguish among immediate discontinuation, future discontinuation, dose reduction, or willingness to attempt deprescribing under medical supervision. In addition, for patients receiving more than one hypnotic medication, the questionnaire did not identify whether their responses referred to all hypnotics or to a specific medication. Therefore, the findings regarding the desire to discontinue treatment should be interpreted as reflecting a general patient-reported preference rather than an intention to undertake a specific deprescribing strategy. Third, several potentially important factors that may be associated with patients' desire to discontinue hypnotic treatment were not assessed in this study, including treatment duration, hypnotic dose and frequency of use, severity of insomnia, physical and psychiatric comorbidities, previous adverse effects, and previous

attempts to reduce or discontinue hypnotic medications. Therefore, residual confounding by these unmeasured factors cannot be excluded, and the associations observed in the multivariable analysis should be interpreted as adjusted only for the variables included in the present study. Future studies incorporating more detailed clinical and treatment-related information are needed to confirm these findings. Furthermore, we did not investigate the specific reasons underlying patients' desire to discontinue treatment or the nature of their concerns regarding adverse effects. Future multicenter prospective studies using validated assessment tools are warranted to clarify changes in patients' perceptions of hypnotic medications and to evaluate the effectiveness of patient-centered deprescribing interventions.

In conclusion, a substantial proportion of patients expressed a desire to discontinue hypnotic treatment despite perceiving hypnotic medications as necessary every day. Among these patients, concerns about adverse effects were associated with the desire to discontinue treatment after adjustment for the variables included in the present analysis. However, given the cross-sectional and exploratory nature of this study, these findings do not establish why patients wished to discontinue treatment or predict whether they would subsequently reduce or discontinue hypnotic medications. These findings should therefore be considered hypothesis-generating and may help inform future prospective studies examining patients' perceptions and subsequent deprescribing behavior.

Acknowledgements

We thank all study participants.

Funding: None.

Conflict of Interest: The authors have no conflicts of interest to disclose.

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Received September 13, 2026; Revised September 27, 2026; Accepted October 18, 2026.

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Released online in J-STAGE as advance publication October 21, 2026.