HHS Public Access

Author manuscript

Clin Gerontol. Author manuscript; available in PMC 2019 March 01.

Published in final edited form as:

Clin Gerontol. 2018 ; 41(2): 130–135. doi:10.1080/07317115.2017.1356895.

Cognitive expectancies for hypnotic use among older adult veterans with chronic insomnia

Constance H. Fung[1,2], **Jennifer L. Martin**[1,2], **Karen Josephson**[1], **Lavinia Fiorentino**[3], **Joseph M. Dzierzewski**[1,4], **Stella Jouldjian**[1], **Yeonsu Song**[2], **Juan Carlos Rodriguez Tapia**[5], **Michael N. Mitchell**[1], and **Cathy A. Alessi**[1,2]

[1]Geriatric Research, Education and Clinical Center; VA Greater Los Angeles Healthcare System; Los Angeles, CA

[2]David Geffen School of Medicine at UCLA; Los Angeles, CA

[3]School of Medicine, University of California, San Diego; San Diego, CA

[4]Department of Psychology, Virginia Commonwealth University

[5]Department of Medicine, Pontificia Universidad Catolica de Chile

Abstract

Objectives—To examine relationships between cognitive expectancies about sleep and hypnotics and use of medications commonly used for insomnia (hypnotics).

Methods—We analyzed baseline data from older veterans who met diagnostic criteria for insomnia and were enrolled in a trial comparing CBTI delivered by a supervised, sleep educator to an attention control condition (N=159; 97% male, mean age 72 years). We classified individuals as hypnotic users (N=23) vs. non-users (N=135) based upon medication diaries. Associations between hypnotic status and Dysfunctional Beliefs and Attitudes about Sleep-16 (DBAS) total score (0-10, higher = worse) and two DBAS medication item scores (item 1: "…better off taking a sleeping pill rather than having a poor night's sleep;" item 2: "Medication… probably the only solution to sleeplessness"; 0-10, higher = worse) were examined in logistic regression models.

Results—Higher scores on the DBAS medication items (both odds ratios=1.3; p-values <.001) were significantly associated with hypnotic use. DBAS-16 total score was not associated with hypnotic use.

Conclusion—Cognitive expectancy (dysfunctional beliefs) about hypnotics was associated with hypnotic use in older adults with chronic insomnia disorder.

Clinical implications—Strategies that specifically target dysfunctional beliefs about hypnotics are needed and may impact hypnotic use in older adults.

Keywords

medications; sleep; older adults

Corresponding author: Constance H. Fung, MD, MSHS, 16111 Plummer Street, 11E, North Hills, CA 91343; Phone: 818-891-7711 x39311; Fax: 818-895-9519; constance.fung@va.gov.

Introduction

Hypnotics (i.e., medications commonly used for insomnia; Bertisch, Herzig, Winkelman, & Buettner, 2014) such as benzodiazepines and benzodiazepine receptor agonists (BZRAs) are often prescribed for insomnia, a clinical disorder found in 5%-10% of adults (Roth, 2007). Insomnia may be acute or chronic. Chronic insomnia disorder is caused by predisposing (e.g., genetic), precipitating (e.g., physiological, environmental, or psychological stressors), and perpetuating factors (e.g., behavioral, psychological, environmental, or physiological factors that prevent re-establishment of normal sleep; Buysse, Germain, Hall, Monk, & Nofzinger, 2011; Spielman, Caruso, & Glovinsky, 1987). Although the American College of Physicians clinical practice guidelines recommend behavioral therapies as first-line treatment for chronic insomnia disorder (Qaseem, Kansagara, Forciea, Cooke, & Denberg, 2016), pharmacological therapy for insomnia is common. Hypnotics may improve insomnia symptoms in older adults, but use of these medications (particularly benzodiazepines and BZRAs) is associated with adverse outcomes such as decline in physical performance (Gray et al., 2003; Mets, Volkerts, Olivier, & Verster, 2010; Speeg-Schatz et al., 2001; Cutson, Gray, Hughes, Carson, & Hanlon, 1997; Robin et al., 1996; Tada et al., 1994; Patat & Foulhoux, 1985), falls (Rossat et al., 2011), hip fractures (Allain, Bentue-Ferrer, Polard, Akwa, & Patat, 2005), cognitive impairment (Zhong, Wang, Zhang, & Zhao, 2015), and motor vehicle crashes (Meuleners et al., 2011; Orriols et al., 2009; Hemmelgarn, Suissa, Huang, Boivin, & Pinard, 1997). Identifying factors associated with hypnotic use is an important step in developing strategies to decrease overall use of these agents by older patients.

A number of factors may contribute to hypnotic use, and several theoretical frameworks are available to help conceptualize these factors. The “psychobiological schema” (Bozarth, 1990) was developed as a model for drug addiction, but may also serve as a model for hypnotic use. This framework identifies domains and factors that contribute to the initial use of drugs and the progression to chronic use. These domains include intrapersonal (e.g., demographics, personality, medical, and mental health factors), sociological (e.g., environmental factors), and pharmacological (e.g., drug chemical properties) domains. Provider factors (e.g., prescribing hypnotics more frequently to females; Morgan et al., 2016) and healthcare system factors (e.g., availability of staff trained in delivering non-pharmacological treatments for insomnia) are also important. This framework also identifies specific beliefs, which are known as cognitive expectancies (Eccles & Wigfield, 2002), about hypnotics as the single most important factors influencing chronic use. It identifies cognitive expectancies as having a reciprocal interaction with initial and chronic use.

Prior research suggests that advanced age, lower education, personality trait clusters such as high extraversion and high neuroticism, worse anxiety, and short drug half-life are inconsistently associated with using hypnotics (Fang et al., 2009; Bartlett et al., 2004; Neutel, 2005; Nordfjaern, Bjerkeset, Moylan, Berk, & Grawe, 2013; Kan, Hilberink, & Breteler, 2004; Omvik et al., 2010; Morin, Belanger, & Bernier, 2004). In addition, more severe or frequent depressive symptoms, musculoskeletal pain, and female gender have been consistently identified as predictors of hypnotic use (Kan et al., 2004; Omvik et al., 2010; Fang et al., 2009; Zandstra et al., 2002; Luijendijk, Tiemeier, Hofman, Heeringa, & Stricker,

2008; Jaussent et al., 2011). There has been limited research on the role of cognitive expectancies for the effects of hypnotics on users' ability to sleep well. Studies have found that some patients believe that hypnotics are the only solution for improving their sleep (Morin, Vallieres, & Ivers, 2007; Edinger, Wohlgemuth, Radtke, Marsh, & Quillian, 2001). To date, studies examining the strength of the relationship between cognitive expectancies for sleep and hypnotics and use of hypnotics in older adults are lacking.

We sought to examine the relationship between cognitive expectancies and use of hypnotics among older adults. We hypothesized that more dysfunctional cognitive expectancies for sleep and more cognitive expectancy for hypnotics (i.e., a stronger belief that hypnotics are needed to treat insomnia) would predict use of hypnotics.

Methods

Study design

Cross-sectional data collected as part of the baseline phase of a randomized controlled trial (RCT) testing cognitive behavioral therapy for insomnia (CBTI) provided by non-clinician health educators, compared to a general sleep education control condition were used for this study. The detailed procedures for the RCT have been published elsewhere (Alessi et al., 2016). Briefly, participants for the trial were community-dwelling veterans aged 60 years and older who received care at one Veterans Affairs (VA) healthcare center and were identified through the VA national data warehouse. All participants met diagnostic criteria for chronic insomnia disorder, based upon the International Classification of Sleep Disorders-2nd edition (ICSD-2) criteria (American Academy of Sleep Medicine, 2005). Participants were screened for eligibility using a multi-stage process. Individuals with Mini-mental State Examination total score < 24, history of sleep apnea or apnea-hypopnea index > 20, severe unstable medical disorder or active severe mental disorder, or history of bipolar disorder were excluded. Trained research staff at one VA healthcare center performed all data collection. Baseline data for individuals enrolled in the RCT were used for this analysis. All study procedures were approved by the VA Greater Los Angeles Healthcare System Institutional Review Board. All participants provided written informed consent.

Measures

Hypnotic use—Participants were asked to keep a diary for one week as part of the baseline assessment, including their use of prescription and over-the-counter medications commonly used for insomnia and other sedative medications. Classification of medications was based upon a previously reported definition of medications commonly used for insomnia (Bertisch et al., 2014). From these data, the use of benzodiazepines, BZRAs, barbiturates, doxepin, quetiapine, ramelteon, and trazodone to help with sleep was queried, and participants were dichotomized into hypnotic users if they used any of the aforementioned medications versus non-users if they did not use the medications.

Cognitive expectancies—The Dysfunctional Beliefs and Attitudes about Sleep (DBAS)-16 is a 16-item questionnaire that measures beliefs and attitudes about sleep and includes medication items that measure cognitive expectancies for medication use in the

context of insomnia (Morin et al., 2007). DBAS-16 was completed at baseline. Total score (possible score: 0-10, higher = more dysfunctional beliefs and attitudes about sleep) was calculated and divided by 16 (total number of items). Scores from two individual DBAS-16 items about medication were also included (Morin et al., 2007). Specifically, item #1, "Medication is probably the only solution to sleeplessness," and item #2, "In order to be alert and function well during the day, I believe I would be better off taking a sleeping pill rather than having a poor night's sleep," were used. Item scores ranged from 0-10, where 10 was complete agreement with statement.

Statistical analyses

Descriptive statistics were used to characterize the sample (Table 1). Logistic regression models predicting hypnotic use were used to examine the relationships between DBAS-16 (total score and medication items) and hypnotic use (Table 2). All statistical analyses were performed using Stata/SE 13.1 (StataCorp LP, College Station, Texas).

Results

Data were available for 159 participants. The mean age of participants was 72.2 (SD 7.7) years. The majority of participants were male (97%) and white (79%). Most of the participants had at least some college education (80.5%). Of the 159 participants, 23 participants were classified as hypnotic users and 135 were classified as non-users (medication data were missing for one participant). The mean score for the DBAS-16 was 3.8 (SD 2.1, range 0-8.69). The mean for medication item #1 was 2.1 (SD 3.1, range 0-10), and the mean for medication item #2 was 3.5 (SD 4.0, range 0-10).

In logistic regression models predicting hypnotic use, DBAS-16 total score was not associated with hypnotic use (p=.290). A higher score on medication item #1 (i.e., more agreement that medication is the only solution to sleeplessness) increased the odds of hypnotic use (odds ratio 1.3; 95% CI 1.2, 1.5, p<.001). In addition, a higher score on medication item #2 increased the odds of hypnotic use (odds ratio 1.3; 95% CI 1.2, 1.5, p<.001).

Discussion

This study found that cognitive expectancy for hypnotics in particular—but not dysfunctional beliefs and attitudes about sleep overall—increases the likelihood of hypnotic use in older adults with insomnia. These findings support a conceptual framework for hypnotic use that is based on the psychobiological schema, which suggests that cognitive expectancies for drugs are a key factor predicting the transition from acute to chronic use (Bozarth, 1990). Our findings may be related to underlying factors that lead to beliefs about insomnia itself (e.g., unrealistic expectations) and beliefs about hypnotics (e.g., positive expectations based on exposure to advertising) and suggest that specific strategies that reduce cognitive expectancies for hypnotics should be targeted in treatments aimed at discontinuing hypnotic use. These specific strategies may be a key component of psychological interventions when a goal of treatment is hypnotic discontinuation while maintaining or improving sleep quality. In fact, these strategies could be combined with

other known effective treatments, such as CBTI, to ultimately achieve both resolution of insomnia symptoms and discontinuation of hypnotics among older adults.

Although several studies have examined predictors of hypnotic use, this study is unique in that it assessed the relationship between cognitive expectancies for hypnotics and hypnotic use in older adults, who are at higher risk for adverse health effects from using hypnotics. Prior studies examined the variation in DBAS medication item scores among individuals sampled and found a range of scores (mean 2.60, SD 2.62, range 0-10; Morin et al., 2007), but as far as we are aware, the relationship between cognitive expectancies for hypnotics and hypnotic use has not been examined in older adults (or older veterans).

These findings have important implications for reducing hypnotic use in older adults, because cognitive expectancies for medications have the potential to be modified through cognitive behavioral therapy (Eidelman et al., 2016). For example, a prior study found that providing information about sleep regulation and the causes of insomnia (i.e., as part of CBTI) was associated with modest changes in cognitive expectancies for hypnotics (Edinger et al., 2001). Unfortunately, CBTI alone has had limited long-term success in promoting sustained hypnotic discontinuation (Gould, Coulson, Patel, Highton-Williamson, & Howard, 2014). Strategies that specifically address cognitive expectancies for hypnotics may be able to achieve higher long-term discontinuation rates. These strategies could help healthcare providers and organizations reduce hypnotic use in older adults, which is a goal that has been advocated by multiple organizations such as the American Geriatrics Society and American Board of Internal Medicine (American Geriatrics Society Choosing Wisely Workgroup, 2013). They may also increase adherence to guidelines that recommend non-pharmacological therapy as first-line treatment for chronic insomnia disorder (Qaseem et al., 2016).

This study has some limitations. The number of participants classified as hypnotic users was modest (14.6%), which limited our ability to conduct multivariable regression. Although the prevalence of hypnotic use in our sample is higher than population estimates of 3% in the general population (Bertisch et al., 2014), the relatively low percentage of hypnotic use may lead to biased estimates. A case-control study design, which is often used when event rates are low, could be considered for future studies. We did not have long-term data on the chronicity of hypnotic use, so we were unable to establish whether the participants are short-term versus chronic users. In addition, the population was primarily male, which limits generalizability to females. This limitation is particularly important, because hypnotic use in general is more prevalent in older females (Jaussent et al., 2011). Finally, the study was conducted among veterans, which limits generalizability to the non-veteran population.

In conclusion, this study examined cognitive expectancies for hypnotic use among older veterans with chronic insomnia disorder and found that greater expectancies for using medications to treat insomnia were associated with hypnotic use. Future studies should focus on developing strategies that reduce cognitive expectancies for hypnotics. Use of these strategies may promote hypnotic discontinuation.

Acknowledgments

VA Health Services Research and Development (Alessi IIR 08-295); VA Greater Los Angeles Geriatric Research, Education, and Clinical Center (GRECC); National Institute on Aging of the National Institutes of Health under Award Number (Fung K23AG045937; Dzierzewski 1K23AG049955). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or Department of Veterans Affairs.

References

Alessi C, Martin JL, Fiorentino L, Fung CH, Dzierzewski JM, Rodriguez Tapia JC, Mitchell MN. Cognitive behavioral therapy for insomnia in older veterans using nonclinician sleep coaches: Randomized controlled trial. Journal of the American Geriatrics Society. 2016; 64(9):1830–1838. DOI: 10.1111/jgs.14304 [PubMed: 27550552]

Allain H, Bentue-Ferrer D, Polard E, Akwa Y, Patat A. Postural instability and consequent falls and hip fractures associated with use of hypnotics in the elderly. Drugs & Aging. 2005; 22(9):749–765. DOI: 10.2165/00002512-200522090-00004 [PubMed: 16156679]

American Academy of Sleep Medicine. International classification of sleep disorders. 2nd. Westchester, IL: Diagnostic and Coding Manual, American Academy of Sleep Medicine; 2005.

American Geriatrics Society Choosing Wisely Workgroup. American Geriatrics Society identifies five things that healthcare providers and patients should question. Journal of the American Geriatrics Society. 2013; 61(4):622–631. [PubMed: 23469880]

Bartlett G, Abrahamowicz M, Tamblyn R, Grad R, Čapek R, Berger RD. Longitudinal patterns of new benzodiazepine use in the elderly. Pharmacoepidemiology and Drug Safety. 2004; 13(10):669–682. DOI: 10.1002/pds.908 [PubMed: 15386589]

Bertisch SM, Herzig SJ, Winkelman JW, Buettner C. National use of prescription medications for insomnia: NHANES 1999-2010. SLEEP. 2014; 37(2):343–349. DOI: 10.5665/sleep.3410 [PubMed: 24497662]

Bozarth, MA. Drug addiction as a psychobiological process; Addiction controversies London: Harwood Academic Publishers. 1990. p. 112-134.Retrieved from http://www.addictionscience.net/ARUreport04.html

Buysse DJ, Germain A, Hall M, Monk TH, Nofzinger EA. A neurobiological model of insomnia. Drug Discovery Today: Disease Models. 2012; 8(4):129–137. DOI: 10.1016/j.ddmod.2011.07.002

Cutson TM, Gray SL, Hughes MA, Carson SW, Hanlon JT. Effect of a single dose of diazepam on balance measures in older people. Journal of the American Geriatrics Society. 1997; 45(4):435–440. DOI: 10.1111/j.1532-5415.1997.tb05167.x [PubMed: 9100711]

Eccles JS, Wigfield A. Motivational beliefs, values, and goals. Annual Review of Psychology. 2002; 53(1):109–132. DOI: 10.1146/annurev.psych.53.100901.135153

Edinger JD, Wohlgemuth WK, Radtke RA, Marsh GR, Quillian RE. Does cognitive-behavioral insomnia therapy alter dysfunctional beliefs about sleep? SLEEP. 2001; 24(5):591–599. DOI: 10.1093/sleep/24.5.591 [PubMed: 11480656]

Eidelman P, Talbot L, Ivers H, Bélanger L, Morin CM, Harvey AG. Change in dysfunctional beliefs about sleep in behavior therapy, cognitive therapy, and cognitive-behavioral therapy for insomnia. Behavior Therapy. 2016; 47(1):102–115. DOI: 10.1016/j.beth.2015.10.002 [PubMed: 26763501]

Fang SY, Chen CY, Chang IS, Wu ECH, Chang CM, Lin KM. Predictors of the incidence and discontinuation of long-term use of benzodiazepines: A population-based study. Drug and Alcohol Dependence. 2009; 104(1):140–146. DOI: 10.1016/j.drugalcdep.2009.04.017 [PubMed: 19515515]

Gould RL, Coulson MC, Patel N, Highton-Williamson E, Howard RJ. Interventions for reducing benzodiazepine use in older people: Meta-analysis of randomised controlled trials. The British Journal of Psychiatry. 2014; 204(2):98–107. DOI: 10.1192/bjp.bp.113.126003 [PubMed: 24493654]

Gray SL, Penninx BW, Blough DK, Artz MB, Guralnik JM, Wallace RB, LaCroix AZ. Benzodiazepine use and physical performance in community-dwelling older women. Journal of

the American Geriatrics Society. 2003; 51(11):1563–1570. DOI: 10.1046/j.1532-5415.2003.51502.x [PubMed: 14687385]

Hemmelgarn B, Suissa S, Huang A, Jean-Francois B, Pinard G. Benzodiazepine use and the risk of motor vehicle crash in the elderly. The Journal of the American Medical Association. 1997; 278(1):27–31. DOI: 10.1001/jama.1997.03550010041037 [PubMed: 9207334]

Jaussent I, Dauvilliers Y, Ancelin ML, Dartigues JF, Tavernier B, Touchon J, Besset A. Insomnia symptoms in older adults: Associated factors and gender differences. The American Journal of Geriatric Psychiatry. 2011; 19(1):88–97. DOI: 10.1097/JGP.0b013e3181e049b6 [PubMed: 20808113]

Kan CC, Hilberink SR, Breteler MH. Determination of the main risk factors for benzodiazepine dependence using a multivariate and multidimensional approach. Comprehensive Psychiatry. 2004; 45(2):88–94. DOI: 10.1016/j.comppsych.2003.12.007 [PubMed: 14999658]

Luijendijk HJ, Tiemeier H, Hofman A, Heeringa J, Stricker BHC. Determinants of chronic benzodiazepine use in the elderly: A longitudinal study. British Journal of Clinical Pharmacology. 2008; 65(4):593–599. DOI: 10.1111/j.1365-2125.2007.03060.x [PubMed: 18093258]

Mets MA, Volkerts ER, Olivier B, Verster JC. Effect of hypnotic drugs on body balance and standing steadiness. Sleep Medicine Reviews. 2010; 14(4):259–267. DOI: 10.1016/j.smrv.2009.10.008 [PubMed: 20171127]

Meuleners LB, Duke J, Lee AH, Palamara P, Hildebrand J, Ng JQ. Psychoactive medications and crash involvement requiring hospitalization for older drivers: A population-based study. Journal of the American Geriatrics Society. 2011; 59(9):1575–1580. DOI: 10.1111/j.1532-5415.2011.03561.x [PubMed: 21883110]

Morgan SG, Weymann D, Pratt B, Smolina K, Gladstone EJ, Raymond C, Mintzes B. Sex differences in the risk of receiving potentially inappropriate prescriptions among older adults. Age and Ageing. 2016; 45(4):535–542. DOI: 10.1093/ageing/afw074 [PubMed: 27151390]

Morin CM, Bélanger L, Bernier F. Correlates of benzodiazepine use in individuals with insomnia. Sleep Medicine. 2004; 5(5):457–462. DOI: 10.1016/j.sleep.2004.04.001 [PubMed: 15341890]

Morin CM, Vallières A, Ivers H. Dysfunctional beliefs and attitudes about sleep (DBAS): Validation of a brief version (DBAS-16). SLEEP. 2007; 30(11):1547–1554. [PubMed: 18041487]

Neutel CI. The epidemiology of long-term benzodiazepine use. International Review of Psychiatry. 2005; 17(3):189–197. DOI: 10.1080/09540260500071863 [PubMed: 16194790]

Nordfjærn T, Bjerkeset O, Moylan S, Berk M, Gråwe RW. Clusters of personality traits and psychological symptoms associated with later benzodiazepine prescriptions in the general population: The HUNT cohort study. Addictive Behaviors. 2013; 38(10):2575–2580. DOI: 10.1016/j.addbeh.2013.06.010 [PubMed: 23811061]

Omvik S, Pallesen S, Bjorvatn B, Sivertsen B, Havik OE, Nordhus IH. Patient characteristics and predictors of sleep medication use. International Clinical Psychopharmacology. 2010; 25(2):91–100. DOI: 10.1097/YIC.0b013e328334e5e6 [PubMed: 20071997]

Orriols L, Salmi LR, Philip P, Moore N, Delorme B, Castot A, Lagarde E. The impact of medicinal drugs on traffic safety: a systematic review of epidemiological studies. Pharmacoepidemiology and Drug Safety. 2009; 18(8):647–658. DOI: 10.1002/pds.1763 [PubMed: 19418468]

Patat A, Foulhoux P. Effect on postural sway of various benzodiazepine tranquillizers. British Journal of Clinical Pharmacology. 1985; 20(1):9–16. DOI: 10.1111/j.1365-2125.1985.tb02792.x [PubMed: 2862898]

Qaseem A, Kansagara D, Forciea MA, Cooke M, Denberg TD. Management of chronic insomnia disorder in adults: A clinical practice guideline from the American College of Physicians. Annals of Internal Medicine. 2016; 165(2):125–133. DOI: 10.7326/M15-2175 [PubMed: 27136449]

Robin DW, Hasan SS, Edeki T, Lichtenstein MJ, Shiavi RG, Wood AJ. Increased baseline sway contributes to increased losses of balance in older people following triazolam. Journal of the American Geriatrics Society. 1996; 44(3):300–304. DOI: 10.1111/j.1532-5415.1996.tb00919.x [PubMed: 8600201]

Rossat A, Fantino B, Bongue B, Colvez A, Nitenberg C, Annweiler C, Beauchet O. Association between benzodiazepines and recurrent falls: A cross-sectional elderly population-based study. The Journal of Nutrition, Health & Aging. 2011; 15(1):72–77. DOI: 10.1007/s12603-011-0015-7

Roth T. Insomnia: Definition, prevalence, etiology, and consequences. Journal of Clinical Sleep Medicine. 2007; 3(5 Suppl):S7–S10. [PubMed: 17824495]

Speeg-Schatz C, Giersch A, Boucart M, Gottenkiene S, Tondre M, Kauffmann-Muller F, Danion JM. Effects of lorazepam on vision and oculomotor balance. Binocular Vision & Strabismus Quarterly. 2000; 16(2):99–104.

Spielman AJ, Caruso LS, Glovinsky PB. A behavioral perspective on insomnia treatment. Psychiatric Clinics of North America. 1987; 10(4):541–553. [PubMed: 3332317]

Tada K, Sato Y, Sakai T, Ueda N, Kasamo K, Kojima T. Effects of zopiclone, triazolam, and nitrazepam on standing steadiness. Neuropsychobiology. 1994; 29(1):17–22. DOI: 10.1159/000119057 [PubMed: 8127419]

Zandstra SM, Furer JW, Van De Lisdonk EH, Bor JHJ, Zitman FG, Van Weel C. Differences in health status between long-term and short-term benzodiazepine users. British Journal of General Practice. 2002; 52(483):805–808. Retrieved from http://bjgp.org/content/bjgp/52/483/805.full.pdf. [PubMed: 12392119]

Zhong G, Wang Y, Zhang Y, Zhao Y. Association between benzodiazepine use and dementia: A meta-analysis. PloS One. 2015; 10(5):e0127836.doi: 10.1371/journal.pone.0127836 [PubMed: 26016483]

Clinical Implications

- Older adults who have a stronger belief that medication is the only solution for insomnia are more likely to use medication to treat their insomnia, a treatment strategy that is considered second-line (first-line therapy for chronic insomnia disorder is cognitive behavioral therapy for insomnia).
- Dysfunctional beliefs and attitudes about sleep overall are not associated with a higher likelihood of using medication to treat insomnia.

Table 1

Sample characteristics (N=159)

	Mean (SD) or Frequency (%)
Age, in years	72.2 (7.7)
Male	154 (97%)
Education, in years	14.7 (2.6)
Hypnotic user	23 (14.5%)
Dysfunctional Beliefs and Attitudes about Sleep-16 item	
Total score	3.8 (2.1)
Medication item #1: “Medication is probably the only solution to sleeplessness.”[a]	2.2 (3.1)
Medication item #2: “In order to be alert and function well during the day, I believe I would be better off taking a sleeping pill rather than having a poor night's sleep.”[a]	3.5 (4.0)

[a](Morin et al., 2007)

Table 2

Logistic regression models predicting hypnotic use at baseline (N=158)

Model	Odds ratio (95% CI)	P-value
Model 1: DBAS-16 total score	1.12 (.91, 1.39)	.290
Model 2: DBAS-16 medication item #1[a]	1.33 (1.16, 1.53)	<.001 *
Model 3: DBAS-16 medication item #2[b]	1.33 (1.18, 1.53)	<.001 *

* p<.001;

[a] "Medication is probably the only solution to sleeplessness";

[b] "In order to be alert and function well during the day, I believe I would be better off taking a sleeping pill rather than having a poor night's sleep." (Morin et al., 2007)