

# Self-Medication WITH OVER-THE-COUNTER DRUGS AMONG ELDERLY ADULTS

## ABSTRACT

Self-medication with over-the-counter (OTC) drugs is an economical choice of treatment for common self-limiting illnesses. As more medications are made available as OTC drugs, and as the population of older adults continues to increase, a need arises to monitor how elderly individuals use these agents. The purpose of this study was to assess the self-medication practices with OTC drugs among older adults. The study took place in a city in North Carolina in apartments managed by the city's Housing Authority and a private physician's office. Participants included 39 adults ages 59 to 91. Respondents lived independently, used OTC drugs, and were responsible for their health care decisions. Conn's Self-Medication Practice Tool was used to assess symptoms the older adults were treating with OTC drugs; therapeutic categories of OTC drugs used; frequency of OTC drugs used; and the use of alcohol, prescription drugs, and caffeine. The respondents reported pain as the symptom most frequently self-treated with OTC drugs. Ninety percent of the respondents used pain medicine, and approximately two thirds (67%) of the respondents used at least one high blood pressure medicine. More than half of the respondents (59%) used caffeine daily, and 10% used alcohol. The researchers concluded that older adults might be unaware of the adverse risks associated with concurrent use of pain medicines, alcohol, high blood pressure drugs, and regular caffeine use. This makes it necessary for all nurses and other clinicians providing health care to older adults to intensify efforts to educate and guard these patients and ensure appropriate use of OTC drugs.

thanks in part to the accelerated pace of switching drugs from prescription-only to non-prescription status. More than 600 OTC preparations have ingredients or recommended dosages available only by prescription 2 decades ago. More than 800 OTC drugs are promoted as treatment for the common cold, and the number of OTC anti-diarrhea products exceeds 100 (Dickey & Arnold, 1997; Rheinstein, 1997).

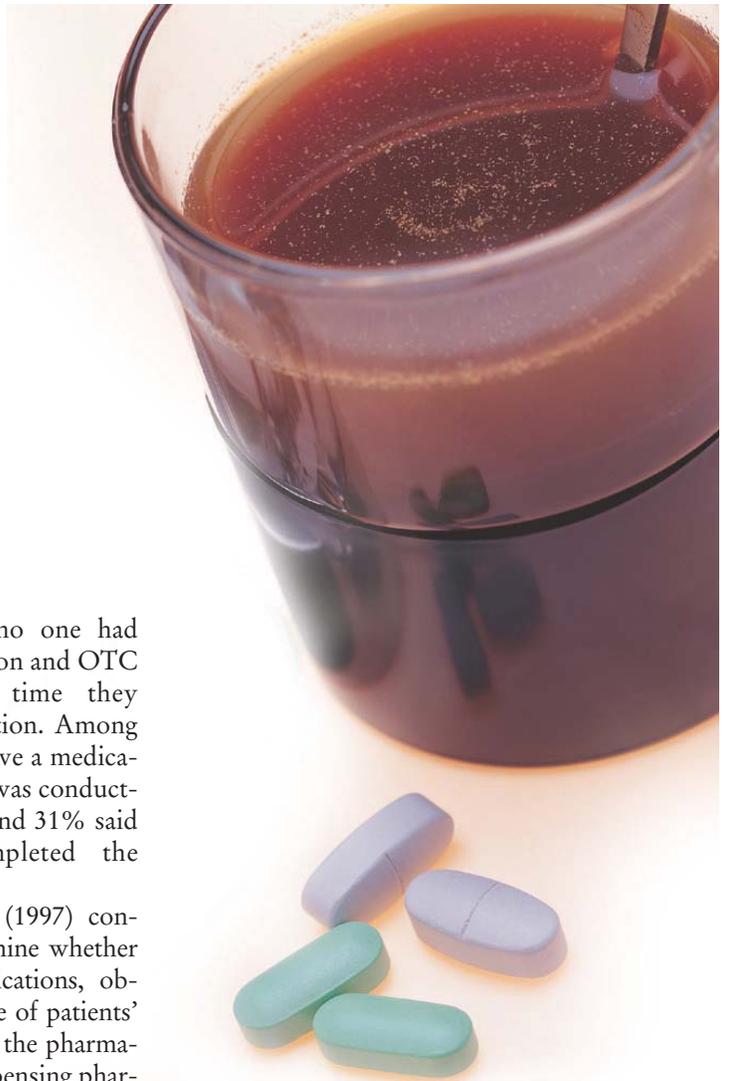
Medication interactions may occur among prescription OTC drugs, alcohol, and alternate medications. Such interactions predispose the older adult to drug-related illnesses, which account for an estimated 15% to 23% of admissions, 1% to 5% of office visits, and 1 of 1,000 deaths annually (Beard, 1993; Torrible & Hogan, 1997).

This study investigated the extent of the use of nonprescription drugs among elderly individuals. The following are specifically addressed:

- Symptoms treated with OTC medications.
- Categories of OTC medications.
- Frequency of use.
- Source of information on OTC.
- Adverse drug interactions.
- Demographic factors.
- Perceived health.
- Number of chronic diseases.
- Other interventions used concurrently with OTC medications.

Research has shown that health care consumers self-treat four times more health problems than physicians (Farley, 1997). Sixty percent to 95% of all illnesses are initially treated with self-care, including use of over-the-counter (OTC) drugs (Farley, 1997). Currently, approximately 100,000 OTC drug products are on the market. The volume of OTC medication use is on the rise,

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## LITERATURE REVIEW

Experts estimate that in the next few years, older adults will account for up to half of all medicine use (Bailes, 1997; Dickey & Arnold, 1997). Older adults also use OTC drugs to self-treat minor illnesses approximately 69% to 85% of the time. The most frequent self-treatment practices of elderly individuals are in response to (Farley, 1997; Stoller, Forster, & Portugal, 1994):

- Fever.
- Runny nose.
- Sore throat.
- Cough.
- Nausea.
- Diarrhea.
- Constipation.
- Indigestion.
- Headache.
- Muscle or joint pain.

Conn (1992) interviewed 185 adults, ages 65 and older, to explore their use of 16 OTC substances and management of the commonly used OTC medications. Conn found that participants used almost twice as many OTC drugs as prescription medications. Most reported using OTC medications often, and few identified precautions associated with the OTC medications.

Kriner (1996) conducted a telephone poll of prescription drug issues and usage among older Americans. The respondents were 874 individuals 50 and older. Sixty-nine percent of participants ages 65 and older said they were taking prescription medications, with an average of 2.4 prescription drugs per participant. More

than half (57%) said no one had reviewed their prescription and OTC medications the last time they received a new prescription. Among the minority who did have a medication review, 69% said it was conducted by their physicians, and 31% said their pharmacist completed the review.

Torrible and Hogan (1997) conducted a study to determine whether listings of current medications, obtained from the office file of patients' attending physicians and the pharmacy record of patients' dispensing pharmacists, corresponded to the actual medication use in a group of non-institutionalized senior citizens residing in rural communities. They found that attending family physicians and primary dispensing pharmacists knew only some of their patients' entire medication regimen. The researchers also found that senior citizens often misinform their health care providers about their use of medication.

In 1993, Forster, Pollow, and Stoller investigated the frequency of alcohol and medication use in a random sample of elderly, community-dwelling adults, and examined the extent to which participants were at clinical risk from their concurrent use of alcohol with prescription and OTC medications. The authors reported that the most common risk was from the concurrent use of OTC pain medication and alcohol (19%).

Several advantages for self-treatment with OTC medications among older adults are documented in the lit-

erature (Benrimoj & Langford, 1995; Farley, 1997; Stoller et al., 1994). Apprehension over OTC drug use among older adults focuses on the potential problems associated with misdiagnoses and inability to read directions on drug labels. Polypharmacy is another concern because elderly individuals, on average, take six to nine medications concurrently (Beard, 1993; Dickey & Arnold, 1997; Gambert, Grossberg, & Morley, 1994; Honig & Cantilena, 1994). Other problematic factors include physiologic changes that occur naturally and insidiously with aging (Honig & Cantilena, 1994; Reichel, 1995; Swonger & Burbank, 1995) and alcohol and the use of alternate medications (Bailes, 1997; Eisenberg & Kessler, 1993).

## METHODS

### Design, Setting, Sample

A descriptive survey design was used to determine self-medication

**TABLE 1**  
**DEMOGRAPHIC PROFILE**

Variable	Range	Mean	SD
Age	59 to 91	71	8.94
Variable	Frequency	%	
<b>Gender</b>			
Female	29	74.0	
Male	10	26.0	
<b>Race</b>			
African American	20	51.3	
Caucasian	13	33.0	
American Indian	4	10.3	
Hispanic	1	2.6	
Other	1	2.6	
<b>Marital Status</b>			
Widowed	18	41.2	
Married	8	20.5	
Divorced	7	19.9	
Separated	5	12.8	
Single	1	2.6	
<b>Living Arrangement</b>			
Lived alone	32	82.0	
Lived with others	7	18.0	
<b>Education</b>			
Elementary school	15	38.5	
Some high school, but not a diploma	8	20.5	
High school	5	12.8	
Post high school business or trade	5	12.8	
Some college, but not a diploma	4	10.3	
College	2	5.1	

practices with OTC medications among elderly individuals. The study took place in north central North Carolina during a 3-month period. Interviews were conducted in a small, well-lit room in a private physician's office; the participant's apartment; or the residential dining facility of the city's housing authority facility. A convenience sample of 39 adults, 65 years and older, who were able to engage in a verbal interview participated in the study. All participants spoke English, were physically active, lived independently, and shopped for themselves. Institutionalized older adults who did not play an active role in their medical care were excluded. Permission to conduct the study was

obtained from the city's housing authority and from the physician providing office space for part of the research interview. Approval for the study was granted by the Institutional Review Board for the Protection of Human Participants at the University.

**Data Collection Instrument**

Conn's Self-Medication Practice Tool was used as the data-gathering instrument. The instrument, developed in 1992, consists of 37 questions designed to determine OTC medication use by older adults. Thirty of the questions are closed-ended, and the remaining seven are open-ended. The questions address:

- Participant's stated medical diagnosis.
- Symptoms experienced.
- Choice of OTC medications.
- Effectiveness and side effects of the OTC medications.
- Factors that influence the participant's choice of OTC medications.

An interview was scheduled for each participant. Participants answered the questions on the study instrument, and the study investigator was available to assist. Each interview session lasted approximately 30 minutes, and overall data collection lasted 3 months. Each interview session with a participant was followed by written and verbal instructions on the proper use of OTC medications. Instructions were tailored to the needs of participants. Each participant was allowed ample time to ask questions on OTC medications.

**RESULTS**

**Demographic Characteristics of Sample**

The majority of the sample (51.3%) were African Americans, most of whom were women (74%) and widowed (41.2%) as shown in Table 1.

**Health Profile**

The majority of the participants rated their health as fair (51%). Only 15 (38%) thought their health was good (Table 2). When asked to compare their health to that of others, 18 (46%) said it was better, 17 (44%) said about the same, and 4 (10%) said worse. Only 14 (36%) said their health did not interfere with activities. Nine (23%) said their health interfered a lot with activities. The number of chronic diseases experienced by the sample ranged from 1 to 8 with a mean of 4. The four most common chronic diseases were:

- Arthritis ( $N = 31, 79.5\%$ ).
- High blood pressure ( $N = 26, 66.7\%$ ).
- Diabetes mellitus ( $N = 19, 48.7\%$ ).
- Cataract or glaucoma ( $N = 15, 38.5\%$ ).

*OTC Medication Use.* Of the 39 participants, only 1 reported not using any OTC medications. The mean number of OTC medications used was 3.3, with a standard deviation of 1.89, range of 0 to 7 and a mode of 3. The most frequently used OTC medications were for pain relief, used by 90% of the sample. Fifty nine percent of the sample ( $N = 23$ ) reported using caffeine (Table 3). Other frequently used OTC medications reported by the sample were for constipation (44%), colds and cough (41%), indigestion (36%), and vitamins (36%).

The frequency of use varied. Most of the sample reported using OTC medications often (41%) or occasionally (41%) (Table 4). Twenty-eight percent thought OTC medications were "somewhat effective" and most thought the medications were "very effective" (69%). Almost 20% of the sample had experienced side effects,

including drowsiness, weight gain, and sleep problems. Most of the respondents mentioned the health care provider as the primary source of information about OTC drugs (Table 5).

*Health and Demographic Variables.* Bivariate correlations were used to examine the relationships between demographic and health variables and the use of OTC medications. The number of OTC medicines used was negatively correlated with perceived good health ( $r = -.34, p = .03$ ). As expected, those who perceived themselves in good health used fewer OTC agents. The number of OTC agents used was positively correlated with the number of chronic diseases ( $r = .40, p = .01$ ). Thus, those with more chronic diseases used more OTC medicine.

Finally, significant correlation existed between living alone and the number of OTC medications used ( $r = .38, p = .02$ ). Those who lived alone used more OTC medications. The results of a *t* test ( $t = 2.53, p = .02$ ) confirms this finding. Men had fewer chronic diseases, but no gender differences existed in the number of OTC medicines used ( $t = .83, p = .41$ ). Because data on income was not collected, the relationship of income

to OTC use could not be examined. However, Conn (1992) found that higher income predicted higher use of OTC drugs.

### DISCUSSION

This study, like many others in the past, found pain to be the most common symptom treated with OTC drugs (Stoller et al., 1994); thus making pain medications the most frequently used type of OTC drugs. Consistent with previous research, this study also found a prevalent use of constipation drugs and caffeine, which could have pharmacological and physiological effects (e.g., heart palpitation) in older adults (Conn, 1992).

Similar to the results of other studies, the respondents reported health care providers as the primary source of information about OTC drugs, and they denied excessive influence of the media (Dickey & Arnold, 1997). Only a few participants reported having experienced any adverse reaction to OTC drugs. Conn

(1992) suggested that older adults' inability to recognize side effects from

**TABLE 2**  
**HEALTH PROFILE**

Health Ratings	Frequency	%
Fair	20	51.0
Good	15	38.0
Poor	4	10.0
<b>Health Status as Compared to Others of the Same Age</b>		
Better	18	46.0
Same	17	44.0
Worse	4	10.0
<b>Chronic Disease</b>		
Arthritis	31	79.5
High blood pressure	26	66.7
Diabetes	19	48.7
Cataract or glaucoma	15	38.5
Heart problems	14	35.8
Stomach problem	9	23.1
Breathing problem	8	20.5
Colon problem	5	12.8
Cancer	4	1.0
Bladder problems	3	7.7
Gout	2	5.1
Bipolar	1	2.7
Hypothyroidism	1	2.7

**TABLE 3**

**OVER-THE-COUNTER (OTC) SUBSTANCES USED BY SAMPLE (N = 39)**

OTC Substance	Frequency	%	OTC Substance	Frequency	%
Pain medication	35	90	Antibiotics	4	10
Caffeine	23	59	Ginseng	4	10
Constipation medication	17	44	Sleep	4	10
Cold and cough medication	16	41	Garlic	3	8
Indigestion medication	14	36	Hemorrhoids medication	3	8
Vitamins	14	36	Asthma and bronchitis	2	5
Nicotine	12	31	Psoriasis medication	2	5
Anti-gas medication	11	28	Alfalfa	1	3
Eye medication	9	23	Ginger	1	3
Minerals and herbs	7	18	Ginkgo biloba	1	3
Alcohol	5	13	Yohimbe (herbal aphrodisiac)	1	3
Anti-fungal medication	5	13			

**TABLE 4**  
**MEDICATION BEHAVIOR AND PERCEPTIONS**

	Frequency	%
<b>Frequency of Use</b>		
Very often	16	41
Occasionally	16	41
Not very often	7	18
<b>Opinion on Effectiveness</b>		
Very effective	27	69
Somewhat effective	11	28
Not effective	0	0
No response	1	3
<b>Side Effects</b>		
Some	7	18
None	32	82
<b>Other Self-Care Actions While Using Over-the-Counter Agents</b>		
Use other medicines and non-medical self-care	12	31
No medication, no other methods	23	59
No response	4	10

**TABLE 5**  
**SOURCES OF OVER-THE-COUNTER INFORMATION**

Source	Frequency	%
Health	26	68
Friend	9	23
Media	3	8
Other	2	5

these medications may contribute to this lack of concern.

The respondents in this study reported pain associated with arthritis and high blood pressure as their leading chronic problems. This finding indicates the need to monitor the concurrent use of OTC pain medication, especially non-steroidal antiinflammatory drug (NSAIDS) and antihypertensive drugs. According to Dickey and Arnold (1997), although the risk of renal effects of NSAIDS is very low, an estimated 2.5 million individuals in this country experience fluid retention and worsening of congestive heart failure symptoms from some NSAIDS. Some NSAIDS also interfere with the antihypertensive effectiveness of beta-blockers and

impair loop diurective agents (Dickey & Arnold, 1997).

Approximately 10% of the participants consumed alcohol, which is consistent with findings from Bailes (1997). According to Dickey and Arnold (1997), older adults who are most likely to place themselves at risk for alcohol-related adverse drug reactions (ADRS) are those taking OTC painkillers. Risks can come from both acute reactions to the medications when alcohol is consumed, and the cumulative effect of alcohol and OTC pain medicine (e.g., drowsiness, impaired physical and cognitive function). Even infrequent consumption of alcohol may affect the way medications work and worsen or accelerate the symptoms of chronic diseases common in older adults (Bailes, 1997; Dickey & Arnold, 1997; Forster et al., 1993; Sadosky, 1998).

Although OTC drug use by older adults has advantages, including prompt attention to minor illnesses, the consequences of misuse, including drug interaction, far outweigh the benefits. Health care providers should, therefore, devise ways of managing older adults' health problems that recognize the role of self-treatment with OTC

medications. Measures should include a thorough medication review every 6 months, or at least annually, including prescription drugs, OTC medications, herbs, and other non-pharmacological means (Tett, Higgings, & Armour, 1993; Torrible & Hogan, 1997).

Several researchers have documented that client medication behaviors strongly influence health care use, and ultimately, health care costs (Chewning & Sleath, 1999; McGrae-McDermott, Schmitt, & Wallner, 1997). Poor medication behaviors often can be traced to poor communication between health professionals and older adults (Morrow & Leirer, 1996). Therefore, open communication must exist among all older adult health care providers (Andrew et al., 1997; Hikal & Hikal, 1997).

Many older adults think the health care system has an answer for every malady in the form of medicine (Ireland, 1996). Therefore, health care providers have a responsibility to shift older adults away from this belief system to one correlating lifestyle choices with health outcomes. Physical activity, healthy eating, smoking cessation, moderate to no alcohol consumption, and stress management must be encouraged (Brooks, 1999; Baum & Posluszny, 1999; Butler, Davis, Lewis, Nelson, & Strauss, 1998; Ireland, 1996).

#### CLINICAL IMPLICATIONS

Despite its exploratory nature, the results of this study provide implications for practice. The widespread use of OTC medications among older adults highlights the need to increase awareness among health care providers about the use of these medicines to address health problems, and the potential consequences of their use. Because older adults generally have established relationships with their health care providers, they may feel more comfortable consulting their providers about the use of OTC medications. Providers may consider using telephone hotlines, e-mail, or Web sites to provide older adults with the ability to consult with them and to obtain information prior to taking OTC medicines.

Other suggestions from the study include:

- Continuous evaluation for OTC medication use by older adults at each visit with the health care provider.
- On-going assessment of ADRS.
- Continuous education for older adults on the potential interactions between prescribed medications, alcohol, OTC medications, and other substances.
- Health care provider emphasis on the potential consequences of misuse of OTC medicines.

The sample of convenience, small sample size, and the exploratory nature of this study preclude any definitive conclusions about OTC use among older adults. Future studies should include a larger sample and sufficient numbers of participants from different ethnic, gender, and age groups to examine differences of OTC use among groups.

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## KEYPOINTS

# SELF-MEDICATION WITH OVER-THE-COUNTER DRUGS

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- 1 Health care consumers self-treat health problems four times more frequently than physicians do.
- 2 Sixty to ninety-five percent of all illnesses are initially treated with self-care, including self-treatment with OTC drugs.
- 3 Thirty-eight of the 39 older adults in the study (97%) reported using OTC medications.
- 4 Older adults with more chronic illnesses reported greater use of OTC agents. Older adults who lived alone reported greater use of OTC agents.

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