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Community Pharmacy Staff Perceptions on Preventing Alcohol and Medication Interactions in Older Adults

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Abstract

OBJECTIVES—To examine rural/urban pharmacy staff perceptions on messaging, barriers, and motivators for preventing alcohol and medication interactions (AMI) in older adults (65+ years).

DESIGN—A survey was distributed through the local pharmacist association and statewide pharmacy registry in Kentucky.

PARTICIPANTS—A total of N=255 responses were received from pharmacists, pharmacy technicians, and pharmacy students.

RESULTS—Across rural/urban regions alike, among the AMI prevention messages provided, participants identified the most important messages to be: AMI can be potentially dangerous and life threatening, emergency rooms should be used when experiencing an AMI, and doctors and pharmacists should be consulted about AMI. The most common AMI prevention barriers indicated

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were stigma, costs, and low perceived risks. The most common AMI prevention motivators indicated were physical health improvement/promoting a healthy lifestyle, convenient setting, and financial incentives.

CONCLUSIONS—Irrespective of geography, participants similarly rated the presented AMI prevention messages, barriers, and motivators. Using the findings, the development of an AMI prevention program is suggested utilizing messaging surrounding AMI threat, behavioral management, and behavioral prevention.

Keywords

Aging; Alcohol; Medication Safety; Medication Interactions; Substance Use

INTRODUCTION

There is an imperative need to prevent alcohol and medication interactions (AMI) in older adults.¹ Research indicates a 3000% increase in fatal medication errors related to alcohol and illicit drug use between 1983 and 2004,² a 124% increase in alcohol and medication comorbid hospitalizations among older adults between 2001-2012,³ and a 24% increased risk of adverse drug reactions.⁴ It is extremely important to focus on older adults to prevent AMI, due to the growth of older adults with concomitant alcohol and medication use,⁵ decreased medication metabolism with aging,⁶ higher medication consumption with aging,⁷ and how medication overdoses are commonly associated with alcohol among older adults.⁸ Fortunately, pharmacy staff and pharmacies have been successfully involved in community health and substance use health promotion programming,^{9,10,11} but not specifically to prevent alcohol and medication interactions.

Furthermore, alcohol consumption is common in older age with more than half reporting consuming alcohol,¹² and almost 25%-50% drinking above recommended thresholds of 2+ drinks/day,¹³ with expected increase in consumption among future cohorts.¹⁴ Also, seventy-seven percent of older adults take at least one alcohol-interactive medication,¹⁵ and a substantial proportion are consuming alcohol while taking alcohol interactive medications¹⁶ and while having alcohol sensitive morbidities.¹⁷ Consequently, combined alcohol and medications use can lead to: a) ineffective/compromised medical treatments, b) negative health incidents (i.e., falls, cognitive impairment), and c) fatalities.^{2,18,19,20} A need for alcohol screenings has been acknowledged, when prescribing alcohol-interacting medications¹⁹ and for pharmacists to provide such medication safety.²¹ However AMI prevention research has been limited beyond acknowledgment.

Moreover, preventing alcohol and medication interactions is considered a rural health priority.²² Rural older adults are at highest risk of untreated prescription drug misuse²³ and alcohol problems.²⁴ This is partly due to a greater alcohol burden,²⁵ health differences based on resources and accessibility,²⁶⁻²⁸ greater burden of disease,^{29,30} and the culture of independence.^{31,32} Accordingly, this study sought to examine pharmacy staff perceptions on preventing AMI among older adults, and explore differences across rural/urban regions.

METHODS

Through October 2012-July 2013, an online link to the AMI self-report survey was made available. The link was distributed to over 1,000 pharmacists and pharmacy technicians, through the state pharmacist association list-serve and the pharmacist association meeting. Also, from the statewide licensing registry, survey flyers were mailed to selected pharmacies and pharmacists with valid addresses. A total of 255 participants provided informed consent and completed the survey, an approximate 25% response rate. Participants were compensated \$10 for completed surveys. Data were collected and managed using Research Electronic Data Capture,³³ a National Institutes of Health approved online data collection tool. IRB approval was obtained for all study procedures.

Study Variables/Instruments

Independent Variable—Rural and urban status was obtained through self-reported employment zip codes, and were designated by the 2013 Rural-Urban Continuum US Department of Agriculture Codes.³⁴ The classification scheme distinguishes metro counties (urban, codes 1-3) and non-metro counties (rural, codes 4-9) by their population size and metro adjacency.^{35,36}

Dependent Variables—AMI prevention messages, barriers, and motivators, were rated using 5-item Likert-type items. Participants were provided with six alcohol and medication interaction prevention messages and asked to rate the importance, from “not at all important” to “extremely important,” and to identify the most important message. Participants were also shown seven AMI prevention barriers and motivators to rate from “not true at all,” to “extremely true.”^{37,38} Lastly, participants responded to open-ended responses questions, asking for AMI prevention interventions suggestions for their older adult community.

The key AMI prevention messages were created, working in collaboration with pharmacists³⁹, and informed by the literature, to address the main theoretical principles of the Health Belief Model⁴⁰ and Information-Motivation-Behavioral Skills Model,⁴¹ such as information/education, threat, motivation, behavioral skills, and barrier/motivator domains.⁴² For instance, messages 1, 4, and 5 in Table 2, provide information about the AMI threat, to motivate behavioral change. Message 2 in Table 2 provides information about the behavior to enact when there is an AMI risk. Messages 3 and 6 in Table 2 provide information about what behavior to enact to prevent AMI.

Data Analysis

Statistical analysis was conducted using SPSS 21.0 (IBM, Armonk, NY) and SAS 9.4 (SAS Institute, Inc., Cary, NC). For comparisons between groups, Fisher’s exact tests, chi-square tests, and ANOVAs were used. Statistical significance was designated at $p < .05$, and statistical trends at $p < .10$. Content analysis was done on the open-ended responses; responses were coded thematically and categorized.

RESULTS

Group differences across the study participants (Table 1) indicated a higher Asian race, full time employment status, independent community pharmacy representation in rural counties. Participants most often worked and lived in the same county, with 37% of the sample both living and working in a rural area and 46% living and working in an urban area. All urban counties, were legally designated for alcohol sales.

Messages (Table 2)

‘AMI can be dangerous and life threatening’ was rated as the most important message, with 82.6% rating it as extremely important. The importance of only two messages varied by rural status, ‘Alcohol consumption can be dangerous at any level (46% vs. 34%; $p=.053$) and ‘It is important to consume no more than 1 drink of alcohol a day,’ was rated as more important (29% vs. 19%; $p=.042$), by rural respondents.

Barriers

Most respondents rated stigma as a ‘somewhat true’ or ‘extremely true’ (90.7%) barrier to older adult AMI prevention participation, followed by cost (88.3%), lack of awareness (85%), rejection of personal risk (85.3%), rejection of public health risk (81.6%), poor accessibility (74%), refute responsibility (51.8%), time (50.6%), and lack of interest (42.4%). Slightly more rural participants rated money (cost) as a barrier to AMI prevention participation (49% vs. 36.4%; $p=.084$).

Motivators

Most respondents (85%) rated physical health improvement, location, and promotion of healthy lifestyle, as ‘extremely’ or ‘somewhat true’, motivators for old adults AMI prevention participation, followed by financial incentive (83%), improved independence (79%), mental health improvement (76%), reduce AMI (73%), and public health importance (68). More urban participants rated convenient location as a motivator to AMI prevention participation (32% vs. 50%; $p = .023$).

Proposed Interventions

The majority of participants, regardless of geographic workplace, suggested utilizing pharmacy staff to provide more education to older adults. For example, “Information of possible AMI should become a basic part of prescription medication counseling..., the same as side effects,” however the participant also expressed concerns about excessive workload and compensation. Many respondents indicated the usefulness of additional components such as: computer alerts, brochures/information sheets, prescription stickers, and media campaigns. Participants also emphasized straightforward, honest communication between patient, pharmacist, and doctor. Financial incentives, transportation reimbursement, copay reduction, and free products for older adults were the most frequently suggested to promote prevention participation. With regards to barriers, some respondents also suggested that prevention should involve “nothing that would draw attention to the public,” since the “patient may not want to be identified as having alcohol problems.”

DISCUSSION

This is one of the first studies to explore pharmacy staff perceptions on older adult AMI prevention. In the current study respondents identified the most important AMI prevention messages to contain information about AMI threat, behavioral management, and behavioral prevention. Specifically, AMI can be dangerous and life threatening; emergency rooms should be used when experiencing an AMI; and doctors/pharmacists should be consulted about AMI, were the top rated messages. The most frequently endorsed barriers to older adults AMI prevention participation included stigma, costs, and low perceived risks. Motivators for AMI prevention participation with the highest consensus were: physical health improvement/promoting healthy lifestyle, convenient location, and financial incentive. A multilevel public health campaign in pharmacies were proposed to prevent AMI in community-dwelling older adults.

Rural participants rated all but one of the AMI Prevention messages more important, suggesting rural staff support for AMI prevention messages. Thus, this study implies that AMI prevention is considered important and that it is of similar importance across rural and urban pharmacy staff. However, knowing the higher AMI risk in rural communities, there is a greater potential for cultural health disparities in rural communities if they do not receive timely AMI prevention. No notable rural/urban differences in AMI prevention messaging, and barriers/motivators, or proposed prevention were found. This is despite the wide array of literature indicating rural and urban health differences based on resources and accessibility, the greater burden of disease in rural communities, and the unique culture of rural environments.²³⁻³² In conclusion, based on the current results a differential AMI prevention program is not needed for rural communities.

Limitations for the current study include the focus on just one state, Kentucky, no randomization, and a low response rate. It is recommended that future work replicate the current findings in other states to assess consensus, employ a randomized methodology, and increase the response rate. It is however, important to understand that the research conducted in Kentucky is generalizable to at least 16.6 million Americans who also reside in similar Appalachian environments (43). Also it is recommended that older community member perceptions on preventing AMI be obtained for a more comprehensive-triangulated assessment.

Conclusions/Future Directions

This research has examined pharmacy staff perceptions on important of AMI prevention messages, barriers, motivators, and interventions for older adult participation. Beyond acknowledgement little to no work has been done to prevent AMI, however there has been some evidence for pharmacies/pharmacists to be ideal partners.¹⁹ Based on the current research findings pharmacy staff consider important, AMI prevention messages that address the potentially dangerous and life threatening aspects; the use of emergency rooms for management; and how doctors and pharmacists should be consulted to prevent and better manage AMI in the community. The current findings can aid with the development of AMI prevention programs and overcome existing sensitivity to substance use issues, particularly in high risk rural communities.⁴⁴

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KEY POINTS

- Preventing alcohol and medication interactions in older adults is considered an important issue by pharmacy staff.
- This study highlights pharmacy staff perceptions on messaging, barriers, and motivators for preventing alcohol and medication interactions in older adults.

Table 1

Participant Demographics, by Pharmacy Location

Variable		All (N=255)	Rural N=112 44%	Urban N=143 56%	p- value
Age, mean (years) (σ =13.98)		36.9	37.9	35.7	0.209
Sex (%)	Male	38.4	33.0	42.7	.122
	Female	61.6	67.0	57.3	
Race/Ethnicity (%) ^a	White	92.5	96.4	89.5	0.053
	Black/African American	3.5	1.8	4.9	0.306
	American Indian	0.4	0.9	0.0	0.439
	Asian	2.7	0.0	4.9	0.019
	Hispanic	1.6	1.8	1.4	1.00
	Other (i.e. Puerto Rican)	0.8	0.01	0.01	1.00
Average # of scripts filled per week, mean (σ =1219.11)		1290.6	1190.8	1380.8	.253
Degree (%) ^b	Associate's (Technicians)	10.2	13.4	7.7	.149
	Bachelor's	36.1	29.5	41.3	.066
	Master's	3.5	1.8	4.9	.306
	PharmD	31.8	33.9	30.1	.588
	PhD	0.4	0.9	0.0	.439
Employment Status (%)	Full-time	69.3	77.7	62.7	0.025
	Part-time	24.4	21.4	26.8	
	PRN (as needed)	2.8	0.0	4.9	
	Consulting	0.4	0.0	0.7	
	Unemployed	1.6	0.9	2.1	
Employment Setting (%)	Community Chain	28.7	20.5	35.2	<.001
	Community Independent	33.9	63.4	10.6	
	Hospital	26.0	10.7	38.0	
	Nursing Home	1.2	0.9	1.4	
	Other (i.e. academic, home, clinic)	10.2	0.04	14.8	
Home Location (%)	Rural	47.8	85.7	18.2	<.001
	Urban	52.2	14.3	81.8	
Workplace location(%) ^c	Wet (state designated - county alcohol sale legal)	83.1	61.3	100.0	<.001
	Dry (state designated -county alcohol sale illegal)	16.9	38.7	0.0	

^a Race and Ethnicity were separate yes/no questions for each category. Because participants could respond yes to more than one category, these numbers do not add up to 100%. No participants reported Native Hawaiian or Pacific Islander categories.

^b Education Degree was separate yes/no questions for each category. Note that because individuals could report more than 1 degree, these numbers do not add up to 100%. No participants reported having a Medical Degree.

^c State designated status of alcohol sale was included as a descriptive characteristic comparison of rural and urban counties.

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Table 2

AMI Message Importance Ratings by Pharmacy Location

	All (N=255)	Rural N=112	Urban N=143	p-value
Message (domain)				
1. AMI can be potentially dangerous, and even life threatening.				
% who rated it as an extremely important message (rating)	82.6%	82.3%	83.0%	.881
% who ranked it as the most important message (ranking)	50.4%	52.7%	48.6%	
2. During serious AMI, it is important to visit your local emergency care clinic immediately.				
% who rated it as an extremely important message (rating)	76.3%	78.7%	74.1%	.385
% who ranked it as the most important message (ranking)	9.4%	5.4%	12.7%	
3. It is important to talk to your doctor or pharmacist about possible AMI.				
% who rated it as an extremely important message (rating)	70.9%	75.0%	67.2%	.166
% who ranked it as the most important message (ranking)	26.4%	25.0%	27.5%	
4. AMI can result in negative mental and physical health consequences.				
% who rated it as an extremely important message (rating)	70.3%	66.9%	73.3%	.260
% who ranked it as the most important message (ranking)	6.3%	7.1%	5.6%	
5. Alcohol consumption can be dangerous at any level.				
% who rated it as extremely important message (rating)	39.7%	45.9%	34.1%	.053
% who ranked it as the most important message (ranking)	6.3%	7.1%	5.6%	
6. It is important to have no more than 1 drink of alcohol a day.				
% who rated it as an extremely important message (rating)	23.6%	29.3%	18.5%	.042
% who ranked it as the most important message (ranking)	1.2%	2.7%	0.0%	