

Barriers to Live Continuing Education for Pharmacists in Massachusetts

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INTRODUCTION

Massachusetts pharmacists are required to accumulate 15 hours of continuing education (CE) each year for relicensure. They may obtain these hours by attending live programs, by enrolling in correspondence courses, by reading CE articles and completing tests in pharmacy trade journals/magazines, or through other activities approved by the American Council for Pharmaceutical Education or the Massachusetts State Board of Pharmacy. Beginning in 1991, each of the approximately 6,000 pharmacists will be required to obtain at least 5 of these hours via a live CE program.

Pharmacists, like other adults, may have many barriers to attending live CE programs. In prior studies of the general public, significant barriers to attending live programs have been identified, such as cost, lack of time, inconvenient scheduling, lack of information about educational opportunities, job responsibilities, home responsibilities, lack of interest, indifference to education, and lack of confidence (1, 2). The most severe barriers in these studies were lack of time, cost, and indifference. A study of health professionals used a 45-item instrument to identify 6 deterrent factors: disengagement, which includes inertia (indisposition to exertion or change),

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apathy, and negative opportunities; cost; family constraints; lack of benefit (doubts about the worth and need for participation); lack of quality of curriculum; and work constraints (1). Another study of the general public used a 34-item Deterrents to Participation Scale (DPS-G) to identify 6 deterrent factors: lack of confidence, lack of course relevance, time constraints, low personal priority, cost, and personal problems (3). All of these deterrent factors, except for work constraints, showed considerable predictive power for non-participation in a live program. In a related study of Air Force personnel that used the same instrument, the authors identified eight deterrent factors: lack of course relevance (low magnitude), lack of confidence, cost, time constraints, lack of convenience, lack of interest, family problems, and lack of encouragement (4).

In the above studies, survey instruments consisting of 34 to 60 items (scaled 1-5 or 1-7) were used. Item responses were factor analyzed to identify the underlying deterrent factors. Because of the multitude of reasons adults gave for not attending live programs, an attempt has been made to classify those reasons. The reasons have been categorized as influences external to the individuals or beyond their control (situational deterrents) and those based on personal attitudes or dispositions toward participation (dispositional deterrents) (5). A third category, called institutional barrier (location problems, lack of interesting or relevant offerings, procedural problems related to enrollment and documentation, and lack of information regarding educational opportunities), has also been proposed (6).

Because of the need for pharmacists to obtain mandatory CE credits and to obtain at least five of these credits in live programs, the objective of this proposal was to determine deterrents to pharmacist attendance of live CE programs.

METHODOLOGY

A random sample of pharmacists (about 1,000) practicing in Massachusetts was surveyed using a questionnaire that included demographic items and 33 deterrent statements (see the Appendix for a list of statements). The deterrents, developed by Darkenwald and Valentine, were rated 1-5 in degree of importance (3). An initial

mailing was followed up with two subsequent reminder mailings separated by one-week intervals. Data from returned completed questionnaires were analyzed using the Statistical Package for the Social Sciences (SPSS^x).

Summary descriptive statistics were generated for demographic data. A mean for each deterrent was calculated, and deterrents were rank ordered. The top ten deterrents were identified for men and for women. A factor analysis was performed on the deterrent statements to identify major underlying factors. Deterrent statements that clustered into each factor were summed and tested by a *t*-test between genders and by one-way analysis among other demographic variables to note differences. All statistical findings were measured at a significance level of .05 or less.

RESULTS

From a total of 1,000 mailed questionnaires, 111 were returned as undeliverable, 3 were returned unusable, and 288 were returned usable for a 32.7% response rate, which was an adequate sample of the total population. Men represented 75% of the respondents, and the average age for all respondents was 47.8 years, with a minimum of 25 and a maximum of 81 years. The average age was 50.7 for men and 39.1 for women, which was significantly different ($t = 7.16$, two-tail probability = .0000). The most frequently reported place of employment was an independent pharmacy (28.8%), followed by a hospital (21.2%) and a chain pharmacy (16.3%) (Table 1). Other places of employment, in descending order, were pharmacy-related position, retired, nonpharmacy position, and institutional pharmacy. The largest number of respondents were employed as staff (42.4%), while 31.6% were supervisors. Only 11.5% were pharmacy owners. The largest number of respondents were in the age range of 30-39 (27.7%), while the age range 50-64 was second (26.3%). The other age groups, in descending order, were 40-49, 65+, and 29 or younger.

The number one deterrent to attending a live CE program was inconvenient location, with a mean of 3.33 out of a maximum of 5 (Table 2). Of the first ten deterrents to attending a live CE program, two were inconvenience and five were curriculum deterrents. The

Table 1. Number and Percentage of Pharmacists by Demographics

Item	No.	%	Item	No.	%
<u>Place of Employment</u>			<u>Age Groups</u>		
Independent	83	28.8	< 30	23	8.0
Chain	47	16.3	30-39	80	27.7
Institutional	15	5.2	40-49	67	23.2
Hospital	61	21.2	50-64	76	26.3
Pharmacy-related	34	11.8	65+	43	14.9
Nonpharmacy	16	5.6	Total	289	
Retired	32	11.1			
Total	288				
<u>Gender</u>			<u>Position</u>		
Men	215	75.0	Owner	33	11.5
Women	72	25.0	Super.	91	31.6
Total	287		Staff	122	42.4
			Other	42	14.6
			Total	288	

means for deterrents for men and women were compared, and of the top ten deterrents for men and women; the first four (program offered at inconvenient location, program schedule was inconvenient, not interested in the program, and program did not seem useful or practical) were in the same priority (Table 3). In the remaining six, men had two unique deterrents (program was of poor quality and wanted to learn something specific and program was general), and women had two (program too long and program was offered in unsafe area). Four other deterrents were common but not necessarily of the same rank. All of the top 10 deterrents for women had a mean of 2.0 or more, whereas the men had 6 with a mean of 2.0 or more.

Up to nine underlying factors were identified when the deterrent statements were subjected to a factor analysis procedure (listwise deletion, principal components extraction, Kaiser normalization, and varimax rotation) (KMO value .84023) (289 cases) (Table 4). One of the deterrents, health or handicap problems, did not cluster into a factor; thus, only eight factors were operational. The factors were identified in order of extraction as quality of curriculum (moderate magnitude) (factor deterrent statements' mean of 2.00+), lack of confidence (low magnitude) (factor deterrent statements'

Table 2. Ranking of Deterrents Based on Means

Rank	Deterrent	Mean
1	Inconvenient location	3.33
2	Program schedule inconvenient	2.97
3	Program not interesting	2.73
4	Program not practical	2.47
5	Program too long	2.24
6	Program not meet needs	2.18
7	Program not help on job	2.15
8	Cannot afford registration fee	1.97
9	Take time from family	1.93
10	Program poor quality	1.89
11	Program too general	1.87
12	Not know in time	1.84
13	Not willing give up leisure time	1.84
14	Prefer to learn on own time	1.83
15	Could not participate on regular basis	1.74
16	Program in unsafe place	1.73
17	No time for required study	1.63
18	Could not afford nonregistration cost	1.63
19	Employer not help financially	1.61
20	Program not on right level	1.52
21	Do not enjoy studying	1.50
22	Had trouble arranging for child care	1.40
23	Had transportation problems	1.41
24	Peers not encourage to attend	1.26
25	Could not compete with younger pharmacists	1.24
26	Felt had no ability to learn	1.24
27	Unprepared for program	1.23
28	Program not meet requirements	1.17
29	Personal health or handicap	1.16
30	Could not finish program	1.14
31	Had family problems	1.14
32	Too old	1.12
33	Family discouraged attendance	1.08

mean of less than 2.00), inconvenience (moderate magnitude), home responsibilities (low magnitude), and cost (low magnitude) (Table 5). The remaining three factors of low magnitude were lack of information, lack of encouragement, and lack of interest (Table 6). The magnitude for each factor was found by summing the means of deterrent statements clustered into each factor and calculating the mean of deterrent statements in each factor. Two of the factors had magnitudes of two or more (moderate magnitude): curriculum (2.16) and inconvenience (2.48). The other factor magnitudes were less than two (low magnitude). The last three factors, six, seven,

and eight, were eliminated from further consideration because they accounted for only 20% of the variance caused by factors and because of their low magnitude, loadings, and deterrent statement means.

The home responsibilities factor was a higher deterrent for women (4.35) than for men (3.39), which was significantly different ($t = 3.26$, two-tail probability = .002). The confidence factor was more of a deterrent for pharmacists who were 65 or older than for other ages (Table 7). The home responsibilities factor was more of a deterrent for pharmacists in the 30-39 age group, and the cost factor was more of a deterrent for pharmacists who were younger

Table 3. Top Ten Deterrents and Means by Gender

Deterrent	Men		Women	
	Rank	Mean	Rank	Mean
Inconvenient location	1	3.30	1	3.40
Program schedule inconvenient	2	2.93	2	3.07
Not interested in program	3	2.76	3	2.69
Program not useful or practical	4	2.50	4	2.40
Program not meet needs	5	2.21	10	2.04
Program not help on job	6	2.14	6	2.24
Program poor quality	7	1.97		
Could not afford registration	8	1.94	8	2.08
Program too general	9	1.90		
Program take from family time	10	1.87	7	2.11
Program too long			5	2.33
Unsafe place			9	2.04

Table 4. Table of Final Statistics for Factor Analysis

Factor	Eigen-value	% Variance	Cum %	Label
1	7.79	23.6	23.6	Curriculum
2	3.18	9.6	33.3	Lack of confidence
3	2.09	6.3	39.6	Inconvenience
4	1.64	5.0	44.5	Home responsibilities
5	1.54	4.7	49.2	Cost
6	1.40	4.2	53.5	Lack of information
7	1.31	4.0	57.4	Lack of encouragement
8	1.10	3.3	60.8	Lack of interest
9	1.02	3.1	63.8	No label

Table 5. Factors and Clustered Deterrents

Deterrent	Loading	Mean
<u>Factor 1 (Curriculum)</u>		
Program not useful or practical	.81	2.47
Program poor quality	.75	1.90
Program not meet needs	.74	1.83
Not interested in program	.66	2.73
Program not on right level	.53	1.52
Factor mean		10.79
Deterrent statements' mean		2.16
<u>Factor 2 (Lack of Confidence)</u>		
Could not compete with younger pharmacists	.79	1.24
Too old	.72	1.12
Not meet program requirement	.60	1.17
No ability to learn	.54	1.24
Felt could not finish program	.52	1.14
Program too general	.45	1.87
Transportation problems	.40	1.41
Factor mean		9.18
Deterrent statements' mean		1.31
<u>Factor 3 (Inconvenience)</u>		
Schedule inconvenient	.77	2.97
Inconvenient location	.76	3.33
Personal health or handicap	.61	1.16
Factor mean		7.45
Deterrent statements' mean		2.48
<u>Factor 4 (Home Responsibilities)</u>		
Child care arrangement problems	.79	1.40
Family discouraged attendance	.69	1.08
Family problems	.64	1.13
Factor mean		3.62
Deterrent statements' mean		1.20
<u>Factor 5 (Cost)</u>		
Cannot afford registration	.86	1.97
Could not afford nonregistration cost	.86	1.63
Employer not help financially	.68	1.61
Factor mean		5.20
Deterrent statements' mean		1.73

Table 6. Additional Factors and Clustered Deterrents

Deterrent	Loading	Mean
<u>Factor 6 (Lack of Information)</u>		
Not know in time	.69	1.84
Unprepared	.55	1.22
Not participate regularly	.53	1.74
Factor mean		4.80
Deterrent statements' mean		1.60
<u>Factor 7 (Lack of Encouragement)</u>		
Peers not encourage	.77	1.25
Not help me	.55	2.15
Learn on own	.49	1.83
Unsafe place	.42	1.73
Factor mean		6.96
Deterrent statements' mean		1.74
<u>Factor 8 (Lack of Interest)</u>		
Not give up leisure time	.58	1.84
No time to study	.56	1.63
Time away from home	.52	1.93
Not enjoy studying	.52	1.49
Factor mean		6.88
Deterrent statements' mean		1.72

Table 7. Factor Differences by Age Groups

Age Groups	N	Factor Means by Age Groups		
		Lack of Confidence	Home Responsibilities	Cost
<30	23	8.65	3.39	6.00
30-39	80	8.51	4.40	6.08
40-49	67	8.63	3.43	5.01
50-64	76	9.79	3.17	4.28
65+	43	10.51	3.40	5.09
Total/Mean	289	9.80	3.62	5.20
F Ratio		4.24	7.57	3.94
F Probability		.0024	.0000	.0040

than 40 years of age than for pharmacists in other demographic classifications. Curriculum and inconvenience factors showed no significant differences by age group.

The home responsibilities factor for men by age groups showed a significant difference among age groups; however, no particular age group had a mean exceptionally higher or lower than other age groups (Table 8). Women in the 30-39 age group, however, showed a mean higher than for other age groups.

None of the factors showed any significant differences by organization. However, the confidence factor was more of a deterrent for pharmacists in the "other" category when classified by position (Table 9). Pharmacists who occupied staff positions also were more

Table 8. Home Responsibilities Differences by Gender by Age Groups

Age Groups	Men ¹		Women ²	
	No.	Mean	No.	Mean
<30	8	3.38	13	3.46
30-39	48	3.37	32	5.34
40-49	52	3.31	15	3.87
50-64	67	3.15	9	3.33
65+	40	3.43	3	3.00
Total/Mean	215	3.39	72	4.35

¹F = 2.40, Prob. = .05

²F = 2.83, Prob. = .0314

Table 9. Factor Differences by Position

Position	N	Factor Means by Position	
		Lack of Confidence	Cost
Owner	33	8.70	3.76
Supervisor	91	8.88	5.14
Staff	122	9.11	5.80
Other	42	10.48	4.74
Total/Mean	288	9.18	5.20
F Ratio		2.86	4.44
F Probability		.0371	.0046

deterred by costs than other pharmacists. All other factors showed no differences by position.

DISCUSSION

The demographics of this study population were slightly different from those reported in a national study of pharmacists by Schondelmeyer (7). In this study, the percentage of women was similar, but chain and hospital pharmacists had greater representation, while independent pharmacists had less representation. Owners were also less well represented. Staff were better represented, while supervisors were at about the same level. However, relevant to CE deterrent factors, pharmacists in this study experienced many of the same barriers.

Men and women showed similar top ten deterrents. But one of the womens' top ten deterrents, unsafe place, has future implications. To date, a high percentage of practicing pharmacists have been men; however, the percentage of women is slowly increasing. Women now make up about 60% of all pharmacy students and will eventually be the predominant gender among practicing pharmacists. As women become more prominent, the safety of the scheduled CE site will be of greater concern.

The strongest deterrent to attending live CE programs (although of moderate magnitude) was inconvenience (institutional barrier). To overcome this deterrent, CE providers must consider providing live CE programs in various areas of the state (local sites). Beginning in 1991, all pharmacists will need at least five hours of live CE; therefore, a CE provider could conceivably hold the same live CE program several times at different local sites, bringing the program close to home and overcoming this deterrent. The curriculum factor was the number two deterrent (also of moderate magnitude) (institutional barrier). The impetus for improvement in this area rests with CE providers, who must be cognizant of pharmacists' curriculum needs. These two barriers showed no significant differences among demographic variables; therefore, their variances were caused by individual variances. Marketing to a particular demographic classification alone cannot be used to overcome these two barriers. Within each demographic classification, needs assessment

must be conducted to establish pharmacists' curriculum needs and preferred program scheduling. Needs assessment must be an ongoing activity if these two important barriers are to be overcome.

The cost factor was the number three deterrent (situational barrier). To remove cost as a low magnitude barrier, CE costs could be negotiated between the younger staff employee and the employer as a condition of employment, with the employer covering part or all of the cost of attending live CE programs. Since live CE is being mandated by public representatives, perhaps the cost should be passed on to the consumer and be paid for by the reimbursement system for the provision of pharmaceutical services. Registration fees, necessary for covering the costs of the CE provider, must be addressed by a different approach. In addition to seeking funds from the attendees (but with the idea of minimizing attendee cost), CE providers should consider other sources of funds, such as industry grants, state and federal sources, and other public and private funding agencies, to pay part or all of the CE provider expenses.

The lack of confidence factor, as a barrier of low magnitude (dispositional barrier), seems to be more of a deterrent for retired pharmacists and pharmacists in nontraditional settings. This barrier is created by pharmacists who maintain their registration but are retired or working in nontraditional settings. The barrier is also created by state laws that require all pharmacists, regardless of situation, to obtain CE to maintain their registration. This population represents a small portion of pharmacists, and these pharmacists may continue to encounter this barrier unless CE speakers adjust their level of presentation to some degree. CE providers, however, must continue to plan programs that focus on the larger portion of pharmacists who are still practicing in traditional settings for which the CE requirement was primarily established.

The home responsibilities factor was the fifth factor. Women were more deterred by this factor than men. In addition, this factor seemed to be of primary concern to women in the 30-39 age group. Again, as women become more prominent in pharmacy, those scheduling CE may need to take child care opportunities into consideration. CE programs may even have to be held at sites where child care facilities are available. If the under 30 age group is also included, about 35% of future pharmacists may be particularly in-

fluenced by the home responsibilities deterrent. The applicability of this study beyond the study sample to the state and the nation was uncertain due to the limited number of respondents.

CONCLUSIONS

For this study sample, pharmacists were deterred from attending live CE primarily by institutional barriers as established by CE providers. Curriculum and inconvenience, the two greatest deterrent factors, were experienced by all pharmacists, regardless of demographic classification. These factors must be taken into consideration by all CE providers, irrespective of their market. As women become more prominent in pharmacy, their deterrents to CE will become more important to CE providers.

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APPENDIX

Every year you must select one or more of the many offered CE methods for obtaining your CE credits, to include live CE programs. Live CE programs may be hard to participate in for one or more deterrent reasons. If you obtained your CE credits in non-live CE programs or elected not to participate in some live CE program, look at the deterrent reasons below and decide **HOW IMPORTANT EACH ONE WAS IN YOUR DECISION NOT TO PARTICIPATE** in a live CE program. Please circle only one response number for each reasons. If a reason is not applicable for you, circle number '1'.

Deterrent Reasons	Importance				
	<u>None</u>	<u>Slightly</u>	<u>Somewhat</u>	<u>Quite</u>	<u>Very</u>
1. I felt I couldn't compete with younger pharmacists	1	2	3	4	5
2. I don't enjoy studying	1	2	3	4	5
3. I had a personal health or handicap reason	1	2	3	4	5
4. I didn't think I could finish the program	1	2	3	4	5
5. I didn't have time for the study required	1	2	3	4	5
6. I wanted to learn something specific and the program was general	1	2	3	4	5
7. I didn't meet the requirements for the program	1	2	3	4	5
8. I was not interested in the program	1	2	3	4	5
9. The program was offered at an inconvenient location	1	2	3	4	5
10. I couldn't afford the registration fee	1	2	3	4	5
11. I felt I was too old	1	2	3	4	5
12. I didn't know about the program in time	1	2	3	4	5

13. The program was too long	1	2	3	4	5
14. The program schedule was inconvenient	1	2	3	4	5
15. My family discouraged me from participating	1	2	3	4	5
16. I had transportation problems	1	2	3	4	5
17. The program was of poor quality	1	2	3	4	5
18. I was not confident of my ability to learn the topic	1	2	3	4	5
19. I had family problems	1	2	3	4	5
20. The program would have taken me away from time with my family	1	2	3	4	5
21. I had trouble arranging for child care	1	2	3	4	5
22. The program did not seem useful or practical	1	2	3	4	5
23. I wasn't willing to give up my leisure time	1	2	3	4	5
24. The program was offered in an unsafe area	1	2	3	4	5
25. The program would not help me in my job	1	2	3	4	5
26. I felt unprepared for the program	1	2	3	4	5
27. I couldn't afford the nonregistration expense	1	2	3	4	5
28. The program was not on the right level for me	1	2	3	4	5
29. I didn't think I could participate on a regular basis	1	2	3	4	5

- | | | | | | |
|--------------------------------------------------------|---|---|---|---|---|
| 30. My employer would not provide financial assistance | 1 | 2 | 3 | 4 | 5 |
| 31. The program would not meet my needs | 1 | 2 | 3 | 4 | 5 |
| 32. I prefer to learn on my own | 1 | 2 | 3 | 4 | 5 |
| 33. My companions did not encourage my participation | 1 | 2 | 3 | 4 | 5 |