A Survey of Obesity Education and Training in United States Pharmacy Schools

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ABSTRACT

Objective: To assess how obesity is addressed in Doctor of Pharmacy (PharmD) schools and colleges, identify the extent to which core obesity competencies are covered in the curricula, and identify opportunities for expanding obesity management training.

Methods: An online survey was conducted with PharmD program leaders in the United States. Respondents answered questions regarding obesity education in their pharmacy school curricula. Data were analyzed in aggregate, using descriptive statistics.

Results: We collected responses from 75 of 150 (50%) PharmD programs. One-third (32%) of respondents thought their graduating students were very prepared to discuss obesity pharmacotherapy (anti-obesity medication) options with patients. A total of 45% reported obesity pharmacological treatment was covered to a great extent. Few respondents (19%) were very familiar with anti-obesity medications; 21% thought their students were similarly familiar. No programs covered weight stigma and discrimination to a great extent. Most respondents (88%) believed obesity education was fairly/very important to include in PharmD curricula, and 96% thought it was similarly appropriate to include. But 72% indicated that expanding obesity education was not a priority/low priority. Lack of room in the curricula was cited as the greatest barrier, with 60% of PharmD programs reporting this to be a large barrier.

Conclusion: Pharmacists, as medication experts, are key members of the care team. However, obesity management/pharmacotherapy is not emphasized in most pharmacy schools. Therefore, pharmacists are not well-prepared to provide counseling on medications for obesity. Leveraging guidance on core obesity competencies and available resources could help expand obesity education in pharmacy schools.

1. Plain Language Summary (PLS)

Obesity, like other chronic diseases, is best managed by a team of healthcare professionals. As experts in medications, pharmacists play an important role in caring for patients with obesity, especially supporting treatment with anti-obesity medications (AOMs). We wanted to understand how United States (US) pharmacy schools currently teach obesity management. We conducted an online survey with pharmacy school leaders in the US about obesity education and training in their programs. Half of the US pharmacy schools responded to the survey (75 of 150). Less than half of pharmacy school leaders said they included obesity medications to a great extent in their program. Few respondents (19%) were personally very familiar with AOMs. A total of 21% of program leaders thought their graduating pharmacy students were very familiar with these medications. No pharmacy programs focused on the topic of weight stigma and bias to a great extent. Although almost all pharmacy school leaders thought obesity education was at least fairly important and appropriate to include in pharmacy programs, most said expanding education was a low priority or not a priority. The greatest barrier to expanding obesity education in pharmacy schools was the lack of room in the program. Pharmacists have an important part in obesity management. However, obesity management and AOMs are not addressed in most pharmacy schools. As a result, pharmacists are not well-prepared to provide counseling on medications for obesity. Leveraging guidance on the core skills needed by healthcare professionals as well as available training resources could help expand obesity education in pharmacy schools.

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2. Introduction

Obesity is a serious chronic disease of energy homeostasis dysregulation affecting over 42% of United States (US) adults. Categorized as a body mass index of ≥30 kg/m², obesity increases the risk of developing many cardiometabolic complications and other comorbidities including type 2 diabetes mellitus, cancer, stroke, asthma, and osteoarthritis. Obesity is costly, accounting for nearly half of the direct and indirect cost of chronic diseases in the US as of 2016, totaling $1.72 trillion.

Weight loss, particularly sustained body weight loss of 5% or more, can improve health outcomes and lower healthcare costs, but is difficult to maintain. In combination with a reduced-calorie diet and increased physical activity, pharmacotherapy (or anti-obesity medications [AOMs]), can be effective in managing obesity and is recommended by treatment guidelines. Several AOMs are approved by the US Food and Drug Administration for the long-term treatment of obesity, with recent entrants to the AOM market demonstrating substantial weight loss benefits. Several factors in successfully managing obesity and improving patient outcomes include effective healthcare treatment options, coverage for AOMs and other treatments, and societal and healthcare policies. Another critical component is education and training of healthcare professionals in the management of obesity, which is lacking in medical schools, family residency programs, and internal medicine residency programs; this leads to the lack of effective obesity management in healthcare settings.

To help improve training in obesity management, the Provider Training and Education Workgroup of the Integrated Clinical and Social Systems for the Prevention and Management of Obesity Innovation Collaborative developed the Provider Competencies for the Prevention and Management of Obesity. The collaboration is part of the Strategies to Overcome and Prevent (STOP) Obesity Alliance (https://stop.publichealth.gwu.edu/), consisting of several medical societies and organizations including the American Association of Colleges of Pharmacy (AACP). The Obesity Medicine Education Collaborative, an initiative to promote obesity training in medical education, further expanded upon the competencies established by the STOP Obesity Alliance. These competencies address key issues related to obesity care including obesity physiology, knowledge of obesity-related comorbidities, weight stigma and discrimination, pharmacological treatments, as well as physical, behavioral, and nutritional aspects of obesity. Additionally, they stress the importance of interprofessional obesity care.

Pharmacists are important members of the healthcare team and are in a unique position to support patients with obesity in general and their pharmacotherapeutic management efforts in particular. Both the AACP and the American College of Clinical Pharmacy (ACCP) believe clinical pharmacists play a key role in managing obesity. Additionally, being on the front line of patient care, pharmacists can help mitigate the stigma of obesity and potentially overcome their own biases. Specific training in weight bias is needed in pharmacy schools and could be addressed in interprofessional education (IPE) according to a commentary by Winters and Johnson. The goals of our study are to understand (1) how obesity education and training are currently addressed in the curricula of US Doctor of Pharmacy (PharmD) schools and colleges; (2) identify gaps between key obesity competencies and current pharmacy education program curricula; and (3) identify potential opportunities for incorporating training on obesity management and AOMs in PharmD programs.

3. Methods

3.1. Study Design and Participants

We conducted an anonymous online survey among PharmD program leaders between October 31, 2021, and January 24, 2022. The study was reviewed by the WCG Institutional Review Board and found to qualify for exempt status. Using the Pharmacy College Application Service PharmD Directory, we identified 150 PharmD programs after removing 1 international program and 7 online programs duplicative with an in-person program at the same institution. We compiled a list of 669 unique potential respondents from the contact information provided in the directory, the AACP Chairs email list, and internet searches of additional personnel with titles indicative of program administrative responsibilities.

Email and postal mail invitations included the study objectives, study sponsor (Novo Nordisk) and academic collaborators (Wegmans School of Pharmacy at St. John Fisher University), participation requirements, online survey web link/address, and monetary incentive of $100 if they qualified for and completed the survey. We sent 2 rounds of email reminders to non-responders after the first mailing.

Only respondents consenting to participate in the study were allowed to enter the screening portion of the survey; respondents had to be at least ‘somewhat knowledgeable’ with their curriculum to qualify for the survey. We restricted responses to 1 representative per PharmD program to ensure data consistency and representation across pharmacy schools. Survey data were collected using Decipher (FocusVison, a Forsta brand) online survey software.

3.2. Survey Instrument

We developed a survey with approximately 40 yes/no, single-select, multiple-choice, and Likert-scale questions. Input from qualitative interviews with 4 PharmD program directors guided the survey design. Survey questions included the structure of the PharmD program, nature and setting of obesity training in the curriculum, elective shadowing opportunities in obesity, core obesity competencies coverage, as well as expectations, priorities, and barriers to expanding obesity education.

We used 4-point Likert scales to assess influence (great deal, some, very little, no influence at all), importance (very, fairly, somewhat, not at all important), appropriateness (very, fairly, somewhat, not at all appropriate), familiarity (very, fairly, somewhat, not at all familiar), preparedness (very, fairly, somewhat, not at all prepared), impact (very, fairly, somewhat, not at all impactful), extent (great extent, some extent, very little extent, and not at all; ‘do not know’ was also an option for this scale), priority (high, medium, low, not a priority), and barriers (large, moderate, small, not a barrier). The survey is available upon request to the corresponding author.

3.3. Statistical Analyses

Data were anonymized and analyzed in aggregate with descriptive statistical analysis (means, frequencies) using Q Research Software for Windows 23 (A Division of Displayr, Inc.). Data are presented as a percentage for categorical variables, and continuous data expressed as mean ± SD unless otherwise specified. Percentile values are rounded to the nearest whole number.

4. Results

4.1. Sample Characteristics

A total of 75 of 150 invited PharmD programs responded and completed the survey (response rate of 50%). Median survey length was 18 min. Respondents reported spending 50% of their time on administration, 30% on teaching, and 20% on other areas including research, clinical practice, and scholarship. Almost all were very (43%) or extremely (53%) knowledgeable about the curriculum at their school. All respondents (100%) reported contributing to the decisions regarding their Pharm D curriculum. Table 1 presents the study sample and program characteristics. These programs were representative of US PharmD programs geographically, by type of institution type, and by...
4.2. Obesity in the PharmD Curricula

Most respondents believed obesity education was at least ‘fairly important’ to include in PharmD curricula and more than 8 in 10 thought the topic was ‘very appropriate’ to include (Fig. 1). More than half of PharmD schools (61%) reported that obesity was an intentional educational objective in their program. Few PharmD programs (19%) had at least 1 faculty member who specialized in obesity management. Respondents (among n = 53 who were able to provide this information) reported that their curricula included an average of 3 credits/credit hours dedicated to obesity (median = 2.0), out of a total of 155 credits/credit hours in the pharmacy program. However, when asked how obesity education was included in their PharmD curriculum, only 3% of respondents reported that obesity was taught as a stand-alone course; instead, it was typically included as a dedicated lecture within another course (73%) or integrated into other courses (51%).

Only 23% of PharmD programs offered elective shadowing opportunities with medical and/or pharmacist providers who specifically treated patients with obesity. Opportunities to work with non-medical providers such as dietitians or psychologists were sparse, as only 4% of programs offered these shadowing options.

Most respondents (79%) were ‘not at all familiar’ with The Provider Competencies for the Prevention and Management of Obesity. A total of 19% were ‘somewhat familiar’; none were ‘very familiar’ with the competencies. Of the obesity core competencies, pharmacological treatments for obesity and knowledge of obesity-related comorbidities had the greatest coverage in PharmD programs (Fig. 2). Physiology of obesity was covered to at least ‘some extent’ in 73% of schools; use of respectful language when communicating with patients with obesity was covered to the same degree by 52%. Weight stigma and discrimination were not covered to a ‘great extent’ by any program.

4.3. Preparedness in Addressing Obesity-Specific Topics

The majority of PharmD program leaders were at least ‘fairly prepared’ to discuss obesity-related topics with their patients with obesity (Fig. 3). Respondents thought their students were similarly prepared to discuss pharmacotherapy options but less prepared in all other areas (Fig. 3). However, only about one-quarter of PharmD program leaders were ‘very prepared’ to discuss pharmacotherapy with their patients with obesity; 32% of respondents believed their students were similarly prepared (Fig. 3). Although most respondents (93%) were at least
‘somewhat familiar’ with currently available US Food and Drug Administration-approved prescription AOMs, only 19% were ‘very familiar’ with them. According to program leaders, students’ familiarity with AOMs was similar, with 97% of respondents believing their students were at least ‘somewhat familiar;’ only 21% thought their students were ‘very familiar with AOMs’.

4.4. Expanding Obesity Education in PharmD Curricula

Most programs (72%) indicated that expanding obesity education in their PharmD program was a low priority or not a priority; only 1% said it was a high priority. Few (13%) reported having discussions about incorporating/expanding formal education on obesity in their pharmacy school. When asked when they expected to implement/expand their obesity education curricula, 39% thought this would occur at least 2 years into the future; however, 40% did not anticipate their program expanding the curricula to include obesity education. PharmD program leaders reported that lack of room in the curricula was the greatest barrier to integrating obesity education (Fig. 4). Other concerns represent small or moderate limitations, including a lack of faculty expertise and available pharmacotherapy options to treat obesity (Fig. 4).

Respondents believed guidelines from Accreditation Council for Pharmacy Education/ACCP/AACP would have the greatest impact on the inclusion of obesity education in their PharmD programs; these were perceived as at least ‘fairly impactful’ by 81% of program leaders. Resources for IPE between PharmD students and other healthcare professionals were considered to be at least ‘fairly impactful’ by 76% of respondents. Many respondents (65%) felt that national obesity certification for PharmD students would be ‘fairly impactful’ or ‘very impactful.’ Almost all (93%) reported Accreditation Council for Pharmacy Education having a ‘great deal of influence’ regarding the content taught within their pharmacy school curriculum, substantially more so than AACP (37%), ACCP (16%), and American Public Health Association (4%).

When asked about the impact healthcare system changes would have in increasing the amount of obesity education included in their curricula, most respondents indicated that reimbursement of obesity and lifestyle management options including payments to pharmacists would be ‘fairly impactful’ (24%) or ‘very impactful’ (65%). Improving access/coverage for obesity pharmacotherapy was considered to be at least ‘fairly impactful’ by 73% of respondents, followed by an increase in healthcare professionals/practices specializing in or treating obesity (73%), improvement in obesity pharmacotherapy options (69%), and more data on obesity pharmacotherapy (55%).

5. Discussion

Obesity is a serious chronic disease best addressed by a multi-
disciplinary team, including pharmacists. We sought to assess how obesity is currently taught in PharmD curricula in the US, and the degree to which core obesity competencies are covered. Our research adds to the limited literature regarding obesity education and training specific to PharmD programs and can be used to identify and promote opportunities to offer additional obesity training in US pharmacy schools.

In our study, we found low perceived levels of pharmacy student preparedness to help patients manage obesity, likely due to the relatively minimal coverage of obesity competencies. Only about one-third of PharmD program leaders thought their graduating students were very prepared to discuss pharmacotherapy options with their patients with obesity; about the same proportion thought students were not at all or somewhat prepared to do this. This corresponds to the low levels of familiarity with AOMs – only about 20% considered themselves and their students to be very familiar with them. Although pharmacological treatment for obesity had the greatest coverage in the pharmacy schools surveyed, less than half addressed this to a great extent, similar to the level of coverage regarding knowledge of obesity-related comorbidities and weight loss benefits. Use of appropriate language for communicating with people with obesity was covered to a lesser extent. Weight stigma was barely covered by 6 in 10 programs surveyed, highlighting a missed opportunity that should be addressed in pharmacy school education.

Most pharmacy program directors agreed it is important and appropriate to include obesity education in PharmD program curricula, a sentiment echoed by pharmacist organizations and pharmacy school leaders. This is reinforced by the number of interventions that have been undertaken by pharmacists as described in reviews by Clements and colleagues, Jordan and Harmon, and Rosenthal and colleagues, as well as a pilot program focusing on physical activity and nutrition education studied by Robles and colleagues. However, lack of knowledge about obesity management, including treatment with AOMs, is a barrier to implementing pharmacist-led interventions. In their 2007 survey of pharmacy schools, Lenz and colleagues found few offered or required courses on lifestyle modification topics.
including exercise and nutrition. Our study shows there is considerable room for improvement regarding the inclusion of obesity management topics in pharmacy schools. Many respondents indicated that obesity was an intentional educational objective in their PharmD program, but when obesity is included in the curriculum, it is typically taught as a risk factor for other diseases rather than as a disease itself, one of energy homeostasis dysregulation.

We found a discordance between perceived importance and appropriateness of including obesity education in pharmacy schools and the priority placed on ensuring its inclusion in the curriculum. Almost no PharmD programs surveyed considered expanding obesity education to be a high priority and many anticipated this would not happen at all. Lack of room in the curricula was cited as the single greatest barrier; lack of faculty expertise and low levels of AOM prescriptions by healthcare professionals were considered to be at least moderate barriers for slightly less than half of programs. Almost one-third of respondents cited a lack of available obesity pharmacotherapy options as a barrier, despite the availability and effectiveness of several AOMs.21-23 The challenge in incorporating obesity education in pharmacy school programs appears not to be one of lack of motivation or interest, but rather a perception of limited opportunities for effectively addressing this topic in the curriculum.

Education and training can effectively increase knowledge and understanding about obesity management and treatments. In a study examining the impact of a 1-day obesity IPE activity for healthcare professionals including pharmacists, Sanchez-Ramirez and colleagues46 found that participants self-reported increases in their professional skills and attitudes regarding obesity management; Verma and colleagues47 demonstrated similar findings in their study evaluating the impact of an educational training program among community pharmacists in Malaysia. In our study, we found a lack of faculty specializing in obesity management and elective shadowing opportunities with other healthcare providers specifically related to obesity. However, only lack of room in the curriculum was cited as a main barrier to expanding obesity education in PharmD programs.

To overcome these challenges, pharmacy schools could benefit from the experiences of other PharmD programs that have prioritized obesity education such as Auburn University’s Harrison School of Pharmacy, which developed an integrated curriculum with a goal to prepare students to deliver obesity management services in their communities.48 Additional/external resources could help pharmacy schools overcome barriers to incorporating obesity education in their programs. The Obesity Medicine Association offers the Obesity Medicine Association Obesity Treatment Proficiency Badge, a program designed for all healthcare professionals, including pharmacists, which includes 25 courses and case studies.49 A weight management certificate offered by the American Society of Health-System Pharmacists is a self-guided, online learning activity providing continuing education in obesity management.50 Self-directed programs could be an efficient way of providing additional obesity education opportunities to their students.

5.1. Limitations

Limitations include responder bias, but given the study findings, it appears respondents were truthful in their responses to the survey. However, the perceptions and assessment of their pharmacy schools’ coverage of core topics and offerings may not represent the opinions of other PharmD program leaders or administrative staff at their school. Additionally, the number of credit hours dedicated to obesity may be overestimated; however, this represents less than 2% of the total pharmacy school credit hours, demonstrating that obesity is not covered to a great extent. Furthermore, how/the extent to which obesity was addressed in courses on other topics was not assessed; thus, it is possible that coverage of obesity-related topics may be underreported. Our sample size was restricted by the number of US pharmacy schools. Generalizability could be limited to the participating PharmD schools, but the sample is representative of all US PharmD programs with respect to geography, institution type, and program structure. Larger pharmacy schools with multiple program leaders or administrative staff had a greater opportunity for participation, as survey invitations were sent to all available contacts. The topic of the study, obesity education, may have had a role in respondents’ decision to participate in the survey; those who were more interested in obesity education could have been more likely to participate and may be over-represented. If this is indeed the case, our study results would be under- rather than overstated. Lastly, we only examined obesity education in PharmD curricula; thus, we are unable to compare training in this area with other diseases. Future research could evaluate pharmacy education in other therapy areas to provide greater context for the coverage of obesity care.

6. Conclusion

Less than a third of pharmacy students are thought to be highly prepared to discuss AOMs with patients, as assessed by their faculty. As core members of the care team who are pharmacotherapy experts, pharmacists should be well-positioned to support the treatment of obesity.

We can improve and elevate the quality and care for people with obesity by ensuring pharmacists have competency and knowledge around obesity management, particularly by increasing their familiarity with and understanding of obesity pharmacotherapy options. Opportunities exist to expand education and training in obesity management in pharmacy schools by leveraging the guidance of the Provider Competencies for the Prevention and Management of Obesity and existing resources.

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Author Contributions

EP and BGS designed the study and developed the study materials. All authors participated in interpretation of the data and drafting and revising the manuscript. All authors reviewed and approved the final, submitted version.

References


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