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Research Article

Empathy Enhancement in Pharmacy Students: Impact of a Behavior Change Assessment

Shahid Hammrah

Haldia Institute of Pharmacy, India.

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E-mail Id:
shahidhammrah21@gmail.com
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A B S T R A C T

Background: Empathy is recognized as a crucial attribute for healthcare professionals, influencing patient satisfaction, adherence to treatment, and overall health outcomes.

Aims: This research aimed to determine if a behavior change could increase empathy in pharmacy students, as measured by a validated empathy scoring system.

Methods: Pharmacy students completed a pre-assessment using the Kiersma-Chen Empathy Scale. They then undertook a behavior change assignment, selecting a personal behavior to change for ten days, followed by a post-assessment using the same tool.

Results: The study found a statistically significant increase in empathy scores among pharmacy students after completing the behavior change assignment ($p<0.01$), with an 81.3% response rate. Factors such as age, gender, campus location, or the type of behavior change did not influence the results.

Conclusions: The behavior change assignment, which required minimal classroom time and resources and was not linked to a specific disease state, effectively increased empathy in pharmacy students.

Keywords: Empathy, Behavior Change, Pharmacy Students

Introduction

Empathy is defined in various ways depending on the source, but the common theme is that empathy is "the ability to see the world as others see it, be nonjudgmental, understand another's feelings, and communicate that understanding. Despite differing definitions, there is consensus that empathy is a crucial skill in healthcare, including pharmacy.[1] The Center for Advancement of Pharmaceutical Education (CAPE) specifies that upon graduation, pharmacists should "exhibit a caring and respectful attitude and demonstrate empathy".[2] Furthermore, the Accreditation Council for Pharmacy Education (ACPE) emphasizes the importance of empathy starting at the admissions process and continuing throughout the curriculum.[2] As the ACPE and CAPE standards are updated, there is an increasing focus on empathy-related skills.[3] Since pharmacists interact with patients in various settings, empathy towards different disease states, socioeconomic situations, and patient populations is vital for effective healthcare delivery. Developing empathy in future healthcare practitioners is important because it has been shown to significantly improve patient adherence to healthcare plans, reduce medical errors, and enhance patient satisfaction.[4,5] A review by Derksen and colleagues of seven empathy studies highlighted that empathy also plays a key role in communication, reducing patient anxiety and stress, and leading to better diagnostic and clinical outcomes in the medical field.[6]

Despite the need for empathetic healthcare practitioners upon graduation, evidence suggests that empathy can decrease as students progress through various graduate healthcare programs, including nursing and medicine, with inconclusive results in pharmacy.[7] Consequently, several studies have aimed to measure and enhance empathy in students. For instance, one study involved students playing a board game and another had them watch a performance, both designed to highlight the struggles of elderly patients within the healthcare system.[8] The first study showed a significant initial increase in empathy, but this was not sustained at the seven and 26-day marks.[9] The second study reported improvements in empathy-related outcomes among both medical and pharmacy students, with higher empathy scores in women compared to men; however, no sustained change in empathy was observed across groups.[8] Additionally, several studies have engaged students in patient scenarios, such as managing medications or shopping for healthy foods, based on specific chronic disease states, socioeconomic difficulties, low literacy, or poverty.[7]

Two studies revealed increased empathy as demonstrated in student reflections, though it was not formally measured.[11] These studies, as well as others, reported changes in empathy related to a specific assigned disease state, which required intensive resources and significant classroom or experiential rotation time to achieve.[12] Another study found that when combining the curriculum from ethics and oncology courses, empathy regarding death and dying significantly increased ($p<0.008$) over a five-week instructional model.[12] More recently, Lor and colleagues measured empathy changes over a three-day simulation of activity loss in the dominant hand, vision, and speech. Empathy increased in pharmacy students seven days post-intervention but was not sustained at ninety days.[13]

Studies have employed various methods to assess empathy, including validated surveys such as the Jefferson Scale of Empathy-Health Professional Students (JSE-HPS) and the Balanced Emotional Empathy Scale (BEES). The JSE-HPS, specifically validated for pharmacy students, is widely used despite its associated costs.[12] Another validated tool, the Kiersma-Chen Empathy Scale, was developed as an alternative to the JSE-HPS, measuring both cognitive and affective empathy constructs based on different theoretical foundations.[14] This scale consists of 15 Likert-scale questions, including four reverse-coded items, generating a composite score where higher scores indicate increased empathy. It has been validated against the JSE-HPS, demonstrating its suitability for assessing empathy in pharmacy and nursing students.[15]

In addition to cost considerations, some studies have relied on student reflections as a less objective measure, though not formally validated as a tool for empathy assessment.[15]

Despite some positive findings in the literature regarding empathy, one significant limitation is that research has predominantly focused on measuring increased empathy related to specific disease states or socioeconomic issues. Furthermore, these exercises often require substantial effort in terms of assignment development, grading, and classroom or experiential training time, typically involving small groups.[16] There is a clear need for empathy-building exercises in healthcare curricula that are more resource-efficient and applicable to a broader population.

Effective healthcare often requires behavior change in addition to pharmacotherapy management for many disease state treatment plans. Various strategies and theories have been employed to influence behavior change, including individual cognitive change theory, ecological and community intervention models, and approaches targeting single or multiple behaviors simultaneously, with no consensus on the most effective method.[16] Increasing empathy related to behavior change could potentially aid future healthcare practitioners in facilitating behavior change among patients. Developing a method to enhance empathy about behavior change within healthcare curricula could address this need. It would be ideal if this method could be applied across diverse disease states and patient populations, rather than focusing solely on specific conditions or socioeconomic traits.

For instance, a previous study, the My First Patient program, involved students conducting health screenings and assessing behaviors like sleep, exercise, and nutrition. Students set personal goals for behavior improvement, implemented changes, and tracked progress, which increased their awareness and understanding of patients' struggles related to behavior change.[17] Although empathy was not the primary endpoint in this study, student reflections indicated heightened empathy regarding patient struggles with behavioral changes.

Integrating empathy and behavior change into the curriculum could be advantageous in cultivating empathetic healthcare providers capable of supporting patients in behavior management as part of disease treatment. Current pharmacy curricula face challenges in teaching soft skills such as empathy in classroom settings before students gain clinical experience. Therefore, developing methods to enhance or address empathy within the classroom setting is crucial. As the role of pharmacists continues to expand, ensuring the development of empathetic providers falls on pharmacy curricula to adequately prepare students.

Method

The primary aim of this research is to evaluate whether a behavior change assignment, requiring minimal classroom

time and resources and unrelated to specific disease states, results in increased empathy among pharmacy students, as assessed using the Kiersma-Chen Empathy Scale. Upon completing the initial empathy assessment using the Kiersma-Chen Empathy Scale. Participation in the pre- and post-assessments was voluntary.

Each student selected a personal behavior to change over the following ten days, such as exercising for thirty minutes daily, consuming 64 fluid ounces of water daily, eliminating soda from their diet, getting eight hours of sleep each night, or quitting smoking. They were encouraged to set specific, measurable, realistic, and achievable goals for daily behavior changes. Throughout the assignment, students maintained a daily log noting their success or challenges in achieving their behavior change goals.

At the end of the ten days, students repeated the empathy assessment .They also provided demographic information, including age and gender, and indicated whether their behavior change was positive (e.g., increasing exercise time) or negative (e.g., reducing soda intake). Positive changes were defined as additions or increases in beneficial behaviors, while negative changes involved reductions or eliminations of less desirable behaviors.

To conclude the students were required to write a reflective essay describing their experiences and insights gained from the behavior change process. These essays were graded as part of the course assessment, complementing the empirical data collected through the empathy assessments and behavior change logs.

The individual scores of each student were analyzed using SYSTAT® 13 software. Initial assessment scores were manually calculated and entered into a database by a researcher, with double-checking to ensure accuracy. Descriptive statistics were employed to summarize demographic data, including age and gender.

To assess changes in empathy scores before and after the behavior change assignment, paired t-tests were conducted for each student. Statistical significance was set at $p<0.05$, indicating meaningful differences in empathy scores.

Logistic regression analysis was employed to examine whether factors such as age, gender, campus location, or type of behavior change predicted improvements in empathy scores. This statistical method helps determine whether these variables are significant predictors of empathy score changes following the behavior change assignment.

Overall, these analytical approaches allowed for a comprehensive evaluation of the impact of the behavior change assignment on empathy levels among pharmacy students, accounting for various demographic and behavioral factors.

This activity achieved significant results with minimal class time; including assessments, less than thirty minutes were utilized. Another notable aspect is that previous studies typically linked increased empathy to specific disease states, population subsets, or socioeconomic conditions .[13] In contrast, this study focused on behavior change challenges. By allowing students to select their behavior change targets without restriction, the observed empathy increase might potentially extend across various disease states and populations striving to improve healthcare outcomes through behavioral changes. Furthermore, the study encompassed both positive and negative behavior.

Table 4.Factors Affecting Treatment Adherence and Response Among Already Known Diabetics

Category	Results
Age (years)	Minimum: 21
	Maximum: 45
	Mean: 25.3
	Standard deviation: 4.285
Gender	Male: 52.5% (N=42)
	Female: 47.5% (N=47.5)
Type of behavior change	Positive: 48
	Negative: 26

Results

One hundred students were eligible to participate in the study, with 81 completing both the pre- and post-assessment scores, resulting in a response rate of 81%. There were 42 males (52.5%) and 38 females (47.5%) who participated, with additional demographic details available in Table I. The average pre-assessment score was 82.1, and the post-assessment score averaged 84.4, indicating a statistically significant improvement ($p < 0.011$, 95% CI -4.1 to -0.6) in empathy scores based on paired t-test analysis. As of now, no minimum improvement criteria have been established by the creators of the empathy scale.

Discussion

An focusing on behavior change led to significant increases in empathy scores among pharmacy students, which is a noteworthy discovery for several reasons. Initially, as mentioned earlier, empathy levels tend to decline across most graduate healthcare programs, although pharmacy education has shown varying results.[11] This study specifically targeted third-year students, demonstrating that enhancing empathy can effectively be integrated into this phase of the curriculum. Additionally, previous empathy-building activities often demanded extensive classroom time or resource use, such as requiring students to view videos or performances, or allocating a grocery shopping budget.[12]

changes, and logistic regression analysis revealed no significant difference in empathy increase between these categories, suggesting broad applicability in future contexts. demonstrated that factors like gender can influence empathy among individuals in pharmacy. However, the results of our study indicate no significant differences in scores or predictive value associated with age, gender, campus location, or the nature of behavior change. Despite the relatively small sample size, which is consistent with other studies, approximately 47% of our participants were female, and the absence of gender-based differences ensures that overall findings are not skewed.

This study's relevance extends beyond specific topics and could be integrated into various pharmacy program curricula. While conducted with third-year students, it could feasibly be implemented in earlier years, as disease-specific knowledge was not required for project completion. Our study encompassed both a main campus and a satellite campus, with no discernible differences in results between locations, suggesting adaptability across different institutional settings.

Unlike previous studies limited to small populations such as those on clinical rotations, our methods are scalable to larger cohorts. The assignment's duration of ten days was chosen strategically; it allowed for a significantly longer observation period compared to many previous studies, encompassing weekdays and weekends. Crucially, both the behavior change assignment and post-assessment were completed by students before discussing behavior change techniques and benefits in class, mitigating classroom influence as a confounding factor in empathy changes.

Conclusion

In summary, this study revealed a statistically significant increase in pharmacy students' empathy scores through a behavior change assignment, with consistent results across age, gender, campus location, and the nature of behavior change. These findings underscore the potential of integrating empathy-building initiatives into graduate healthcare programs to cultivate empathetic healthcare providers. The study highlights the effectiveness of targeted behavior change approaches as valuable additions to pharmacy and potentially other healthcare curricula, specifically for their capacity to enhance empathy skills.

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