Impact of using team-based learning in patient education on diabetes outcomes

Tracy R Frame1, Juanita A Draime2, Thaddeus T Fran3

1 PharmD, BCACP, Belmont University; 2BSPS, MA, PharmD Candidate 2016, Cedarville University; 3PharmD, Cedarville University

BACKGROUND

Diabetes (DM)
- DM is a prevalent, chronic disease in the US (25.8 million people had Type 2 in 2010).1,2
- Impacts patient quality of life and has significant financial implications for the US.1,3
- Maintaining control using appropriate self-care management can help reduce healthcare costs and improve patient outcomes by decreasing morbidity and mortality.

Traditional Diabetes Education and the Pharmacist’s Role
- DM self-management education (DSME) is an ongoing process of teaching patients the knowledge, skills, and abilities necessary for diabetes self-care.4,5
- Group education has been shown to improve outcomes; however, this typically consists of lecture-based presentations with some interactive group discussions.6,7
- Studies have shown improvement of patient outcomes with a pharmacist-led DM care program.4,5

Team-Based Learning (TBL)
- In academic settings, institutions are increasingly using TBL for student mastery of concepts.

PURPOSE AND OBJECTIVES

PURPOSE:
- To assess changes in quality of life (QOL).
- To compare the effects of a 12-week TBL intervention versus traditional, lecture-based education on patient outcomes.

Primary Objectives:
- To assess the changes in clinical lab markers (A1c, HgA1C, BP, weight) of Type 2 diabetes patients.

Secondary Objectives:
- To assess changes in patient knowledge.
- To assess changes in quality of life (QOL).
- To assess self-management adherence.

METHODS

Research Logistics
- IRB approval was obtained.
- 12-week randomized, pretreatment control group study.
- Patients were recruited from a FQHC in Springfield, OH (Ricking Horse Community Health Center).
- Patients with diabetes (21 years of age, able to read/speak English) who attended a primary care visit during January and February 2013 were invited to participate.
- Patients completed a survey on availability to determine top two days most patients could attend (control and TBL). TBL was limited to 15 sessions.
- Patients were able to ask many questions, hear and discuss patient concerns.
- Teams then did application based learning (TBL) diabetes education intervention.

Education Provided
- Control group: traditional lecture-based education by clinical pharmacists and professional pharmacy students using PowerPoint lecture during 4, 1-hour weekly group sessions over 12 weeks.
- Intervention group: TBL provided by clinical pharmacists and professional pharmacy students during 4, 2-hour bi-weekly group sessions over 12 weeks.
- Patients assigned to teams of 5.
- Given literacy-level appropriate preparation materials to read prior to each session.
- TBL process at each session:
  - Patients completed multiple choice individual readiness assurance tests (IRATs).
  - Same test completed in their teams (TRATs).
  - Mini-lecture was then given to address confusing topics to whole group.
  - Some lectures included discussion of outcomes, repeated measures ANOVA for longitudinal changes, Friedman test for longitudinal changes.

CONCLUSIONS

DISCUSSION/CONCLUSIONS
- The control arm showed a significant difference with the A1c between the control and TBL arm at 6 months. Within groups, the TBL arm showed significant improvement in systolic blood pressure and self-efficacy scores. The control group was significant for an increase in weight. Both the TBL and control group showed improvement in glycemic control and diabetes knowledge, and diastolic blood pressure.
- Overall, TBL in patient education changes the way patients typically learn when attending education classes.
- In patients setting were able to ask many questions, hear and other patient questions, and learn the same information multiple times in different ways and identify a support system with other team members.
- TBL in patient education can improve clinical markers and retention of diabetes knowledge.
- While traditional education is clearly beneficial for patients, TBL-based education provides an opportunity to apply information learned and improve personal outcomes.
- It would be very helpful to perform this study on a much larger population.
- Health care providers should consider utilizing TBL when teaching not only diabetes education, but also for other patient educational programs as well.

LIMITATIONS
- Loss of patients (i.e., attrition) over the 6-month period, A1c new machine malfunction (required the use of clinical DCA Vantage Analyzer) which could have impacted the results.
- Prior to this study, no diabetes education had been offered or provided to patients at this healthcare center. Due to this, patients that enrolled in the study could have been more motivated to make changes which could impact their quality of life and desire to learn.