

## Background

- Because of increased autonomy and proximity to the workforce and college independence, the adolescent population is an important consumer of over-the-counter (OTC) medications.
- Evidence suggests that the majority of adolescents self-medicate to some extent but receive little education concerning medications from health care professionals.
- These findings are of significant concern because the adolescent population does not necessarily self-medicate correctly or effectively. It is believed that pharmacists need to take actions to ensure this population is educated concerning OTC medications.

## Theoretical Framework

- It was also believed that using a theoretical approach to guide the development of an intervention would help focus the attention on the most critical concepts and skills and create a more efficient learning process. Therefore, the social cognitive theory (SCT) served as the basis for this study.
- According to the SCT, to enhance student's knowledge and beliefs concerning OTC pain medications students must:
  - recognize situations in which they may need OTC pain medications (situational perception)
  - possess the knowledge and skills necessary to properly use OTC pain medications (behavioral capability)
  - believe that properly using OTC pain medications will have beneficial consequences while improper use will have negative consequences (outcome expectations)
  - value the expected consequences (positive and negative) of OTC pain medication use (outcome expectancies)
  - be confident in their abilities to properly use OTC pain medications (self-efficacy). These constructs served as the dependent variables and the intervention served as the independent variable

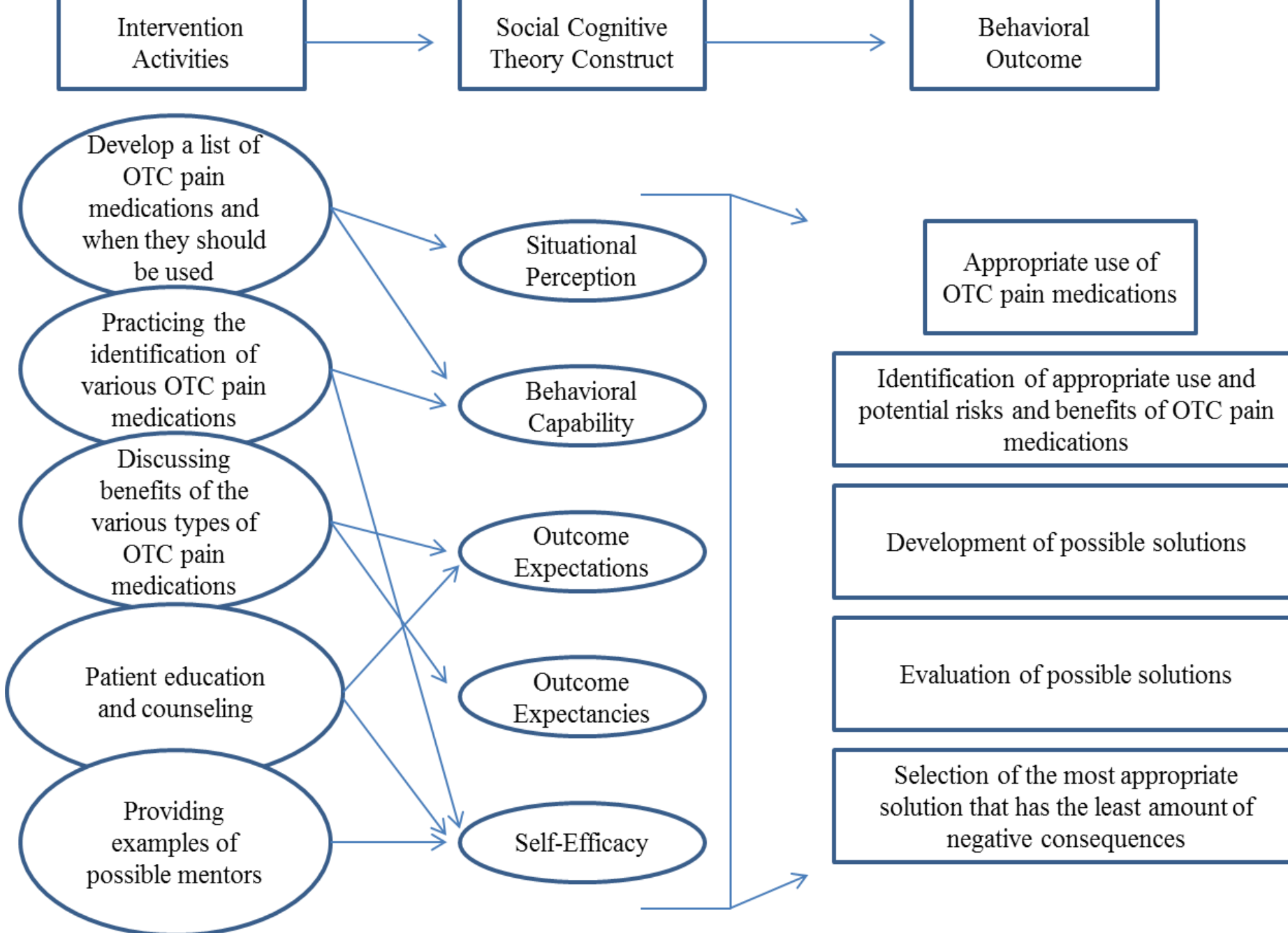
## Objective

- The purpose of this investigation was to determine the influence of a brief educational intervention, based on the social cognitive theory (SCT), concerning OTC pain medication knowledge and beliefs among an adolescent population.

## Educational Intervention

- The intervention evaluated consisted of one 90 minute session and utilized a problem-solving process, which included identifying the problem at hand, formulating and evaluating possible solutions, selecting the most appropriate solution that has the least amount of negative consequences, and successfully enacting the chosen solution.
- Students developed a list of OTC pain medications of which they were familiar along with when they would use these products.
- Next, a PowerPoint presentation was delivered and students participated in an activity requiring them to properly identify various OTC pain medications.
- This was followed by a discussion of the students' lists and of the activity. Students then received "counseling" concerning these products and provided educational materials.
- Finally, students were asked to identify individuals who could assist them with questions they may have concerning use and potential risks and benefits of OTC pain medications.

### Description of intervention and links between SCT constructs and outcomes



### Educational intervention learning objectives

- Discuss the purpose of OTC pain medications.
- Discuss the importance of consuming the medication as directed on the label.
- Discuss the similarities and differences of OTC pain medication types.
- Understand that children and adolescents should obtain permission from an adult before using any medicine.
- Understand to only use active ingredients that treat symptoms or problems they have.
- Understand that two medicines with the same active ingredient should not be used together.
- Understand how to get more information about their medicines.
- Identify the various sections of an OTC pain medication's Drug Facts label.
- Identify the active ingredient(s) in an OTC pain medication.
- Select the various ailments OTC pain medications can treat.

## Data

Comparison of control and intervention groups for study variables at pretest (n=203)				Comparison of posttest scores (adjusted for pretest scores) of the dependent variables and results of statistical testing between the groups (n=203)			
Variable (range)	Control Group (n=103) Mean (SD)	Intervention Group (n=100) Mean (SD)	p value	Variable (range)	Control Group (n=103) Mean (SD)	Intervention Group (n=100) Mean (SD)	p value * ≤ 0.05
Situational perception of need for OTC meds (4-20)	12.36 (4.74)	13.26 (4.76)	0.178	Situational perception of need for OTC meds (4-20)	13.14 (4.41)	13.84 (4.56)	0.266
Situational perception of OTC meds for pain (4-20)	15.09 (4.11)	14.50 (4.24)	0.318	Situational perception of OTC meds for pain (4-20)	14.46 (4.22)	14.36 (3.94)	0.863
Outcome expectations of OTC meds (10-50)	30.83 (6.53)	31.31 (5.60)	0.579	Outcome expectations of OTC meds (10-50)	31.44 (7.67)	33.86 (7.89)	0.028*
Self-efficacy in appropriate use (7-35)	25.25 (7.35)	27.07 (6.93)	0.070	Self-efficacy in appropriate use (7-35)	26.40 (6.68)	25.89 (8.45)	0.635
Outcome expectancies of appropriate use (7-35)	28.41 (7.35)	27.31 (6.74)	0.269	Outcome expectancies of appropriate use (7-35)	26.42 (6.68)	27.41 (8.83)	0.369
Behavioral capability (knowledge) (0-10)	6.97 (1.82)	6.62 (1.76)	0.164	Behavioral capability (knowledge) (0-10)	6.98 (1.98)	7.71 (1.91)	0.008*

Situational Perception (Need) Rubric:  
 Situational Perception (Pain) Rubric:  
 Outcome Expectations Rubric:  
 Self-Efficacy Rubric:  
 Outcome Expectancies Rubric:  
 Behavioral Capability Rubric:

1 = very unlikely to 5 = very likely  
 1 = none to 5 = a great deal  
 1 = strongly disagree to 5 = strongly agree  
 1 = very unsure to 5 = very sure  
 1 = very unimportant to 5 = very important  
 10 true/false statements

## Methods

- Two hundred and three high school students were recruited from 10 classrooms in a Southern, rural school. Five classrooms were randomly assigned to the control (n=103) and five classrooms to the SCT-based intervention (n=100) through use of a random number generator created in Microsoft Excel.
- The experimental group received the SCT-based intervention and the control received the regularly scheduled lesson for the particular subject scheduled from the classroom teacher.
- Pretest and posttest data were collected from study participants two weeks before and two weeks after the intervention
- Psychometrically tested instruments were developed for measuring constructs of SCT. Readability, face validity, and content validity of the instrument were established by a panel including university professors, school district health educators and the researchers in a two round review process. Six scales measured the constructs of the SCT. Cronbach's alphas for the scales ranged between 0.81 and 0.94.
- Descriptive statistics, chi-squares, ANOVA and ANCOVA were generated to examine the data. All comparisons were made using an *a priori* alpha level of 0.05. The Union University institutional review board (IRB) approved this study.

## Results

- The two groups did not differ in the distribution of age, grade, gender, race, or any of the six study variables at pretest.
- Fifty percent of control and 53% of experimental subjects reported taking OTC pain medications without assistance from an adult; of these subjects, 40% and 37%, respectively, reported obtaining the product from somewhere in the house while 15% and 20% respectively, reported purchasing the product themselves.
- Fifty-six percent of control and 47% of experimental subjects reported consuming an OTC pain medication at least once a month; while 28% and 25%, respectively, reported consuming an OTC pain medication at least once a week.
- Significant improvements at posttest for the intervention group when compared to the control group were observed for outcome expectations of OTC pain medications (p ≤ 0.05) and behavioral capabilities (p ≤ 0.05).
- No significant changes were observed for situational perception, outcome expectancies, or self-efficacy in any analyses.

## Conclusions

- The results of this intervention suggest that lessons based on the SCT to improve the outcome expectations an adolescent population places on the consumption of OTC pain medications may assist in the development of the knowledge and skills necessary to properly consume these products.
- This may be of particular importance given students in this study (over 50%) believed they already possessed the ability to recognize situations in which they may need OTC pain medications, had confidence in their abilities to properly consume OTC pain medications, and possessed high values regarding the expected consequences, both positive and negative, of OTC pain medications.
- This study should be replicated in schools that differ on various demographic variables such as socioeconomic status, race, and geographic location.