

## Research and Use of Theory

Nutrition plays a vital role in the growth, maintenance and healing of oral tissues and structures.<sup>1</sup> Various oral pathologies have nutritional origins and implications, but research indicates few dental hygienists receive adequate nutrition education to provide nutrition advice to patients.<sup>2</sup>

An applied nutrition course informed by the social cognitive theory may improve nutrition knowledge, self-efficacy and patient care (Figure 1).<sup>3</sup>

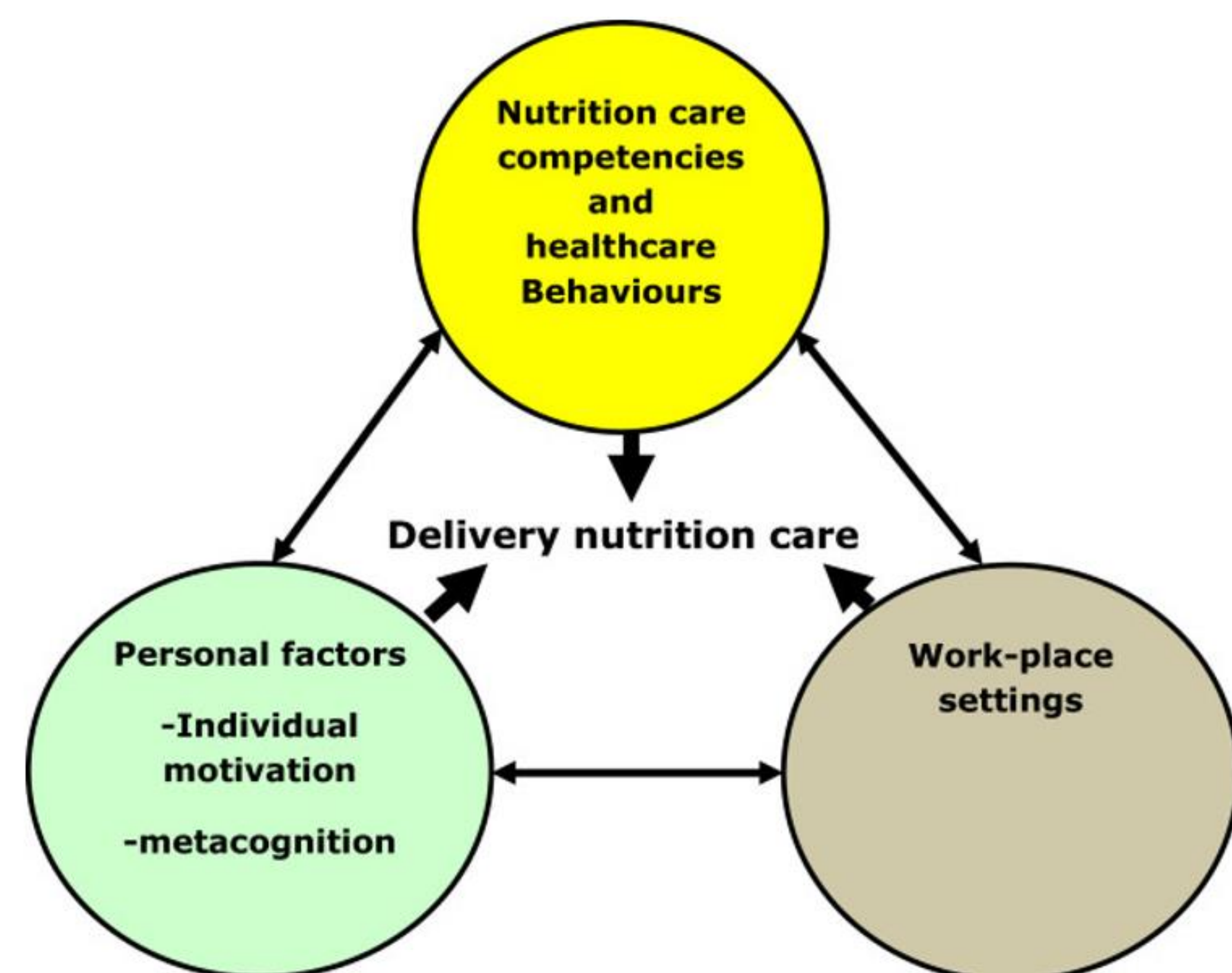


Figure 1. Social Cognitive Theory derived from Bandura's Triad of Reciprocal Determinism<sup>3</sup>

## Objectives

To evaluate the effectiveness of a novel oral health nutrition course for dental hygienists in improving:

- Nutrition knowledge
- Self-efficacy
- Ability to provide nutrition counseling
- Ability to make professional referrals

## Target Audience

Second-year Dental Hygiene Students attending:

- Allegany College of Maryland
- Baltimore City Community College
- Community College of Baltimore County



## Description of Curriculum

- Students will be randomized (Figure 2) to an intervention course or standard nutrition course of their program (Table 1).



Figure 2. Flow diagram of randomization of study subjects

Table 1. Standard and intervention course details

	Standard	Intervention
Delivery Method	In-person	Online
Instructor	Dental hygiene faculty	Faculty with dietetics or nutrition background
Duration	16 weeks	16 weeks
Structure	<ul style="list-style-type: none"> <li>• 2 hr weekly lectures</li> <li>• Weekly readings</li> </ul>	<ul style="list-style-type: none"> <li>• 20 min weekly lectures</li> <li>• Supplemental videos</li> <li>• Weekly readings</li> </ul>
Knowledge Assessments	<ul style="list-style-type: none"> <li>• Weekly assignments</li> <li>• Case studies</li> <li>• Quizzes</li> <li>• Final exam</li> </ul>	<ul style="list-style-type: none"> <li>• Weekly Assignments</li> <li>• Case studies</li> <li>• Discussion boards</li> <li>• Final exam</li> </ul>
Course Text	Bendich A, et al. <i>Preventive Nutrition: The Comprehensive Guide for Health Professionals, 4th Ed.</i> <sup>4</sup>	Stegeman CA, Davis JR. <i>The Dental Hygienist's Guide to Nutritional Care, 5th Ed.</i> <sup>5</sup>
Emphasized Topics	<ul style="list-style-type: none"> <li>• General nutrition</li> <li>• Nutrition biochemistry</li> <li>• Nutrition counseling</li> </ul>	<ul style="list-style-type: none"> <li>• General nutrition</li> <li>• Oral conditions related to diet</li> <li>• Diet implications of oral problems</li> <li>• Nutrition counseling</li> <li>• Referral needs for at-risk populations</li> </ul>

## Description of Curriculum (cont.)

- Courses will run from August 22 to December 12, 2018 (Figure 3).
- Students will complete all study forms, surveys and tests online.

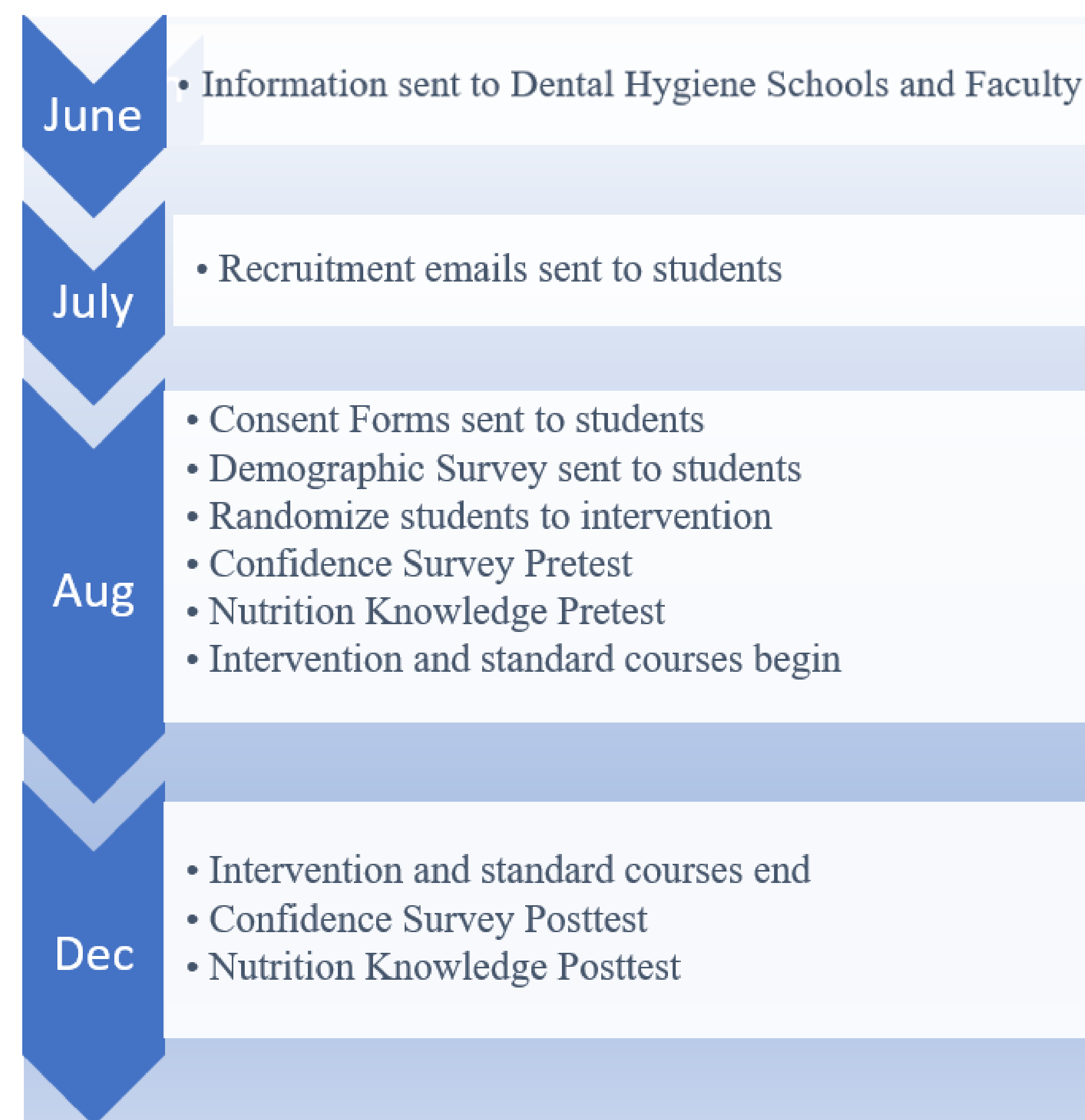


Figure 3. Study timeline for fall semester 2018

## Evaluation

- All data will be submitted online (Figure 4).
- Data will be stored on a secure server.
- Identifying data will be removed prior to analysis.
- Data will be analyzed by primary researcher (Figure 5).

### Data Collection

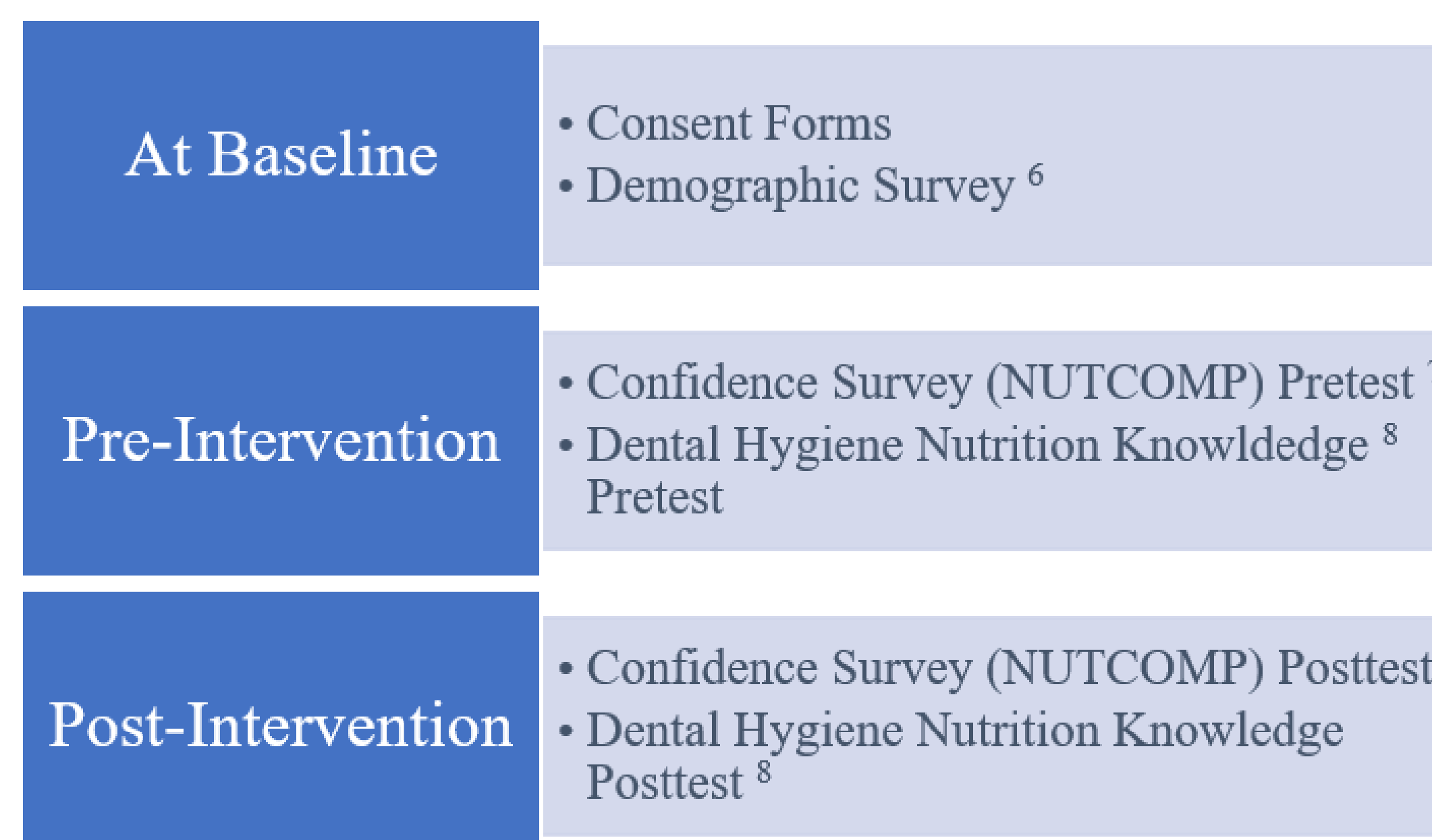


Figure 4. Data collection timeline

## Evaluation (cont.)

### Statistical Analysis

**Demographic Data**

- Demographic Survey results
- Chi-squared test,  $p < 0.05$

**Nutrition Knowledge**

- Mean Knowledge Pre/Posttest scores<sup>6</sup>
- Paired and independent t-tests (w/in & b/t groups)
- One-way ANOVA (among schools),  $p < 0.05$

**Confidence Level**

- Mean NUTCOMP Pre/Posttest scores
- Paired and independent t-tests (w/in & b/t groups)
- One-way ANOVA (among schools),  $p < 0.05$

Figure 5. Statistical tests for data analysis

## Results

### Hypothesized Findings

We hypothesize a targeted online oral health nutrition course may increase nutrition knowledge and confidence levels in dental hygienists.

## Conclusion

- This course may help address the gaps between what is known in the literature, what is taught in dental hygiene programs and what is practiced by dental hygienists.
- An online delivery may help resolve some of the issues related to providing adequate nutrition education in dental hygiene programs.
- This study may provide insights for future research aimed at improving nutrition education for dental professionals.

## References

1. Hornick B. Diet and nutrition implications for oral health. *J Dent Hyg.* 2002;76(1):67-78. <https://www.ncbi.nlm.nih.gov/une.idm.oclc.org/pubmed/11935934>. Accessed March 22, 2018.
2. Johnson D, Gurelian J, Freudenthal J. A study of nutrition in entry-level dental hygiene education programs. *J Dent Educ.* 2016;80(1):73-82. <http://www.jdentaled.org.une.idm.oclc.org/content/80/1/73.long>. Accessed March 22, 2018.
3. Mogre V, Scherpbier A, Dornan T, Stevens F, Aryee PA, Cherry MG. A realist review of educational interventions to improve the delivery of nutrition care by doctors and future doctors. *Syst Rev.* 2014;3:148. doi: 10.1186/2046-4053-3-148.
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6. Dental Hygiene Student - 2018 Demographic Profile for ADA/CODA Accreditation Survey.
7. Ball LE, Leveritt MD. Development of a validated questionnaire to measure the self-perceived competence of primary health professionals in providing nutrition care to patients with chronic disease. *Family Practice.* 2015; 32(6):706-710. <https://doi.org.une.idm.oclc.org/10.1093/fampra/cm073>.
8. Grieco N. Dental Hygiene Nutrition Final. Quizlet Web site.