

Career Influences and Perceptions of Pre-Dental Hygiene Students

Angela L. Monson, RDH, PhD, and Brigette R. Cooper, RDH, MS

Introduction

Career choice is a complex decision influenced by both internal and external factors. The purposes of this study were to describe characteristics of students interested in dental hygiene, influential factors on career choice, and how perceptions of the profession were impacted by an introductory career course. Communicating comprehensive information about the dental hygiene profession to interested students may help promote career fit and ultimately lead to increased retention within the profession.

Review of the Literature

Typically, dental hygienists are Caucasian and female, and enter dental hygiene programs in their twenties.^{1,2} In 2002, males represented about 2.5% of dental hygienists, while 20% of dental hygiene graduates were non-Caucasian.³ Few research articles have gone beyond describing the demographics of dental hygienists to explore why dental hygiene was chosen for their career. This literature review examines 4 previous studies that examined influential factors on career choice of dental hygienists and allied health professions.

Foley utilized an open-ended questionnaire with 169 first and second year Indiana dental hygiene students from 5 Indiana programs and a convenience sample of 70 Indiana dental hygiene graduates to determine influential factors in career choice.⁴ Eighty-one percent of students and 86% of graduates identified the den-

Abstract

Purpose: Dental hygiene programs have a responsibility to help potential applicants determine if dental hygiene is the best career choice for them. Good fit of career promotes a satisfied workforce along with retention within the profession. The purposes of this study were to describe students interested in dental hygiene, influential factors on career choice, and how perceptions of the profession were impacted by an introductory career course.

Methods: Pre- and post-course surveys were distributed to 186 students enrolled in "Perspectives in Dental Hygiene" at a state university. An overall response rate of 97% (N=181) was achieved. The average participant was 18-19 years old, female, Caucasian, worked 0-10 hours/week, and reported a GPA of 3.5-4.0.

Results: The most influential people for career choice were dental hygienists, dentists, and mothers. Observing a dental hygienist was the most influential activity. Influential factors impacting career choice favorably were helping people, good career with family, and availability of jobs. Influential negative factors included stress of prerequisite science and dental hygiene coursework. Frequent alternate occupations considered by post-course participants included nursing, dentistry, dental assisting, and education.

Conclusions: Dental hygienists and dentists play a key role in influencing career choice of dental hygienists. Additional potential applicants may be found by providing opportunities for students interested in nursing, education, dentistry, and dental assisting to learn more about the dental hygiene profession.

Key Words: dental hygiene curriculum, dental hygiene applicants, student recruitment, career perceptions, career motivation

tal office as the person or group most responsible for influencing career choice. Within the dental office, the dentist was considered more influential than the dental hygienist or the assistant. Relatives were considered most influential by 33% of students and 16% of graduates, while less than 1% of both groups were influenced by college counselors. The ages 16-20 were listed as the time

when decisions were made regarding career choice in dental hygiene for 64% of students. However, 71% of graduates' ages ranged anywhere from 7-35. Chemistry and biology were listed as the most influential high school courses, with chemistry, anatomy/physiology, and speech as the most influential pre-hygiene courses. This study supports the concept that recruitment strategies

should incorporate dental practitioners and should occur during late high school or early post-secondary years of education. Additionally, more information about the program and profession may help guide better career choices and lead to increased satisfaction.

Carr examined factors influencing career choice using a convenience sample of 50 students entering the University of Maryland dental hygiene program over a period of 2 years.⁵ Students were divided into 2 groups based on a high or low score using Holland's Vocational Identity scale. Holland's Vocational Identity scale consists of 18 true or false items that investigate individuals' "possession of a clear and stable picture of one's goals, interests, and talents."⁶ High scores on the scale indicate a clear sense of identity.⁶ While the Vocational Identity group mean score was 13, there was a significant difference between the high (N=17) and low (N=33) group mean scores of 17 and 11 ($p<.001$). The high group listed the dental hygienist as the most influential person in career choice, while the low group listed both the dentist and dental hygienist as equally influential. Observing a dental hygienist was ranked the highest influential activity, while high school and college career activities were least influential in both groups. Influential characteristics for the high group included working with people and availability of jobs. Working in health science and flexible work schedules influenced the low group. This study suggests that involving dental hygiene practitioners in the recruitment of students may increase the effectiveness of recruitment strategies. Satisfaction with career choice was not followed in this study, preventing comparisons of satisfaction determined by high or low Vocational Identity scores.

DeAngelis, Dean, and Pace examined the career choice and perceptions of dental hygiene using a convenience sample of 151 prospective

and current dental hygiene students from 2 dental hygiene programs in Arkansas.¹ Students ranked the influence of individuals in guiding their career choice on a scale from 1 to 5, with dental hygienists having the greatest mean score (3.58), followed by dentists (3.49). Similar to the results of Foley, college counselors had little influence on career choice (1.36), while high school counselors had the lowest mean score (1.15). Examination of career motivation influences beyond individuals was ranked using the same system, where helping and working with people had the greatest mean score (4.62), followed by flexibility of work schedule (4.52), good family career (4.54), and good salaries (4.48). The least influential motivation was identified as the desire for dental hygiene as a second choice from dental school (1.72). Contact with people (4.79), a caring profession (4.74), good job security (4.71), and flexible work schedules (4.69) received the highest mean scores of perceptions of the profession. Perceiving dental hygiene as a science-based occupation (4.08) and diverse career opportunities (3.81) were the lower mean scores. No significant differences were found in career perceptions between prospective and current dental hygiene students using a one-way ANOVA. This study supports the concept that social values have more weight in influencing career motivation of dental hygienists than economic factors.

Baldwin and Agho examined the influence of contact sources in career choices of allied health disciplines.⁷ A total of 1,809 students participated, selected from a national stratified sample, with 302 students from 7 institutions representing dental hygiene. A dental health professional was the most significant source of information ($p<.01$), followed by high school counselor ($p<.05$), and health professional outside of dentistry ($p<.05$). Influence from the media was an insignificant source

of information for dental hygiene. The influence of contact sources on dental hygiene career choice may be further understood by utilizing the Career Beliefs Inventory designed to operationalize Krumboltz's Social Learning Theory.

The Social Learning Theory suggests there are two major types of learning experiences that shape an individual's actions and skills.⁸ The first type, instrumental learning experience, occurs through reinforcement or punishment of an action or skill. The second type, associative learning experience, occurs through association of an emotional experience with a previously neutral event. The Social Learning Theory of Career Decision Making (SLTCDM) is based on 4 influential factors: 1) genetic endowment and special abilities, 2) environmental conditions and events, 3) learning experiences, and 4) task approach skills.⁸ Based on the general social learning theory of behavior, SLTCDM recognizes that personal qualities such as skill, interests, beliefs, values, and work habits are dynamic and subject to influence by new learning.⁹ This learning can be influenced by working with a career counselor who is able to first assess the individual's beginning reference and then promote exploration into elements within a satisfactory life. The Career Beliefs Inventory consists of 25 scales used to identify career beliefs and assumptions that may prevent individuals from pursuing constructive career choices.¹⁰

Dental hygiene career choice studies have identified dental professionals, particularly dental hygienists and dentists, as the leading persons of influence in choosing dental hygiene as a profession.^{1,4,5,7} The age when most students chose dental hygiene as their profession was 16-20, suggesting recruitment strategies should be implemented during this period.⁴ Other influences motivating a career choice in dental hygiene included observing a dental hygienist and completing science coursework

in both high school and college.^{4,5} Specific common perceptions of the dental hygiene field include working with people and flexible schedules,^{1,5} working in a health science field,⁵ adequate salaries, and consistency with family obligations.¹

Career development courses are often used in postsecondary settings to help students with career choice. Folsom and Reardon examined 46 studies that observed the effectiveness of career courses since the 1920s.¹¹ Of these studies, 83% found positive changes as a result of the career course and 15 (33%) reported positive outcomes such as retention. Reese and Miller compared students enrolled in a career development course to students enrolled in a general psychology course and found those in the career course had increased career decision-making self-efficacy.¹² More recent trends are investigating the effect of career development courses specific to a major. Positive outcomes such as increased career decision making and increased confidence have been reported as a result of career development courses in both psychology and nursing.^{13,14}

Methodology

Pre- and post-course surveys were distributed to 186 students enrolled in “Perspectives in Dental Hygiene” at a state university in Minnesota. Subject approval was obtained from the Institutional Review Board, Minnesota State University, Mankato. Informed consent was obtained from all participants. An overall response rate of 97% (N=181) was achieved. The average participant was 18-19 years old, female, and Caucasian; worked 0-10 hours/week; and reported a GPA of 3.5-4.0. This course was designed to meet 13 learning outcomes, including:

- 1) Identifying a peer group interested in the field of dental hygiene
- 2) Understanding the goals of the dental hygiene profession

- 3) Identifying career opportunities with a Bachelor of Science in dental hygiene

- 4) Identifying workplace fit according to Holland’s theory

- 5) Analyzing basic career interest scores using LiveCareer assessment online

- 6) Developing a relationship with the study partner interested in the field of dental hygiene

- 7) Analyzing the learning style (Felder & Silverman) identified using the online questionnaire

- 8) Understanding what curriculum is offered by the dental hygiene program

- 9) Understanding the general education requirements of the university

- 10) Developing a plan of study for required general education and electives with intention of application to the dental hygiene program

- 11) Experiencing dental appointment in the university dental clinic

- 12) Developing a mentor relationship with a licensed dental hygienist through job shadow experience

- 13) Evaluating individual capability and desire to enter the field of dental hygiene

A combination of discussions, PowerPoint presentations, peer interactions, group activities, and assigned reading and writing was used to achieve the learning outcomes.

Permission was obtained from DeAngelis to pattern portions of this survey after the instrument used in her research.¹ The pre-survey included items from the DeAngelis instrument regarding career guidance influences, career motivation influences, and perceptions of the profession. Additional items within career guidance and career motivation influences were added. The pre-survey also included items to measure the influence of activities and negative factors. The post-survey included the identical items from the pre-survey used to measure perceptions of the profession and influential negative factors, along with alternate career

options considered by the participants. Neither validity nor reliability testing of the questionnaire was conducted.

Results

Participants in this study ranked the influence of individuals on dental hygiene career choice using a 5-point Likert scale of 1 (Low Influence) to 5 (High Influence). Dental hygienists were identified as most influential on dental hygiene career choice, followed by dentists, mothers, and fathers (Table 1). College teachers and advisors were rated as higher influences than high school teachers and counselors.

Participants ranked the influence of various activities on dental hygiene career choice using the same 5-point Likert scale of 1 (Low Influence) to 5 (High Influence). Observing a dental hygienist was the most influential activity on dental hygiene career choice, followed by reading dental hygiene material (Table 2). College career day activities and working in a dental office were rated as the least influential activities.

Participants ranked the influence of various career motivations on dental hygiene career choice using a 5-point Likert scale of 1 (Low Influence) to 5 (High Influence). The most influential career motivations included: 1) helping and/or working with people, 2) good career with family, and 3) availability of jobs (Table 3). Participants indicated that dental hygiene was not considered as a second choice instead of dental school.

Perceptions of the profession were measured in both the pre- and post-course surveys, asking participants to look over a list of characteristics describing dental hygiene and rate their agreement to those characteristics. The agreement levels ranged on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Prior to course completion, participants agreed most strongly with: 1) contact

Table 1. Mean Influence Levels^a of People on Participants' Choice of DHYG Career

Person	Mean Level	SD
Dental hygienist	4.28	0.93
Dentist	3.76	1.33
Mother	3.51	1.42
Father	3.09	1.49
Friend	3.02	1.50
Other family member	2.83	1.56
College advisor	2.72	1.48
College teacher	1.93	1.16
High school teacher	1.73	1.08
High school counselor	1.70	1.11

^a1=Low Influence, 5=High Influence

Table 2. Mean Influence Levels^a of Activities on Participants' Choice of DHYG Career

Person	Mean Level	SD
Observing dental hygienist	4.14	1.20
Reading dental hygiene material	3.36	1.33
Visiting dental hygiene program	3.25	1.46
High school career day/activities	2.51	1.47
College career day/activities	2.32	1.39
Working in a dental office	2.02	1.51

^a1=Low Influence, 5=High Influence

with people, 2) career with responsibility, and 3) caring profession (Table 4). After course completion, the top 3 characteristics remained. Wilcoxon-signed ranked tests revealed that perceptions of these characteristics significantly increased for all items except job security (Table 4). Examining the mean differences, the course appeared to have the greatest influence on participants' perceptions of diverse career opportunities and preventive care specialists associated with dental hygiene.

Participants were also asked to identify the influence level of negative factors regarding a dental hygiene career choice in both pre- and post-course surveys. Prior to completing the introductory career course, participants indicated that the stress of prerequisite science and dental hygiene coursework, along with limited benefits depending on employer, were the most influential negative factors. After course completion, the top 3 negative factors remained the highest influencers. Wilcoxon-signed ranked tests revealed that perceptions of these negative factors significantly increased for all items (Table 5). Examining mean differences, the course appeared to have the greatest influence on participants'

perceptions of time constraints, production requirements, state licensing issues, positions available, and emotional stress.

Participants were asked to indicate which of the following professions they were currently considering, previously considered, or never considered (Table 6). The percentages of participants currently considering careers were dentist (22.1%), dental assistant (17.7%), educator (16.3%), and nurse (16.2%). The percentages of participants previously considering other careers were nurse (53.8%), educator (47.7%), dental assistant (45.3%), and pharmacist (39.3%). Alternate careers least considered by participants were lawyer or engineer.

Discussion

Influential People

Previous research has found that dental professionals have high influence for those considering a dental hygiene career.^{1,4-6} While Foley found that more dental hygiene students were influenced by a dentist than a dental hygienist, this research supports the findings of DeAngelis and Carr that dental hygienists are

the most influential persons.¹ This study found dental hygienists to be ranked even more influential (4.28) than in DeAngelis' study, where dental hygienists' mean influence level was ranked 3.58. A greater difference between the influence of the dental hygienist and dentist was also found in this study. Clearly, the dental community has a strong influence on motivating individuals to consider dental careers. Both dental hygienists and dentists could encourage career development by inviting young adults aged 16-20 to job shadow at their place of employment to expose them to the oral health care professions.

Family was found to have the next highest influence, similar to the findings of DeAngelis.¹ However, participants in this study ranked the influence of mothers, fathers, and other family members separately. Of all family members, mothers were found to have the highest influence (3.51). This study did not investigate why mothers were found to be more influential than other family members. DeAngelis found the mean influence of family members in dentistry was 1.6, while family members or friends not in dentistry were 2.79. Accurate knowledge about the

dental hygiene profession is needed for family members to have a positive influence in selecting a career in dental hygiene. The public, including many high school students, is unaware of the dental hygiene profession and job responsibilities. Gaulden examined the career awareness of 109 high school seniors who approached a dental hygiene display table during a career day event.¹⁵ A lack of knowledge about the profession of dental hygiene was identified, with 53% unaware of the difference among a dental hygienist, dental assistant, or dental lab technician. Functions of a licensed dental hygienist were also misunderstood, with many unaware of the different roles dental hygienists can pursue, such as corporate, primary school educator, and post secondary educator opportunities. Recognizing this lack of public awareness, the American Dental Hygienists' Association has launched a national marketing campaign designed to increase awareness of the profession and oral health, including educational televised programming in 25 top broadcast markets.¹⁶ Efforts to educate the public, and thus family members, about the dental hygiene profession should be continued.

Previous research has found the least influential people on dental hygiene career choice are high school and college counselors.^{1,4,6} In this study, college advisors (2.72) had more influence than college teachers (1.93), high school teachers (1.73), or high school counselors (1.70). Career counseling services provided in high school or higher education settings are constantly plagued by limited funding. While computer technology has expanded the opportunity to provide indirect assessment of career interests and goals, benefits from technology are limited by lack of credibility and cost of online assessments. Additionally, the number of occupations within America continues to grow and change as research and technology advance.

Table 3. Mean Influence Levels^a of Factors on Participants' Choice of DHYG Career

Factor	Mean Level	SD
Helping/working with people	4.65	0.65
Good career with family	4.49	0.90
Availability of jobs	4.43	0.88
Flexibility of work schedule	4.33	0.97
Good salary	4.22	0.84
Own experiences as dental patient	4.19	1.01
Wanted medical career, but not Medicine or Nursing	3.97	1.25
Make independent decisions	3.88	1.09
Working with my hands	3.83	1.13
Prestige	3.71	1.10
Wanted dental career, but not interested in DDS	3.18	1.41
Wanted dental school, DHYG was second choice	1.80	1.12

^a1=Low Influence, 5=High Influence

Lack of recognition and inclusion of occupations by career counselors or within assessment instruments limit the ability of students to consider all career options.

Influential Activities

Participants in this study ranked observing a dental hygienist (4.14) as the most influential activity, similar to the findings of Carr.⁵ Lower influential activities from previous research and participants in this study were high school and college career days or activities. Working in a dental office did not have a high mean score, but this is likely influenced by the low number of participants who have had this opportunity. This finding again supports the concept of inviting interested students to job shadow dental professionals.

Influence of Characteristics Associated with Dental Hygiene

Working with people and a flexible schedule are 2 characteristics previously identified as positive aspects of dental hygiene.^{1,5} Participants in this study reported similar

influential characteristics to those found in DeAngelis¹: working with people (4.65), good career with family (4.49), availability of jobs (4.43), flexible schedule (4.33), and good salaries (4.22).

Motivations for attending college are closely related to career choice, with 72% of participants reporting they decided to attend college to be able to get a better job.¹⁷ Increased earning is also a motivational factor, with 73.5% of men and 69% of women reporting they are attending college to make more money.¹⁷ Research from this study suggests that while good salaries do influence dental hygiene career choice, characteristics like working with people, good career with family, and availability of jobs are more influential.

Perceptions of the Profession

Prior to course completion, participants rated contact with people and a caring profession as the highest characteristics associated with dental hygiene, similar to the findings of DeAngelis.¹ Those characteristics remained highly associated with dental hygiene after course comple-

tion; however, the course appeared to significantly increase association levels for all characteristics except job security. The introductory career course seemed to have the greatest impact on participants' perceptions of a dental hygienist as a preventive care specialist and having diverse career opportunities. This finding suggests that an introductory career course can influence participants to consider non-traditional career opportunities for dental hygienists beyond private practice.

In addition to these positive characteristics, the researchers in this study examined the influence of negative factors on dental hygiene career choice. Both before and after course completion, the most influential negative factors were the stress of prerequisite coursework, stress of dental hygiene coursework, and limited benefits depending on the employer. The introductory career course appeared to significantly increase the influence of all negative factors on career choice, with greatest weight on time constraints, production requirements, state licensing issues, positions available, and emotional stress. This finding suggests that the introductory course did increase student awareness of potential drawbacks related to dental hygiene. Awareness of these drawbacks prior to application may help increase satisfaction and retention within the program and profession.

Alternate Career Options

Researchers in this study examined the alternate career options previously or presently considered by participants enrolled in the introductory dental hygiene career course. Other dental careers, such as dentistry or dental assisting, were often considered by participants. However, outside career options such as nursing, education, and pharmacy were other alternatives either previously or presently considered. As dental hygiene programs attempt to attract

Table 4. Mean Agreement Levels of Characteristics Associated with Dental Hygiene

	Pre-Course ^a	Post-Course ^a	\bar{x} Diff
Contact with People	4.56	4.78***	0.22
Caring Profession	4.49	4.76***	0.27
Career with Responsibility	4.50	4.73***	0.23
Good Salaries	4.41	4.60**	0.19
Flexible Working Schedules	4.45	4.57*	0.12
Preventive Care Specialist	4.06	4.57***	0.51
Professional Status	4.18	4.54***	0.36
Job Security: Bright Future	4.43	4.50	0.07
Intellectual Challenge	4.14	4.43***	0.29
Science-based Profession	4.05	4.19*	0.14
Diverse Career Opportunities	3.51	4.06***	0.55

^a1=Strongly Disagree, 5=Strongly Agree.

*p<.05. **p<.01. ***p<.001.

Table 5. Mean Influence Levels of Negative Factors on Career Choice

	Pre-Course ^a	Post-Course ^a	\bar{x} Diff
Stress of Prerequisite Science Coursework	3.22	3.43*	0.21
Stress of Dental Hygiene Coursework	2.70	3.37***	0.67
Limited Benefits Depending on Employer	2.39	3.04***	0.65
Inadequate Full Time Positions Available	2.21	2.95***	0.74
Dental Hygiene State Licensing Issues	2.15	2.92***	0.77
Time Constraints, Working on the Clock	2.01	2.79***	0.78
Non-compliant Patients	2.06	2.72***	0.66
Risk of Musculoskeletal Distress	2.03	2.72***	0.69
Risk of Carpal Tunnel Syndrome	2.05	2.70***	0.65
Production Requirements of Job	1.89	2.67***	0.78
Limited Career Diversification	2.10	2.66***	0.56
High Tuition (with additional fees)	2.15	2.63***	0.48
High Emotional Stress with Profession	1.88	2.60***	0.72
Stress of Prerequisite Non-science Coursework	2.12	2.35*	0.23
Risk of Contracting Infectious Disease	1.64	1.92**	0.28

^a1=Low Influence, 5=High Influence. *p<.05. **p<.01. ***p<.001.

highly qualified students to their programs, it may be beneficial to target recruitment to students interested in these alternate careers.

Mentoring has been shown to have positive effects in other health care disciplines.¹⁹⁻²⁰ Studies regard-

ing nursing students report mentoring is a beneficial aspect of clinical learning experiences.¹⁹⁻²⁰ Other studies suggest mentoring should be initiated in dental hygiene graduate programs, especially for students who aspire to become directors, due

to the positive influence it has on the student.²¹ Additionally, dental hygienists can help educate the public about dental hygiene by informing others about their education and responsibilities as compared to dental assistants and dentists. While salary does influence dental hygiene career choice, other factors such as working with people, good career with a family, and availability of jobs appear to be more influential.

Limitations

This study has several limitations that preclude generalization to other populations. The assessment instrument used to measure career influences and perceptions of pre - dental hygiene students was not validated. The participant number (N=186) represents a moderately small convenience sample. All participants were pre - dental hygiene students at a Midwestern university from the same geographic area.

Future Research

Further study is needed to confirm these findings with other pre - dental hygiene students in other states. Future endeavors might include longitudinal research to examine the influence of a prerequisite course on entry into a dental hygiene program, retention in a program, and retention in a dental hygiene career. The Career Beliefs Inventory could be used in future studies to investigate beliefs and assumptions that may prevent individuals from pursuing dental hygiene. Differences in influential factors of career choice according to career setting, such as a clinical setting, public health, education, etc.,

Table 6. Alternate Career Options of Post-course Participants^a

	Currently Considering	Previously Considered	Never Considered
Nurse	28 (16.2%)	93 (53.8%)	52 (30.1%)
Educator	28 (16.3%)	82 (47.7%)	62 (36.0%)
Dental Assistant	32 (17.7%)	81 (47.1%)	59 (32.6%)
Dentist	38 (22.1%)	78 (45.3%)	56 (32.6%)
Pharmacist	6 (3.5%)	68 (39.3%)	99 (57.2%)
Medical Doctor	6 (3.5%)	63 (34.8%)	103 (56.9%)
Business	13 (7.5%)	62 (35.8%)	98 (56.6%)
Veterinarian	2 (1.2%)	57 (33.2%)	113 (65.7%)
Optometrist	4 (2.3%)	47 (27.2%)	122 (70.5%)
Lawyer	1 (0.6%)	30 (17.4%)	141 (82.0%)
Engineer	-	8 (4.7%)	164 (95.3%)

^aValid percentages reported

could also be investigated. However, this study contributes to the dental hygiene literature by documenting the career influences and perceptions of pre-dental hygiene students at a Midwestern university.

Conclusion

Dental hygienists play a key role in influencing career choice for students interested in dental hygiene. Inviting conversation and opportunity to job shadow the profession with potential candidates may help promote the dental hygiene career. Mentoring is a complex and important activity in the learning process of a student. A good mentor could be described as someone who possesses appropriate professional attributes, knowledge, good communication skills, and the motivation to teach and support students.¹⁸ An introductory course for students interested in dental hygiene has the ability to increase awareness of non-traditional

career opportunities while also recognizing the potential drawbacks of the profession. The combination of good mentoring from dental professionals with an introductory course about dental hygiene may help students determine good career fit, which may lead to increased satisfaction with career choice.¹¹⁻¹⁴

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Angela L. Monson is an Associate Professor, Department of Dental Hygiene, at Minnesota State University, Mankato; Brigitte R. Copper is an Assistant Professor, Department of Dental Hygiene, at Minnesota State University, Mankato.

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