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Task shifting, interprofessional collaboration and education in oral health care

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CHAPTER 4

Minor differences in occupational stereotypes between dental and dental hygienist students

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Abstract

Objective – Stereotyping can be a barrier to effective collaboration between different professions and can already be present at the undergraduate level. However, student perceptions of the relationship between dentists and dental hygienists reflected by their occupational stereotypes have not been thoroughly studied.

Method – A questionnaire was distributed among a convenience sample of Dutch dental and dental hygiene students in the middle of their training course who have had no prior experience with interprofessional education. Students attributed assertiveness, dominance, and respectfulness to dentists and dental hygienists and to themselves on a scale ranging from 0= ‘does not apply to’ to 5 = ‘totally applies to’.

Results – The total response comprised 82% (n=75). Dental and dental hygiene students agreed about all stereotypical characteristics of dentists (assertive, dominant, and respectful; mean=3.5-4.0, SD=0.8-1.6). However, they did not agree about some stereotypical characteristics of dental hygienists except for the dominance of dental hygienists. In addition, dental students only identified with the dominance of dentists ($r=.382$) and not with dental hygienists. In contrast, dental hygiene students perceive overall similarities between themselves and both professions.

Conclusion – Only minor differences exist with regard to occupational stereotypes between dental and dental hygiene students. It is possible that the investigated occupational stereotypes are not the only stereotypes relevant to interprofessional collaboration. Furthermore, occupational commitment was not included in the study. This could enhance the predictive value of occupational stereotypes related to interprofessional collaboration. The image-formation by dental students with regard to dental hygienists should be modified.

Introduction

In oral health care, dentists and dental hygienists work together and share tasks and responsibilities. Stereotyping can be a barrier to effective collaboration between different professions and can already be present at the undergraduate level (Lewitt, Ehrenborg, Scheja & Brauner, 2010). Exposing, confronting, and dispelling stereotypes during education may be needed to enhance collaboration (Oandasan & Reeves, 2005). However, student perceptions of the relationship between dentists and dental hygienists reflected by their occupational stereotypes have not been thoroughly studied (Snow et al., 2011).

The content of stereotypes typically includes relational aspects (Wilder, 1984). A stereotype is

an indicator of ingroup consensus (Haslam, Turner, Oakes, Reynolds & Doosje, 2002) and an important psychological mechanism for making intergroup distinctions (McGarty, Yzerbyt & Spears, 2002; Tajfel & Turner, 1986). To establish a harmonious intergroup relationship, the ability to make a distinction between one's own professional group (ingroup) and another professional group (outgroup) is essential (Van Knippenberg, 1984; Branscombe, Ellemers, Spears & Doosje, 1999; Zarate & Garza, 2002). This harmony is least threatened when professional groups agree with each other's distinctive characteristics (Hean, Clark, Adams & Humphri, 2006). Negative stereotypes can also result in a lack of intergroup harmony (Branscombe & Wann, 1994) and in negative expectations of outgroup attitudes or behaviors creating a process of self-fulfilling prophecy (Hilton & Von Hippel, 1996) which may have a negative impact on collaboration.

Dental hygiene is a professionalizing occupation while dentistry already has a well-established status (Morison, Marley, Stevenson & Milner, 2008). Even though the task profile of the dental hygienist is changing because of the introduction of task shifting (Johnson, 2009), the occupational stereotypes attached to this profession tend to change slowly (Hean et al., 2006; Castledine, 1996). Recent studies also show a stagnation of task shifting between dentists and dental hygienists (Abelsen & Olsen, 2008; Capaciteitsorgaan, 2010). It is possible that differences in occupational stereotypes may be responsible for this.

Occupational stereotypes could reflect interprofessional inequality. Equality is recognized as a core component of interprofessional collaboration and is required for joint problem-solving (Baker, Egan-Lee, Martimianakis & Reeves, 2011). However, many dentists appear to prefer a hierarchical relationship since they want to maintain power and control and, in general, also want to avoid mutual dependency (Chambers, 2001). This dental dominance may obstruct or limit task shifting to and the autonomy of dental hygienists (Adams, 1999). On the other hand, not all dentists seem to be opposed to the idea of an expanded scope of dental hygiene practice (Abelsen & Olsen, 2008) while most dental hygienists are supportive of an independent and expanded scope of practice (Adams, 2004). However, Adams found attitudinal differences among dental hygienists with respect to gender and attitude towards independent practice. Male dental hygienists were more in favor of professional change and independent practice.

In most countries, the dental hygiene profession is female-dominated while dentistry is primarily dominated by males (Capaciteitsorgaan, 2010; Ayers, Thomson, Rich & Newton, 2008; Ogunbodede, 2004; Luzzi & Spencer, 2011; Bahador, Abdolreza Pazooki & Kabir, 2010; Yuan et al., 2010). The historical domination of a profession by a single gender can lead to masculine or feminine conceptions being integrated into the stereotypes held by particular professional groups (Hallam, 2000) where gender is a predictor of professional identity (Adams & Hean, 2006). Gender influences power perceptions in work relationships since male practitioners are more likely to have a hierarchical work relationship with women

(Batalha, Akrami & Ekkehammar, 2007).

According to a study of Swanson Jaecks (2009), many dental hygienists lack confidence regarding task shifting which could diminish the assertiveness that is essential for interprofessional decision-making (Ruble & Thomas, 1976). Team member status is related to professional hierarchy in terms of the ability to challenge the opinions of others and to gain attention and respect for one's own views (Thylefors, Price, Persson & Von Wendt, 2000). Respect is conditional for intergroup harmony and implies the recognition, interdependence, and knowledge of the complementary contributions of members in different professions within a team (Mariano, 1989; Satin, 1994; Siegler & Whitney, 1994; Jones & Way, 1997). A certain degree of interprofessional hierarchy is reflected by student perceptions and stereotypes. The impressions of dental students tend to be dentist-centric with regard to the provision of treatment (Ross, Turner & Ibbetson, 2009). Even more so, dental students perceive dental hygienists as "assistants of dentists" while dental hygiene students believe themselves to be independent professionals (Morison et al., 2008). Before participating in interprofessional education (IPE), dental students especially attribute affiliative characteristics to dental hygiene students while dental hygiene students attribute dominant characteristics to dental students (Reinders & Blanksma, 2012). The attributed social image of these student groups mostly corresponded with their self-image. However, it is not yet clear to what degree student perceptions with regard to dentist and dental hygienist occupational stereotypes are also related to their professional self-image as interprofessional education within dentistry and oral health has not been thoroughly studied (Morison et al., 2008).

The purpose of this study was to determine to what degree student perceptions of dentist and dental hygienist occupational stereotypes (assertiveness, dominance, and respectfulness) are different and to what degree they identify with these occupational stereotypes. Additionally, the relationship between gender and occupational stereotypes was investigated.

Materials and methods

A questionnaire was distributed among a convenience sample of Dutch dental and dental hygiene students in the middle of their training course who had no prior experience with interprofessional education. These students were required to work together for the first time in an educational setting. The questionnaire concerned three social characteristics that are provisional (assertiveness and respectfulness) or a barrier (dominance) for interprofessional collaboration.

Definitions and operationalizations

Stereotyping is defined as the attribution of certain personal characteristics, attitudes, and

behaviors to a certain group (Cinnirella, 1997) and was operationalized by the evaluation of three adjectives: assertiveness, dominance, and respectfulness as social characteristics belonging to dentists and dental hygienists as professional groups. Statements were assigned a response on a 6-point scale, ranging from 0= 'does not apply to' to 5 = 'totally applies to'.

The concepts of professional ingroup, professional outgroup, and stereotypical distinctiveness were derived from the social identity theory (Tajfel & Turner, 1979) in which these concepts are described as 'ingroup', 'outgroup', and 'psychological distinctiveness'. An ingroup is the social group to which one is a member and is distinct from an outgroup. In this case, it is dentists versus dental hygienists. Psychological distinctiveness (or stereotypical distinctiveness) is the distinctiveness of an ingroup in contrast to an outgroup. The professional ingroup was operationalized as the professional group of which the respondent is becoming a member while the professional outgroup concerned the other professional group, i.e., either dentists or dental hygienists. Statements were assigned a response on a 6-point scale ranging from 0 = 'does not apply to' to 5 = 'totally applies to'. The stereotypical distinctiveness was operationalized as the absolute distinctiveness between the professional ingroup and the professional outgroup of which the scores ranged from 0 = 'no distinctiveness' to 5 = 'very strong distinctiveness'.

The professional self-image of students was defined as 'an individual's self-definition as a member of a profession' which is based on the definition of Chreim, Williams, and Hinings (2007). It was operationalized as the degree to which the respondents attribute assertiveness, dominance, and respectfulness to themselves. Statements with regard to the three adjectives were assigned a response on a 6-point scale, ranging from 0 = 'does not apply to' to 5 = 'totally applies to'.

Professional identification was defined as 'a type of social identification and is the sense of oneness individuals have with a profession (e.g., dentistry, dental hygiene) and the degree to which individuals define themselves as profession members' (Ashforth & Mael, 1989). It was operationalized by the degree to which the professional self-image of the respondent is associated to the professional ingroup and the professional outgroup.

Organization of data collection

The completion of all of the questionnaires was done in ten mixed groups of students who were in the middle of their professional training. In total, 58 dental students (stage three) and 34 dental hygiene students (stage two) were approached to voluntarily fill in the questionnaire in their first interprofessional training course at the Center for Dentistry and Oral Hygiene, University Medical Center Groningen, the Netherlands. The anonymous questionnaires were returned in sealed envelopes.

Statistical analyses

A Chi²-test and an ANOVA were used to explore differences between student groups regarding gender distribution and age. Differences between dental and dental hygiene students regarding occupational stereotypes and stereotypical distinctiveness between dentists and dental hygienists were calculated with an ANOVA. Identification of students with occupational stereotypes was analyzed by the degree of association between the ordinal measurements (items) and was estimated by Kendall's tau correlation coefficients (Howell, 1997; Alvo, Cabilio & Feigin, 1982). A power of .80 or higher is considered desirable (Cohen, 1992) to prevent rejection of the null hypothesis when the alternative hypothesis is actually true. Therefore, based on a sample size of 75 and probability of Type I Error (alpha) of .05, a correlation should be at least .285. A p-value of < 0.05 was considered significant.

Results

The total responses equaled 82% (n=75) of which 63% (n=47) consisted of dental students and 37% (n=28) of dental hygiene students. One third of all of the respondents was male (33.3%, n=25). Gender distributions between the dental and dental hygiene group differed significantly (p =.001). Of all of the dental students, 46.8% (n=22) was male compared to 10.7% (n=3) male dental hygiene students. The mean (sd) age of all students was 22.5 (2.3) years. No significant difference (p=.080) was determined between dental students and dental hygiene students with regard to age.

Descriptive statistics of occupational stereotypes

Among dental students, a majority (61.7%) perceived a stereotypical distinctiveness with regard to assertiveness. This was also the impression of a clear majority (68.0%) of male students. The majority (82.7%) of both dental (89.4%) and dental hygiene (71.4%) students perceived some degree of stereotypical distinctiveness between dentists and dental hygienists with regard to dominance. In addition, the majority of both male (88%) and female (80%) students shared this perception. To the majority of both students groups (69.3%), respect was not a distinctive social characteristic between the two professions.

Occupational stereotypes according to dental and dental hygiene students

Dental and dental hygiene students agreed about their stereotypical views of dentists (Table 1). On average, they all perceived dentists to be more than moderately assertive, dominant, and respectful. They also reached consensus about the dominance of dental hygienists who seem to be more submissive. However, dental and dental hygiene students did not agree with the assertiveness (p=.004) and respectfulness (p=.013) of dental hygienists. Dental students perceived dental hygienists as being less assertive and respectful compared to dental hygiene students.

Table 1.

Attribution of occupational stereotypes by dental and dental hygiene students (n=75)

Social stereotypes of dentists	According to students dentistry (n=47)		dental hygiene (n=28)		ANOVA		
	M	SD	M	SD	F	df	p
Assertive	3.6	0.9	3.9	1.3	.746	1	.391
Dominant	3.8	1.1	3.5	1.6	.945	1	.334
Respectful	3.9	0.8	4.0	1.1	.395	1	.532
dental hygienists							
Assertive	2.6	1.1	3.4	1.1	8.660	1	.004
Dominant	1.8	1.0	2.1	1.3	1.550	1	.217
Respectful	4.0	0.8	4.5	0.6	6.427	1	.013

(*0 = 'does not apply to' to 5 = 'totally applies to')

Stereotypical distinctiveness between dentists and dental hygienists

With the exception of respectfulness, dental and dental hygiene students perceived a stereotypical distinctiveness between dentists and dental hygienists (Table 2). According to dental students, assertiveness and dominance are more distinctive characteristics than dental hygiene students believe them to be.

Table 2.

Stereotypical distinctiveness between dentists and dental hygienists (n=75)

Distinctiveness dentist-dental hygienist	According to students of...				ANOVA		
	dentistry (n=47)		dental hygiene (n=28)		F	df	p
	M	SD	M	SD			
Assertiveness	1.0	1.0	0.6	0.6	4.837	1	0.31
Dominance	2.0	1.2	1.4	1.3	4.442	1	0.38
Respectfulness	0.4	0.6	0.6	1.0	.810	1	.371

(**0 = 'no distinctiveness' to 5 = 'very strong distinctiveness')

Professional self-image of dental and dental hygiene students

The self-image of dental and dental hygiene students did not differ significantly with respect to their self-attributed assertiveness (Table 3). However, dental students did attribute more dominance to themselves ($p=.023$) compared to dental hygiene students. In contrast, dental hygiene students did self-attribute more respectfulness compared to dental students ($p=.017$).

Table 3.

Professional self-image of dental and dental hygiene students ($n=75$)

Social characteristic	Self-image of dental students ($n=47$)		dental hygiene students ($n=28$)		ANOVA		
	M	SD	M	SD	F	df	p
Assertive	3.2	1.2	3.3	1.2	.008	1	.930
Dominant	3.0	1.2	2.2	1.5	5.357	1	.023
Respectful	4.1	0.7	4.5	0.6	5.987	1	.017

(*0 = 'does not apply to' to 5 = 'totally applies to')

Identification with professional ingroup and professional outgroup

Dental and dental hygiene students mostly identified with their ingroup (Table 4). Even though dental hygiene students perceived dentists to be the most dominant of both professions, they identified most strongly with the lower dominance ($r=.718$, $p=.000$) of dental hygienists.

Table 4.

Correlation between ingroup stereotypes and students' professional self-image ($n=74$)

Ingroup stereotypes	Professional self-image* dental students	dental hygiene students
Assertiveness	.461, $p=.000$.509, $p=.002$
Dominance	.382, $p=.002$.718, $p=.000$
Respectfulness	.680, $p=.000$.655, $p=.000$

*Professional identification: Kendall's tau_b correlation between professional self-image and professional ingroup or outgroup stereotypes on a similar relational aspect. Ingroup = practitioners of one's own profession (dentists or dental hygienists)

On the other hand, dental students only identified with the dominance of dentists (Table 4) and not with dental hygienists (Table 5). The same applied for the lack of dental student identification with the assertiveness of dental hygienists. In contrast, dental hygiene students perceived overall similarities between themselves and both professions.

Table 5.
Correlation between outgroup stereotypes and students' professional self-image (n=74)

Outgroup stereotypes	Professional self-image* dental students	dental hygiene students
Assertiveness	.012, p=.884	.573, p=.001
Dominance	.119, p=.322	.386, p=.015
Respectfulness	.565, p=.000	.442, p=.014

* Professional identification: Kendall's tau_b correlation between professional self-image and professional outgroup stereotypes on a similar relational aspect. Outgroup = practitioners of another profession (dentists or dental hygienists)



Occupational stereotypes and identification related to gender

Gender related differences were ascertained with regard to the assertiveness of dental hygienists (p=.004). Regardless of profession, female students perceived dental hygienists to be more assertive than did the male students. Male students also perceived assertiveness to be a greater distinctive characteristic between dentists and dental hygienists (p=.026). Since the dental student group had a different gender ratio compared to the dental hygiene student group, stereotypical differences could be related to gender instead of professional group. Therefore, a separate analysis was conducted to compare female dental students with female dental hygiene students. No differences between female dental and dental hygiene students were determined with regard to the assertiveness of dental hygienists or assertiveness as a distinctive characteristic between dentists and dental hygienists (n.s.). However, female dental students perceived dental hygienists to be less respectful than female dental hygiene students believed them to be (p=.016). However, no differences were found with regard to the perceived respectfulness as a distinctive characteristic between dentists and dental hygienists (n.s.).

Discussion

The current study provides evidence that the stereotypical distinctiveness between dentists and dental hygienists is not as negative as many studies suggest. Still, there are a number of significant differences between the two students groups. The majority of them perceive dominance to be a distinctive characteristic between the two professions, and dentists are believed to be the most dominant. In addition, results of this study also show that dental students identify with all of the investigated occupational stereotypes of dentists. However, they do not identify with the dominance of dental hygienists. In contrast, dental hygiene students most strongly identify with the lower dominance of dental hygienists and, in general, identify with all stereotypical characteristics of both dentists and dental hygienists.

With regard to occupational stereotypes, dental hygiene students do seem to experience many more similarities between dentists, dental hygienists, and their self-image.

The dental and dental hygiene students disagreed about stereotypical distinctiveness between dentists and dental hygienists. Therefore, dental hygiene students might be experiencing a minor social identity threat. The differences with regard to the assertiveness attributed to dental hygienists are not only related to profession but also to gender. The findings of Gorter and Freeman (2005) indicate that the professional communication style of male dentists tends to be more gender-influenced. In this study, dental students and male students are more inclined to regard dental hygienists as being less assertive than dental hygiene and female students perceive them to be. The more positive perceptions of dental hygiene students could be influenced by dental hygiene faculty members since their ingroup identification tends to be stronger than outgroup identification. These dental hygiene faculties might promote a more equal and autonomous role of the dental hygienist compared to their dental colleagues.

Dental and dental hygiene students agree about the dominance of dentists. Even more so, dental students perceive even more distinctiveness between dentists and dental hygienists with regard to dominance than do dental hygiene students. Subsequently, occupational stereotypes with regard to dominance seem to reflect a somewhat dentist-centric collaboration between dentists and dental hygienists. Even though stereotypical perceptions are subjective and a generalization of group characteristics, they are an indication of ingroup consensus (Haslam et al., 2002). Therefore, stereotypical perceptions provides clues about the nature of the interaction between dentists and dental hygienists. Even more so, it confirms the findings and opinions of other authors about the asymmetrical nature of the dentist-dental hygienist work relationship (Adams, 1999; Cotton, 1990; Haldemann, 1988).

The respondents in this study had no prior experience with interprofessional education but were, up to that point, primarily educated in a uniprofessional curriculum. It is possible that faculty members of dentistry express different opinions about the assertiveness of dental hygienists than do those in dental hygiene. Steinert et al. (Steinert, Cruess, Cruess, Boudreau & Fuks, 2007) suggested that it could be necessary to change the hidden curriculum if negative aspects are identified. Faculty development is one of the key approaches for changing it and encompasses attempts to influence the teaching staff to model 'appropriate' behaviors (Goldie, Dowie, Cotton & Morrison, 2007).

In general, both student groups are positive with regard to the respectfulness of both professions which is conditional for intergroup harmony. However, among female students, the profession is related to a difference in perceived respectfulness of dental hygienists. Female dental students are less positive about the respectfulness of dental hygienists possibly due to a perceived competitive tension between female dentists and female dental hygienists.

Furthermore, it is also likely that gender related self-selection at the recruitment phase of the students is a direct result of the professional image that is communicated by the independent dental and dental hygiene institutions and other societal sources of occupational stereotypes.

It is possible that occupational stereotypes are not the only relevant social characteristics that are provisional for interprofessional collaboration. However, their relevance related to interprofessional collaboration is clear and evident. They illustrate conditional features of or a barrier to an equal social interaction between professionals. One-sided dominance shifts the balance to a hierarchical relationship, making interprofessional collaboration less likely to occur.

The self-image of students can represent both a student and a professional identity. The shift between these two social identities is called 'identity mobility' and is influenced by contextual factors (Ginsburg, Regehr & Lingard, 2003; Lingard, Garwood, Szauter & Stern, 2001). In other words, a student has a 'student identity' and a 'professional identity'. Even though students were explicitly requested to report their perceptions as a professional, the respondents completed their questionnaire in an educational setting which may plausibly have triggered their student identity and, therefore, the tendency to behave as such. Furthermore, questionnaires were completed in a controlled environment where students were not able to share ideas or elaborate with each other.

In this study, we did not know exactly which practitioners were possible role models with regard to the social stereotypes as evaluated by both student groups. The influence of the social interaction between faculty members is an element of the 'hidden curriculum', i.e., 'a set of influences that function at the level of organizational structure and culture' (Hafferty, 1998) which also includes core assumptions, routines, and power structures (Mossop, Dennick, Hammond & Robbé, 2013). The occupational stereotypes might be based on professionals such as faculty members but can also be represented by practitioners who are not directly involved in the student training course. However, since these students especially encounter faculty members at this stage, it is likely that faculty members are their most significant source of information.

In this study, only the cognitive component of professional identity was assessed. However, professional identity also comprises occupational commitment, an affective component of professional identity (Tajfel, 1982), which was not included in the study. Therefore, it was not possible to compare the occupational commitment of dental and dental hygiene students. This additional component of professional identity can enhance the predictive value of occupational stereotypes related to interprofessional collaboration.

Interprofessional education can change stereotypical perceptions (Ateah et al., 2011), and adjusting stereotypes is considered to be a key step for enhancing interprofessional collaboration

(Oandasan & Reeves, 2005). Therefore, an earlier introduction of interprofessional education might be important since, in the middle of their professional training, students have already formed occupational stereotypes that indicate a hierarchical and not an interprofessional collaboration between each other's profession.

Conclusion

Only minor differences exist with regard to occupational stereotypes between dental and dental hygiene students. However, purposeful didactic interventions during professional training should adjust the image-formation by dental students with regard to dental hygienists. Furthermore, faculty members should be made aware of the potential impact of their behavior on their own student group and should model 'appropriate' behaviors. Follow up research should focus on the influence of role models as part of the hidden curriculum. In addition, dental and dental hygiene students should be given an equal opportunity to be involved in a shared clinical decision making process.

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