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The knowledge level of dental surgeons regarding the relationship between occlusal factors and Temporomandibular Disorders (TMD)

Nível de conhecimento dos cirurgiões-dentistas sobre a relação entre fatores oclusais e Disfunção Temporomandibular (DTM)

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Resumo

Introdução: A relação da oclusão dentária com a Disfunção Temporomandibular (DTM) ainda gera divergências. Muitos profissionais erroneamente baseiam o diagnóstico e a terapia estritamente no fator oclusal, apesar das evidências científicas atuais não mostrarem tal relação. **Objetivo**: Avaliar o conhecimento dos cirurgiões-dentistas (CDs) de João Pessoa-PB, acerca da relação entre fatores oclusais e DTM. **Material e método**: Uma amostra de 100 CDs que não possuem especialização em DTM e Dor Orofacial (Grupo GN), além de sete CDs com essa especialidade (Grupo GE) preencheram questionário abordando assuntos relativos ao conhecimento da DTM e sua relação com fatores oclusais. O questionário continha também informações para caracterização da amostra como idade, gênero e tempo de formado. O grau de consenso da literatura atual para cada sentença foi estabelecido como "padrão-ouro" de resposta, o qual foi comparado com as respostas dos especialistas e não especialistas. Os dados foram tabulados no programa SPSS e analisados de forma descritiva (através de porcentagens) e, estatística, por meio dos testes Qui-quadrado e Exato de Fisher ($p<0,05$). **Resultado:** Observou-se grande divergência no conhecimento dos cirurgiões-dentistas sem especialidade em DTM e Dor Orofacial com os profissionais dessa especialidade. **Conclusão:** Houve baixa concordância entre os especialistas e não especialistas. A relação entre oclusão dentária e disfunção temporomandibular ainda permanece obscura para a grande maioria dos profissionais entrevistados, o que pode vir a se refletir em condutas de diagnóstico e tratamento oclusal inadequadas para o manejo das DTM.

Descritores: Oclusão dentária; síndrome da disfunção da articulação temporomandibular; conhecimento.

Abstract

Introduction: The relationship between dental occlusion and temporomandibular disorders (TMD) remains a subject of disagreement. Many professionals erroneously base diagnosis and treatment strictly on the occlusal factor, despite the fact that current scientific evidence does not show such a relationship. **Objective**: To evaluate the knowledge of dental surgeons (DSs) from João Pessoa (PB)-Brazil, regarding the relationship between occlusal factors and TMD. **Materials and method**: A sample of 100 DSs who do not have expertise in TMD and orofacial pain (CG Group) and seven DSs with this specialty (EG Group) completed a questionnaire that addresses issues concerning knowledge of TMD and its relationship with occlusal factors. The questionnaire also contained information used to characterize the sample, such as age, gender, and length of experience. The current literature's degree of consensus was established as the "gold standard" response for each statement and was compared with the responses of the specialists and non-specialists. Data were tabulated using the SPSS software package and analyzed descriptively (by percentage) and statistically using the chi-square and Fisher's exact tests ($p < 0.05$). **Result:** A wide divergence could be observed between the knowledge of DSs who do not specialize in TMD and orofacial pain and that of professionals who do. **Conclusion:** There was low agreement between specialists and non-specialists. The relationship between dental occlusion and TMD remains unclear for the vast majority of participating professionals, which may prove to be reflected in diagnostic behaviors and inappropriate occlusal treatment for the management of TMD.

Descriptors: Dental occlusion; temporomandibular joint disorder syndrome; knowledge.

INTRODUCTION

The American Academy of Orofacial Pain defines temporomandibular disorder (TMD) as a collective term for a number of clinical problems that affect the muscles of mastication, the temporomandibular joint (TMJ), and associated structures[1]. It is characterized by pain and fatigue in the masticatory muscles, TMJ pain, headache, otalgia, clicks, and mandibular movement limitations[1,2].

For a long period of time, occlusal factors were considered to be major contributors in the development of this disorder[2,3]. From 1920 to 1930, dentistry was subject to the great influence of occlusionists, and the concept that TMD etiology was caused by dental occlusion problems was intensely disseminated[2,4]. In this sense, the work of James Bray Costen is considered the reference point by which TMD, and particularly its relationship with occlusal factors, achieved universal recognition. In 1934, this ear, nose, and throat specialist first linked the presence of otologic signs and symptoms to dental changes, especially cross bite and a lack of posterior dental support. This development signaled a phase that continues to persist and raise doubts and conflict even into the present, that is, the occlusionist theory of TMD[2-4].

Recent studies, however, have revealed an inconsistent relationship between occlusal factors and the presence of the signs and symptoms of TMD[5-8]. Current scientific evidence suggests that these disorders have a multifactorial nature that is associated with several factors, such as muscle hyperactivity, trauma, emotional stress, and parafunctional and numerous other predisposing, precipitating, and perpetuating habits[1,2,4,9,10]. Simultaneously, in controlling this disorder, there is no scientific support for the administration of techniques that promote complex and irreversible occlusal changes, such as occlusal adjustment by selective grinding, orthodontic therapy, functional orthopedics, and orthognathic surgery[3,7,11-14].

Despite the fact that the current evidence does not show a close relationship between TMD and occlusal disorders, some professionals still conduct their diagnoses and treatment by focusing strictly on the occlusal factor[3,4]. Furthermore, many professionals do not feel secure with regard to their diagnosis and treatment decision or with the evaluation of treatment results[15]. Differences have also been described in relation to the TMD knowledge of specialist professionals and that of non-specialists regarding the role of occlusion as a trigger for the disorder[16,17].

With the continued evolution of dental knowledge, it has become essential for professionals to stay updated with the scientific advances to avoid potentially ineffective or unnecessary treatment of their patients. The practice of evidence-based dentistry is imperative both in the treatment of TMD and in the area of occlusal treatment[13,15]. Given the etiological complexity of TMD and the controversies related to occlusal factors, this study aims to evaluate the knowledge of dental surgeons (DSs) with regard to the relationship between occlusal factors and TMD and to relate and compare the responses of TMD and orofacial pain (OFP) specialists with those of non-specialists in this area.

MATERIAL AND METHOD

The study population was composed of DSs active in a Brazilian capital (João Pessoa-PB) (1,672), of whom eight were specialists in TMD and OFP. The sample thus consisted of 100 DSs (CG group), chosen by convenience, and seven (because one of the specialists could not be located) TMD and OFP specialists (EG Group), comprising a total sample of 107 participants. A list with the names and addresses of DSs operating in the city was obtained from the Regional Dentistry Council (Conselho Regional de Odontologia da Paraíba), and participants were observed and visited so that the objectives of the work could be explained to them before they were asked to participate.

For the descriptive study, the finite populations formula described in Naing et al.[18] was used for the sample size calculation. This formula was based on an error of 6%, a confidence interval of 95%, and a ratio of 90% of individuals with knowledge of the TMD issues under study. In the case of the CG (a finite population of 1,672, corresponding to DSs active in the state capital), a loss of 10% was considered, leading to an increase in sample size from 91 to 100. For the EG (finite population of eight, corresponding to specialists), the calculated sample size was seven.

For the hypothesis testing study, Cohen's h effect size was adopted[19]. This measure addresses the difference in proportions between groups regarding answers to questions in an applied questionnaire. In the case of two groups with unequal sample sizes (seven and 100), the statistical power of the sample should be calculated by taking into account the harmonic mean sample size per group, which, in turn, is given by Cohen's equation 6.3.1[19]. The calculated harmonic mean was 13 per group $[(2 \times 7 \times 100) / (7 + 100)]$. With this harmonic mean and considering a two-tailed type II error of 5% and 80% predictive power, an h effect size equal to or greater than 1.1 would detect differences between the CG and EG (equation 12.6.1)[19].

The research was approved by the local research ethics committee (Protocol CEP 381/10), based on Resolution No. 196/96 of the National Health Council (Conselho Nacional de Saúde). For data collection, a self-assessment questionnaire was applied after an informed consent form had been signed. The questionnaire was divided into two sections, totaling 17 questions that were answered in the participant's own workplace, without any interference from the researcher.

The first 11 questions related to personal and professional data that were used to characterize the sample, such as age, gender, length of experience, and place of graduation. The remaining questions comprised six statements that had been formulated to evaluate knowledge on the relationship between occlusal factors and TMD, based on the studies of Glaros et al.[16] and Tegelberg et al.[17], translated into Portuguese.

Each statement was evaluated on an 11-point scale, with 0 representing "strongly disagree" with the statement, 10 representing "strongly agree", and 5 representing "neutral". Therefore, responses marked in the 0-3 range were designated "disagree" alternatives, 4-6 as "neutral", and 7-10 as "agree"[16,17].

Each individual's responses were compared with a consensus value, which represented the most correct answer for each statement.

Table 1. Consensus values ("gold standard") for each of the statements evaluating knowledge on the relationship between occlusion and temporomandibular disorders

Statement	Consensus ("Gold Standard")
1- A patient's occlusal factors may be the main cause of TMD.	Disagree (0 to 3)
2- Balancing side interferences are often related to TMD.	Disagree (0 to 3)
3- Nocturnal bruxism is caused by occlusal interferences.	Disagree (0 to 3)
4- Oral parafunctional habits are often significant in the development of TMD.	Agree (7 to 10)
5- Orthodontic treatment is best for resolving TMD with malocclusion.	Disagree (0 to 3)
6- Occlusal adjustment is a useful treatment in the prevention of TMD.	Disagree (0 to 3)

To compare the two groups' knowledge, it was not possible to use the parameters of Glaros et al.[16] and Tegelberg et al.[17], which considered there to be a consensus when 75% of the specialists' sample chose the same option. Due to the small sample of specialists in this study, we instead chose to use consensus ("gold standard") based on the most current scientific literature[3,9,11-14,17,20-22]. Table 1 presents the consensus values ("gold standard") for each of the statements.

When the consensus was "disagree", the responses corresponding to "neutral" and "agree" were grouped together. The same procedure was followed when the consensus was "agree", i.e., the alternatives "neutral" and "disagree" were grouped together. The responses of the two groups (CG and EG) were then compared to the gold standard by inferential statistical analysis using the chi-square and Fisher's exact tests, $p < 0.05$. The SPSS (*Statistical Package for Social Sciences*) software package, version 13.0, was used for this purpose. The remaining data on the sample characteristics were evaluated descriptively, and the distribution frequencies were calculated as a percentage.

For the hypothesis of difference tests, Cohen's h effect size was calculated[19] (equation 6.2.2)[19], in addition to its 95% confidence interval and statistical power (equation 12.6.1[19]; 2-tailed type II error of 5%). For the 95% confidence interval, the lower and upper limits of each proportion in each group were initially calculated using method 10 described by Newcombe[23]. Using Cohen's h effect size equation[19], the lower proportion limits were applied to calculate the lower limit of the 95% confidence interval, and the upper proportion limits were applied to calculate the upper limit of the 95% confidence interval.

Table 2. Sample characterization according to the variables of gender, age, length of experience, and activity sector

	EG group		CG group	
	n	%	n	%
Gender				
Male	1	14.3	38	38
Female	6	85.7	62	62
Age				
20 to 30 years	1	14.3	14	14
31 to 40 years	2	28.6	27	27
41 to 50 years	2	28.6	31	31
51 to 60 years	2	28.6	23	23
More than 60 years	0	0	5	5
Length of experience				
Up to 15 years	2	28.6	39	26
More than 15 years	5	71.4	61	61
Activity sector				
Only private	2	28.6	29	29
Only public	0	0	29	29
Private and public	5	71.4	42	42
Total	7		100	

RESULT

The study sample was characterized according to gender, age, length of experience, and activity sector, as shown in Table 2. The EG group represents DSs who specialize in TMD and OFP (n = 7), whereas the CG group represents DSs who did not have this specialty (n = 100).

Females were more prevalent in both groups. The similarity between the two groups was also verified in relation to length of experience, for which there was a higher percentage of professionals with over 15 years of training.

Regarding the activity sector, it is important to note that no TMD and OFP specialist provided an exclusively public health service, given that this specialty is not included in the Unified Health System (Sistema Único de Saúde)[10]. It should also be noted that, in both groups, the greatest percentage of professionals performed work in both public and private practice.

Regarding the training profile of the studied sample (n = 107), it was observed that 72.9% of the DSs had specialties other than TMD and OFP and that 18.7% of these professionals were recent graduates. Table 3 shows that the specialties most commonly cited were endodontics and periodontics.

Regarding the teaching of occlusion and TMD during graduate training, we found that 57.1% of TMD and OFP specialists (EG group) stated that they obtained knowledge of both subjects within the same discipline and 42.9% stated that they did not obtain TMD

Table 3. Training profile of dental surgeons in relation to the level of training and number and type of specialties

	N	%
Training level		
Specialized in TMD and orofacial pain	7	6.5
Specialized in other areas*	78	72.9
Recently graduated	20	18.7
PhD	2	1.9
Number of specialties		
Only one	73	68.2
More than one	5	4.7
Specialty type**		
Endodontics	16	15
Periodontology	12	11.2
Odontopediatrics	11	10.3
Orthodontics	10	9.4
Prosthodontics	7	6.5
Implantodontology	7	6.5
Family Health	7	6.5
Oral Surgery	7	6.5
Dentistry	6	5.6
Others (Radiology, Legal Dentistry, Dental Materials, Hygienist, Stomatology, Geriatric Dentistry)	9	8.7
Total	107	

*Percentage of dentists with other specialties. **The specialty type variable has a sum of percentages greater than 72.9% because there was more than one type of specialty cited.

knowledge during graduate training. Regarding the CG group, the vast majority (71%) of professionals reported having obtained knowledge of occlusion and TMD in the same discipline, 17% reported not having obtained knowledge of TMD during graduate training, 10% stated that they had obtained knowledge of TMD and occlusion in different disciplines, and 2% reported not having obtained knowledge of occlusion during graduate training.

Of the TMD and OFP specialists, 85.7% stated that they had always encountered and treated patients with this disorder. Among the non-specialist DSs, 42% had sometimes encountered these patients, and 89% claimed that they had referred them for treatment.

Table 4 shows a comparative analysis between the two groups regarding the six specific statements addressing knowledge on the relationship between occlusion and TMD (Fisher's exact test). It was found that there was no statistically significant difference between the responses of the EG and CG groups only for statements 4 and 5. Of the four comparisons that were significantly different, the differences in responses to questions 1 and 3 were the only differences with acceptable statistical power (equal to or greater than 80%), and these are the differences with statistical support (h effect > 1.1).

Table 5 presents a comparative analysis between the two groups regarding the six specific statements that address knowledge on the relationship between occlusion and TMD (chi-square and Fisher's exact tests), relating these findings with length of experience (up to 15 years and over 15 years).

In analyzing the possible influence of length of experience on the knowledge of the two groups, it was found that, for the EG group, the time factor was not significant for any statement; for the CG group, it was found that, for statements 1, 3, and 5, there were statistically significant differences between those with over 15 years' experience and those with less, although the latter had a greater tendency to agree with the gold standard ($p < 0.05$). There were no differences with regard to the other questions.

DISCUSSION

The present study sought to determine whether there are differences in relation to knowledge on the relationship between occlusion and TMD in a sample of dentists in a Brazilian capital (João Pessoa-PB). One limitation of the study was the allocation of the evaluated groups, given that the EG group was necessarily

Table 4. Comparative analysis of statements based on dental surgeons' knowledge on the relationship between occlusion and temporomandibular disorders

Question	Relation to gold standard	EG n (%)	CG n (%)	h Effect (95% CI)	Statistical power	p
1- A patient's occlusal factors may be the main cause of TMD.	Agrees with gold standard	4 (57.1)	9 (9)	1.10 (1.5; 0.61)	80.5%	0.04 *
	Disagrees with gold standard	3 (42.9)	91 (91)			
2- Balancing side interferences are often related to TMD.	Agrees with gold standard	3 (42.9)	6 (6)	0.933 (1.37; 0.48)	66.6%	0.01*
	Disagrees with gold standard	4 (57.1)	94 (94)			
3- Nocturnal bruxism is caused by occlusal interference.	Agrees with gold standard	7 (100)	56 (56)	1.45 (1.66; 0.37)	96.0%	0.02*
	Disagrees with gold standard	0 (0)	44 (44)			
4- Oral parafunctional habits are often indicative of TMD development.	Agrees with gold standard	4 (57.1)	79 (79)	0.48 (0.94; 0.05)	22.9%	0.18
	Disagrees with gold standard	3 (42.9)	21 (21)			
5- Orthodontic treatment is best for resolving TMD with malocclusion.	Agrees with gold standard	3 (42.9)	25 (25)	0.38 (0.84; 0.05)	16.2%	0.26
	Disagrees with gold standard	4 (57.1)	75 (75)			
6- Occlusal adjustment is a useful treatment in TMD prevention.	Agrees with gold standard	3 (42.9)	3 (3)	1.08 (1.62; 0.16)	78.8%	0.03*
	Disagrees with gold standard	4 (57.1)	97 (97)			

*Statistically significant difference, $p < 0.05$ according to Fisher's exact test.

Table 5. Comparative analysis of statements based on dental surgeons' knowledge on the relationship between occlusion and temporomandibular disorders, relating these findings with length of experience

Groups	Question	Relation to gold standard	up to 15 years n (%)	over 15 years n (%)	p
EG	1- A patient's occlusal factors may be the main cause of TMD.	Agrees with gold standard	1 (50)	3 (60)	1.00
		Disagrees with gold standard	1 (50)	2 (40)	
CG	1- A patient's occlusal factors may be the main cause of TMD.	Agrees with gold standard	8 (20.5)	1 (1.6)	0.002*
		Disagrees with gold standard	31 (79.5)	60 (98.4)	
EG	2- Balancing side interferences are often related to TMD.	Agrees with gold standard	1 (50)	2 (40)	1.00
		Disagrees with gold standard	1 (50)	3 (60)	
CG	2- Balancing side interferences are often related to TMD.	Agrees with gold standard	3 (7.7)	3 (4.9)	0.676
		Disagrees with gold standard	36 (92.3)	58 (95.1)	
EG	3- Nocturnal bruxism is caused by occlusal interference.	Agrees with gold standard	2 (100)	5 (100)	------
		Disagrees with gold standard	0 (0)	0 (0)	
CG	3- Nocturnal bruxism is caused by occlusal interference.	Agrees with gold standard	28 (71.8)	28 (45.9)	0.011**
		Disagrees with gold standard	11 (28.2)	33 (54.1)	
EG	4- Oral parafunctional habits are often indicative of TMD development.	Agrees with gold standard	2 (100)	2 (40)	0.429
		Disagrees with gold standard	0 (0)	3 (60)	
CG	4- Oral parafunctional habits are often indicative of TMD development.	Agrees with gold standard	30 (76.9)	49 (80.3)	0.683
		Disagrees with gold standard	9 (23.1)	12 (19.7)	
EG	5- Orthodontic treatment is best for resolving TMD with malocclusion.	Agrees with gold standard	1 (50)	2 (40)	1.000
		Disagrees with gold standard	1 (50)	3 (60)	
CG	5- Orthodontic treatment is best for resolving TMD with malocclusion.	Agrees with gold standard	14 (35.9)	11 (18)	0.044**
		Disagrees with gold standard	25 (64.1)	50 (82)	
EG	6- Occlusal adjustment is a useful treatment in TMD prevention.	Agrees with gold standard	1 (50)	2 (40)	1.00
		Disagrees with gold standard	1 (50)	3 (60)	
CG	6- Occlusal adjustment is a useful treatment in TMD prevention.	Agrees with gold standard	2 (5.1)	1 (1.6)	0.559
		Disagrees with gold standard	37 (94.9)	60 (98.4)	

*Statistically significant difference, $p < 0.05$ according to Fisher's exact test. **Statistically significant difference, $p < 0.05$ according to chi-square test.

composed of temporomandibular disorder and orofacial pain specialists, a specialty that was recognized in Brazil only in 2002[10] and that, unfortunately, has thus far produced a low number of skilled professionals. Although the number of respondents (seven) is numerically low, it is believed to be representative of the evaluated population because it corresponds to 87.5% of the specialists registered with the Regional Dentistry Council and residing in the studied city.

During the characterization of the study sample, there was a predominance of female professionals, reflecting the current profile of the Brazilian DS community, which has a preponderance of this gender[24]. Twenty years ago, the professional scenario was different; in 1994, in their work in the United States, Glaros et al.[16] found a sample composed exclusively of men, demonstrating that changes in society are reflected in universities. Most of the DSs interviewed graduated from universities in the same state, a behavior that follows a Brazilian trend in which 86% of DSs are registered with the Federal Dentistry Board (Conselho Federal de Odontologia - CFO) of the same state in which they trained[24].

In Brazil, there is a concentration of specialists in the state capitals. In 18 of the 27 states, the percentage concentration of specialists in the capital is greater than 60%[24]. In the studied state (Paraíba), of the 502 specialists registered with the dentistry council, 353 are in the capital, corresponding to 70.32% of the state's specialists. The specialties most frequently noted by respondents in this study were endodontics and periodontology, which represent the second and fourth highest enrolled specialties in the CFO[24]. Despite the fact that the TMD and OFP specialty was established in 2002 by the CFO, it can be observed that the specialty is little known and explored even by DSs and there is a low number of registered specialists[10].

Regarding the analysis of the responses, the high percentage of answers in the "neutral" range complicated comparative analysis between the two groups[16,17]. Another problem was the small number of active TMD and OFP specialists in João Pessoa, i.e., eight specialists from a total of 12 throughout the state.

In this study, it was observed a high degree of divergence in TMD knowledge between TMD and OFP specialists and professionals who did not have such expertise. There was no consensus between the groups in four of the six analyzed statements. This situation corroborates the work of Glaros et al.[16] and Tegelberg et al.[17] and may be a reflection of the lack of continuing education on the part of the professionals, especially with regard to an area (TMD and OFP) that remains little explored in undergraduate and postgraduate dentistry courses in Brazil[10,15].

TMD evaluation and diagnosis are often considered a challenge for the general practitioner and even specialists in other areas[15], given that the disorder encompasses a wide variety of signs and symptoms that can affect many stomatognathic system structures[1,2]. This difficulty is reflected in the low number of non-specialist professionals in the field who treat these patients, given that most do not feel prepared to do so and prefer to refer them to other professionals[15,16]. In addition, there is a shortage of studies in the literature that seek to evaluate these professionals' knowledge on this subject.

It is suggested that the fact that, for most of the evaluated professionals, occlusion and TMD were subjects taught in the same discipline during graduate training may have influenced their responses and reinforced the non-existent relationship between them. Therefore, it would be interesting to evaluate in future research how these skills are taught. Similarly, it is suggested that curriculum changes may be necessary so that the TMD and orofacial pain discipline is kept separate from knowledge of occlusion[10].

Currently, there is a consensus among researchers and specialists that occlusion should not be viewed as a major factor in the cause of TMD[5-8,20,25] but instead should be viewed more as one of several factors that may be related to it. However, it can be observed from the CG group that most DSs still take the occlusionist theory for granted[2-4], with statistically significant differences from the EG group. It should be emphasized that the fact that the relationship between occlusion and TMD is not a scientific fact does not diminish the importance of studying occlusion in dentistry, given that it is highly involved in other aspects of clinical practice[3,10].

In that regard, the CG group relates balancing side interference to TMD. However, the literature does not support this relationship, with studies having found that some patients develop the signs and symptoms of TMD even when no interference is present and even that some individuals with balancing side interference do not have this disorder[22,25,26].

Bruxism is conceptualized as the involuntarily habit of grinding one's teeth. It has a multifactorial etiology and, to date, is not fully understood. It is related to psychological, systemic, neurochemical, and genetic factors and the use of certain types of drugs[21,26,27]. Both groups agreed that the presence of occlusal interferences is not related to the occurrence of bruxism[16,17], although the CG group presented statistically significant differences, with a lesser degree of agreement with this statement than the EG group.

Oral parafunctional habits are considered to be any non-functional stomatognathic system neuromuscular activity that is capable of causing craniomandibular muscle group hyperactivity[28]. Both groups agreed with the literature[2,9,27,28] regarding parafunctional habits' possible contributing role in the development of TMD.

The relationship between orthodontic treatment and TMD, whether as prevention, treatment, or cause, has been widely discussed over the years, and today, malocclusion correction is not considered to be a method of treating this disorder[6,10,12,13,15]. However, many CG group participants still believed in the strong role of orthodontics and occlusal adjustment, which may be related to their belief that occlusal factors are primarily responsible for the disorder. After a systematic review of randomized clinical trials, Fricton[13] concluded that there is not sufficient scientific evidence to support this type of treatment. Studies that support the use of occlusal treatment have produced controversial results and achieved low values on the quality scale, which may have influenced the results[13].

When investigating the possible influence of length of experience on the knowledge level of both groups, it was decided to stratify the sample into those with more or less than 15 years' experience, given that the temporomandibular disorders and orofacial pain specialty has been recognized in Brazil for little more than 13 years. Therefore, we sought to verify whether those trained more recently

have knowledge closer to the literature-based consensus gold standard. In this analysis, we found that, for the EG group, the time factor was not important in relation to agreement with the gold standard, which may suggest that the continuing education of these professionals may have overcome any deficiency in their university education. However, for the CG group, in at least three options (1, 3, and 5), it was found that those trained less than 15 years ago had a higher agreement with the literature, which may suggest that this finding may be due to changes in these professionals' training. Further studies are suggested to identify whether the "education" factor may have been significant in this case.

Based on current scientific evidence, the presented results should be considered important in terms of increasing knowledge, improving clinical decision-making, and facilitating therapeutic approaches that improve the quality of life of patients with these disorders. They are also important in preventing irreversible treatments and those based on personal opinions, such as occlusal adjustment, extensive prosthetic rehabilitation, or even orthodontic treatment, from being wrongly used on patients to treat pain and dysfunction, given that the contribution of occlusal factors to these conditions has been shown to have little or no relevance[3,7,12,13].

CONCLUSION

It can be concluded that there was a high degree of consensus among TMD and OFP specialists with regard to knowledge on the relationship between occlusal factors and TMD. This result did not occur among the non-specialist professionals. This discrepancy may affect decisions regarding the best method to diagnose and treat this group of anomalies. The relationship between dental occlusion and TMD remained unclear to the vast majority of responding professionals.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

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