Development of a CIF checklist for functional assessment of temporomandibular dysfunction

Elaboração de um checklist da CIF para avaliação funcional da disfunção temporomandibular

Maíra de Oliveira Viana Rela [1,2]
Amanda de Oliveira Toledo [1*]
Isabel de Oliveira Monteiro [1]
Jair Lício Ferreira Santos [2]

[1] Universidade de Fortaleza (Unifor), Fortaleza, CE, Brazil

[2] Universidade de São Paulo (USP), São Paulo, SP, Brazil

*Correspondence: amanda.o.toledo@outlook.com

Abstract

Introduction: Temporomandibular dysfunction (TMD) affects health and quality of life. Although the Research Diagnostic Criteria for Temporomandibular Disorders (RDC) assesses the condition, it does not address disability. Thus, the International Classification of Functioning (ICF) becomes essential for the assessment of disability, requiring its brevity through specific checklists for TMD. **Objective:** To develop an ICF-based checklist and evaluate the functionality of individuals with TMD. **Methods:** This is a cross-sectional pilot study carried out at the University of Fortaleza in 2016, with patients aged 20 to 50 years with TMD. The checklist integrated the clinical aspects of the RDC with the ICF categories. A committee of judges, composed of dentistry, physiotherapy and speech therapy professionals familiar with the ICF, was selected by the Delphi method. Statistical analyses included the Mann-Whitney test for comparisons between groups and the Wilcoxon test for intragroup comparisons, adopting a significance level of 5%. **Results:** Thirty-four components of function, eight of body structure, 36 of activity and participation, and 15 of environmental aspects were selected. After expert analysis, 31, 8, 28, and 15 components remained, respectively. Nineteen patients participated, mainly women (89.5%; n = 17) with prevalence of myofascial pain according to the RDC/TMD. The instrument revealed mild to moderate impairments in body functions and difficulties in social and work activities. Environmental factors in the facilitating construct included medications and professional support, and lack of family support in the barrier construct. **Conclusion:** The ICF-based checklist provides detailed information on the functions and structures affected by TMD, as well as on the activities and participation interfered with and the barriers and facilitators that patients have due to their condition.

Keywords: Checklist. ICF. Temporomandibular joint dysfunction syndrome.

Resumo

Introdução: A disfunção temporomandibular (DTM) afeta a saúde e qualidade de vida. Embora o Research Diagnostic Criteria for Temporomandibular Disorders (RDC) avalie a condição, não aborda a incapacidade. Assim, a Classificação Internacional de Funcionalidade (CIF) se torna essencial para a avaliação da incapacidade, sendo necessária sua brevidade através de checklists específicos para DTM. **Objetivo:** Elaborar um checklist baseado na CIF e avaliar a funcionalidade de indivíduos com DTM. **Métodos:** Trata-se de um estudo piloto transversal realizado na Universidade de Fortaleza, em 2016, com pacientes de 20 a 50 anos com DTM. O checklist integrou os aspectos clínicos do RDC com as categorias da CIF. Um comitê de juízes, composto por profissionais de odontologia, fisioterapia e fonoaudiologia familiarizados com a CIF, foi selecionado pelo método Delphi. Análises estatísticas incluíram o teste de Mann-Whitney para comparações entre grupos e o de Wilcoxon para comparações intragrupos, adotando um nível de significância de 5%. **Resultados:** Foram selecionados 34 componentes de função, 8 de estrutura do corpo, 36 de atividade e participação e 15 de aspectos ambientais. Após análise especializada, permaneceram 31, 8, 28 e 15 componentes, respectivamente. Participaram 19 pacientes, principalmente mulheres (89,5%; n = 17), com prevalência de dor miofascial pelo RDC/TMD. O instrumento revelou deficiências leves a moderadas em funções do corpo e dificuldades em atividades sociais e de trabalho. Fatores ambientais no constructo facilitador incluíram medicamentos e apoio profissional, e a falta de apoio familiar no constructo barreira. **Conclusão:** O checklist baseado na CIF proporciona informações detalhadas sobre as funções e estruturas acometidas pela DTM, bem como sobre as atividades e participação interferidas e as barreiras e facilitadores que os pacientes têm sob sua condição.

Palavras-chave: Checklist. CIF. Síndrome da disfunção da articulação temporomandibular.

Introduction

Temporomandibular dysfunction (TMD) is characterized by a set of disorders involving pain and dysfunctions of the temporomandibular joint (TMJ), muscles that are responsible for chewing, and adjacent structures such as the head and the neck.[1] It is considered one of the most common orofacial disorders, presenting physical and functional limitations that impact the health and quality of life of the individuals that are affected by it.[2] Additionally, it is described as the primary cause of non-odontogenic orofacial pain, with multifactorial characteristics, and may be related to biomechanical, neuromuscular, biological, psychosocial, and traumatic factors.[3] Among the most relevant signs and symptoms are limitations in jaw range of movement, crepitus, clicking sounds, vertigo, tinnitus, headache, and cervical pain, all of which interfere with functionality and daily activities. It is estimated that the prevalence of TMD ranges from 29.3% to 38.8% in the global adult population.[4]

Studies indicating that TMDs are directly related to a lower quality of life also associate them with a higher presence of psychological alterations, which need to be considered in clinical evaluation to better understand the patient's context and provide an effective management of the condition.[5,6]

Despite including these psychosocial and behavioral aspects related to the dysfunction, the most commonly used tool for diagnosing and classifying these dysfunctions, the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD), does not measure the disability of individuals with TMD and does not reflect the influence of environmental factors that may act as barriers or facilitators in the dysfunction's progression.[7]

The inclusion of an assessment tool focused on the functionality and disability of individuals, such as the International Classification of Functioning, Disability, and Health (ICF), can optimize the biopsychosocial approach in clinical practice by enabling the quantification of these indicators. This is crucial for understanding the patient as a whole to set appropriate goals that value their abilities and performance in daily activities.[8] The materialization of these data allows for a more accurate visualization of the patient's condition, enhancing the professional's involvement in collecting this information and improving the therapeutic process's effectiveness.[9]

The ICF was published in 2001 by the World Health Organization (WHO) to standardize health communication language,[10] However, the high number of categories it comprises makes it difficult for professionals to use it on the daily basis. Thus, tools such as checklists and core sets have been developed from the specific selection of categories within the instrument according to each disease, condition, or intervention.[11] Therefore, there is a significant need to conduct investigations regarding the development and use of ICF checklists for patients

with TMD, associated with other assessment tools, as these can influence treatment and the quality of life of the affected individuals.

It is of fundamental importance to propose such interaction in the hopes of providing scientific basis for understanding and studying health, establishing a common and more uniform language to be used by health professionals and patients, while influencing and motivating more scientific production in the field. This would promote the development of new assessments and guide the creation of more efficient intervention strategies and serve as a guiding tool for strategic actions that improve productivity, work efficiency, and the allocation of financial resources.

In this context, the present study aimed to develop an ICF-based checklist and evaluate the functionality of individuals with TMD to promote a deeper understanding of the real needs of those affected by this dysfunction, as well as to favor the understanding of their competencies and disabilities.

Methods

This is a pilot, cross-sectional, observational, and analytical study with a quantitative approach, conducted in the physiotherapy department of the Núcleo de Atenção Médica Integrada (NAMI) at the University of Fortaleza, from August 2013 to June 2016, and approved by the Ethics Committee of the University of Fortaleza (protocol no. 434.775).

Checklist construction

To construct the checklists, an effort was made to relate the main aspects, results, and/or clinical measures of each area to the most accurate ICF categories, establishing a correspondence between the evaluation items of the RDC/TMD and the ICF components. The aim was to include as few ICF categories as possible, yet as many as necessary to describe the informational needs of the provided care and the spectrum of problems affecting the users' functionality.

For this purpose, the Delphi technique was used, as it is a systematic way to achieve consensus on a specific topic, particularly those that lack sufficient scientific evidence to incorporate such a strategy in clinical practice.[12] Among the main advantages of the Delphi method are anonymity, the interaction of different spe-

cialists, the possibility to reconsider opinions based on controlled feedback, and the ability to achieve the main goal, which is to resolve a problem or define a consensus on a specific topic.[13] Based on the Delphi method, the process of constructing the instrument followed these steps: setting up guiding questions, invitation to professionals with expertise in the field of TMD, and instrument evaluation. Guiding questions: 1. What information could I ob-tain from the RDC/TMD evaluation in terms of function (b), structure (s), activity, and participation (d)? 2. What environmental factors (e) – access to equipment, medica-tions, prostheses, family, caregivers, work, employment, social life, etc. – impact the practice and lives of patients with TMD?

Professionals in dentistry, physiotherapy, and speech therapy who had worked with the ICF and had exper-tise in the area of TMD were invited to participate in the research, with the sample consisting of those who agreed to participate and signed the Informed Consent Form to form the committee of judges to evaluate the content of the instrument.

The judges were instructed to evaluate the instru-ment in terms of clarity, relevance, comprehension, pre-sentation format, scope, language, and representative-ness.[14,15] Each item was assessed, and finally, the judges were allowed to make suggestions or adjustments to the received instrument.

The final stage consisted of conducting a pilot study to assist the researchers in identifying problems related to the studied population and possible problems to be corrected for future studies. Thus, a sample of the studied population responded to the checklist to verify its clarity, comprehension, and applicability.

Study population

The study population consisted of patients receiving care in the dentistry service at the University of Fortale-za, previously diagnosed with articular TMD associated or not with myogenic pain, aged between 20 and 50 years, regardless of gender, who agreed to participate in the research by signing the ICF. Those who had chronic use (for more than six months) of analgesics, anti-inflammatory drugs, or psychotropic medications, occlusal splints, diagnosed with central or peripheral neurological disorders, heart diseases and epilepsy, history of surgeries and/or tumors or trauma in the head and neck region, and pregnant women were excluded from the research.

Data collection and statistical analysis

The participants filled out a questionnaire and were examined according to the RDC/TMD classification, which is a validated instrument for the Portuguese language. The evaluation took place in a well-lit room, with participants lying on a stretcher. Static occlusion was evaluated according to Angle's classification.[16] Functional occlusion assessment and palpation were performed according to the RDC/TMD. Axis I of the RDC/TMD consists of ten items, including questions about pain, mouth opening, vertical and horizontal movements, joint noises, muscle, and joint palpation. The physical aspects are classified into group I (muscle disorder), group II (disk displacement), and group III (other joint conditions). Axis II addresses psychosocial aspects, classifying chronic orofacial pain intensity and disability into different degrees. It also allows classifying depression symptoms and nonspecific physical symptoms as moderate or severe. This method is considered the gold standard for the diagnosis and classification of TMD.[17]

Excel software was used for data entry. Subsequently, the data were analyzed using the STATA program, version 12.0. The results were presented by comparing the groups through non-parametric statistics, using the Mann-Whitney test to compare two independent groups and the Wilcoxon test for within-group comparisons, with a significance level set at 5%.

Results

During the first phase, 34 categories of function, 8 of body structure, 36 of activity and participation, and 15 of environmental factors were pre-selected. After the specialists' analysis, 31 categories of function, 8 of body structure, 28 of activity and participation, and 15 of environmental factors remained.

The checklist was applied to 19 participants, with the majority being female (n = 17; 89.5%), while male individuals (n = 2) represented only 10.5% of the study's population, with an average age of approximately 34.5 ± 11.2 years.

After the application of the RDC/TMD, the largest proportion of participants was diagnosed with isolated myofascial pain, falling under group I (n = 6), and group I and III, presenting myofascial pain and painful and/ or degenerative alterations of the TMJ. Regarding the

perception of signs and symptoms, it was found that 84.21% (n = 16) reported facial pain as the predominant symptom, followed by a reduced range of joint motion and headaches, both at 78.95% (n = 15), and 73.68% (n = 14) complained about TMJ noises (Table 1).

Table 1 - Classification according to RDC/TMD perception of signs and symptoms in 19 individuals with TMD

Group RDC/TMD	Age (years)		Total
	20 a 30	30 a 50	
Group I	2 (10.53)	4 (21.05)	6 (31.58)
Group I and II	2 (10. 53)	0 (0.00)	2 (10.53)
Group II and III	0 (0.00)	1 (5.26)	1 (5.26)
Group I and III	3 (15.79)	3 (15.79)	6 (31.58)
Group I, II and III	2 (10.53)	2 (10.53)	4 (21.05)
Signs and symptoms	**Presence**	**Absense**	**Total**
Facial pain	16 (84.21)	3 (2.22)	19 (100)
Headache	15 (78.95)	4 (2.96)	19 (100)
TMJ noise	14 (73.68)	5 (3.70)	19 (100)
Bruxism	6 (31.58)	13 (9.63)	19 (100)
Tinnitus	11 (57.89)	8 (5.93)	19 (100)
Limited range of motion	15 (78.95)	4 (2.96)	19 (100)

Note: Data expressed as number of individuals (percentage). RDC = Research Diagnostic Criteria for Temporomandibular Disorders; TMD = temporomandibular disorder; TMJ = temporomandibular joint.

Regarding body functions in the checklist of this study, it was observed that sleep, the presence of tinnitus, vertigo, and generalized pain moderately or slightly incapacitated the participants. In the analysis of neuromusculoskeletal functions and their relationship with movement, participants showed mild to moderate impairments in mobility and stability (Table 2).

The body structures analyzed in individuals with TMD were those related to voice and speech (teeth, gums, palate structures, tongue, and lips) and movement (head and neck region, spine, and other movement-related structures). Structures in the lips did not show any type of impairment, but structures in the head, neck, and spine regions exhibited a deviation from their original axis and a greater impairment on the right side (n = 12; 63.16%). Using the ICF qualifiers, it was observed that these changes lead to a mild impairment in structures of the neck region (n = 14; 73.68%) and tongue (n = 5; 26.32%), and moderate impairment in musculoskeletal structures

(n = 8; 42.1%), spinal structures (n = 7; 36.84%), and head and neck region (n = 15; 25%) (Table 3).

In the components of activity and participation, based on capacity and performance qualifiers, difficulties were most frequently observed in informal social relationships (d750), with 100%, performing multiple tasks (d220) and family relationships (d760), with 94.74%, complex interpersonal interactions, obtaining, maintaining, and leaving employment (d845), and eating (d550), with 89.47%. Additionally, 84.21% had impairment in paid work (d850) and unpaid work (d855), as well as in activity and leisure (d920). Some categories showed lower frequency of impairment, and other categories were not affected, such as washing oneself (d510), dressing (d540), and drinking (d560), as shown in Table 4.

Table 2 - ICF body functions categories most frequently reported according to the scoring ranges of the ICF summary list and percentage of individuals with some impairment in 19 individuals with temporomandibular disorder

Body functions	NI (n)	WI (n)				WI (%)
		1	2	3	4	
b126 – Temperament and personality functions	15	4	0	0	0	21.05
b130 – Energy and drive functions	16	3	0	0	0	15.79
b1340 – Amount of sleep	7	9	3	0	0	63.16
b1341 – Sleep onset	10	9	0	0	0	47.37
b1342 – Sleep maintanence	10	8	1	0	0	47.37
b1343 – Sleep quality	4	12	3	0	0	78.95
b1344 – Functions related to the sleep-wake cycle	5	13	1	0	0	73.68
b140 – Attention functions	16	2	1	0	0	15.79
b152 – Emotional functions	15	3	1	0	0	21.05
b1602 – Content of thought	13	5	1	0	0	31.58
b235 – Vestibular functions	5	9	5	0	0	73.68
b2400 - Tinnitus	4	12	3	0	0	78.95
b2401 - Vertigo	4	14	1	0	0	78.95
b2402 – Dizziness or falling sensation	7	9	2	1	0	63.16
b2403 – Nausea associated with dizziness or vertigo	11	6	2	0	0	42.11
b2404 – Ear irritation	14	3	2	0	0	26.32
b2405 – Ear pressure	12	5	2	0	0	36.84
b260 – Proprioceptive functions	13	6	0	0	0	31.58
b270 – Sensory functions related to temperature and other stimuli	14	4	1	0	0	26.32
b2800 – Generalized pain	4	10	3	2	0	78.95
b2801 – Localized pain	0	9	7	3	0	100
b28016 – Joint pain	11	1	6	1	0	42,.11
b310 – Voice functions	13	6	0	0	0	31.58
b710 – Joint Mobility functions	1	10	8	0	0	94.74
b715 – Joint stability functions	4	13	2	0	0	78.95
b730 – Muscle strength functions	15	4	0	0	0	21.05
b735 – Muscle tone functions	17	2	0	0	0	10.53
b740 – Muscle Endurance functions	15	4	0	0	0	21.05
b760 – Voluntary movements control functions	15	4	0	0	0	21.05
b765 – Involuntary movements control functions	15	4	0	0	0	21.05
b780 – Sensations related to muscles and movement functions	10	8	1	0	0	47.37

Note: ICF = International Classification of Functioning, Disability and Health. NI = no impairment; WI = with impaiment. 1 = mild impairment; 2 = moderate impairment; 3 = severe impairment; 4 = complete impairment.

Table 3 - ICF body structures categories most frequently reported according to the scoring ranges of the ICF summary list and percentage of individuals with some impairment in 19 individuals with temporomandibular disorder

Body structures	NI (n)	WI (n)				WI (%)
		1	2	3	4	
s3200 - Teeth	10	5	3	1	0	47,37
s3201- Gums	17	2	0	0	0	10.53
s3202 – Palate structure	17	1	1	0	0	10.53
s3203 – Tongue	14	5	0	0	0	26.32
s3204 – Lip structure	19	0	0	0	0	0.00
s710 – Head and neck regions structures	0	14	5	0	0	100
s7600 – Spine structures	0	12	7	0	0	100
s770 – Additional musculoskeletal structures related to movement	0	11	8	0	0	100

Note: ICF = International Classification of Functioning, Disability and Health. NI = no impairment; WI = with impaiment. 1 = mild impairment; 2 = moderate impairment; 3 = severe impairment; 4 = complete impairment.

Table 4 - ICF activity and participation categories most frequently reported according to the scoring ranges of the ICF summary list in 19 individuals with temporomandibular disorder

Activities and participation	NI (n)	WI (n)				WI (%)
		1	2	3	4	
d160 – Focusing attention	19	0	0	0	0	0.00
d175 – Solving problems	19	0	0	0	0	0.00
d220 – Performing multiple tasks	1	13	4	1	0	94.74
d230 – Carrying out daily routine	12	6	1	3	0	52.63
d240 – Coping with stress and other psychological demands	15	4	0	0	0	21.05
d410 – Changing basic body position	11	3	4	1	0	42.11
d415 – Maintaining body position	14	4	1	0	0	26.32
d430 – Lifting and carrying objects	13	4	1	1	0	31.58
d445 – Using hands and arms	11	5	3	0	0	42.11
d470 – Using transportation	19	0	0	0	0	0.00
d475 - Driving	12	4	3	0	0	36.84
d510 – Washing oneself	19	0	0	0	0	0.00
d520 – Taking care of body parts	19	0	0	0	0	0.00
d540 - Dressing	19	0	0	0	0	0.00
d550 - Eating	2	9	6	2	0	89.47
d640 – Performing household chores	7	9	3	0	0	63.16
d650 – Taking care of household objects	17	2	0	0	0	10.53
d720 – Complex interpersonal interactions	2	8	6	3	0	89.47
d750 – Informal social relationships	0	8	9	1	1	100
d760 – Family relationships	1	13	4	1	0	94.74
d770 – Intimate relationships	9	9	1	0	0	52.63
d845 – Obtaining, maintaining, and leaving employment	2	11	5	1	0	89.47
d850 – Paid work	3	14	2	0	0	84.21
d855 – Unpaid work	3	16	0	0	0	84.21
d920 – Recreation and leasure	3	10	5	1	0	84.21

Note: ICF = International Classification of Functioning, Disability and Health. NI = no impairment; WI = with impaiment. 1 = mild impairment; 2 = moderate impairment; 3 = severe impairment; 4 = complete impairment.

Environmental factors comprise the physical, social, and attitudinal environment in which people live and conduct their lives. It is recommended that these factors get coded from the perspective of the person whose situation is being described. To classify environmental factors, two qualifiers were used. In addition to the generic scale used for body functions and structures, activities, and participation, symbols were added according to the ICF to measure to what extent an environmental factor acts as a facilitator (+) or barrier (-). A variable is considered a facilitator when there is availability of a resource, guaranteed access, or when it is of good or poor quality. A barrier refers to how frequently a factor limits the individual, whether the difficulty is large or small, and whether it is avoidable or not.[18]

The environmental factors that were found to be facilitators for this sample included medications (e1101), healthcare professionals (e355), individual attitudes of healthcare professionals (e450), and health services, systems, and policies (e580). Among the environmental factors identified as barriers, the most frequent was lack of family support (e310) (Table 5).

Table 5 - Categories of environmental factors from the ICF identified with the highest frequency according to the scoring ranges of the ICF summary list in 19 individuals with temporomandibular disorder

Environmental factors	Facilitator (n)	Barrier (n)	Neither facilitator nor barrier n (%)
e1101 - Medications	12	0	7 (36.84)
e310 – Immediate Family	0	3	16 (84.21)
e325 – Acquaintances, peers, colleagues, neighbors, and community members	0	0	19 (100)
e355 – Healthcare professionals	19	0	0 (0.00)
e410 – Attitudes of immediate Family members	0	1	18 (94.74)
e420 – Attitudes of friends	0	0	19 (100)
e425 – Attitudes of acquaintances, peers, colleagues, neighbors and community members	0	0	19 (100)
e430 – Attitudes of people in positions of authority	0	0	19 (100)
e435 -Attitudes of people in subordinate positions	0	0	19 (100)
e440 – Attitudes of personal care and support assistants	0	0	19 (100)
e450 – Attitudes of healthcare professionals	19	0	0 (0.00)
e570 – Services, systems and policies related to social security	0	0	19 (100)
e575 - Services, systems and policies related to general social support	0	0	19 (100)
e580 - Services, systems and policies related to heath	19	0	0 (0.00)
e590 - Services, systems and policies related to work and Employment	0	6	13 (68.42)

Note: ICF = International Classification of Functioning.

Discussion

This study proposed the development of a checklist based on the ICF to enhance assessments and, consequently, rehabilitation processes for individuals with TMD. The implementation of a tool specifically targeting dysfunction aims to provide a more comprehensive understanding of the condition, considering its multidimensional complexity. Organizing these specific components for the dysfunction contributes to a deeper understanding of the disability associated with TMD, as currently, there are no specific tools that directly address the functional capacity and multidimensional context of this condition. The use of a biopsychosocial model allows for understanding functional aspects and how TMD can impact the lifestyle and social issues of individuals. Studies addressing the use of the ICF, as well as checklists for other dysfunctions, highlight the importance of using this tool in health centers by various health professionals.[18,19]

Understanding the multidimensionality is crucial due to the direct influence of pain and restricted joint movement on functional activities and social relationships in these patients, causing a significant impact on quality of life.[20] Furthermore, psychosocial disabilities and somatization are associated with increased pain intensity, pain interference, and disability days in individuals with TMD.[21]

In this study, 31 function components, 8 body structure components, 28 activity and participation components, and 15 environmental factors were selected. In the body function component, it was observed that sleep, presence of tinnitus, vertigo, generalized pain, and limited joint movement incapacitated participants to a mild and moderate extent. These variables are found in studies associating them with TMD, but they are evaluated unidirectionally, making it challenging to understand in specialized centers due to the need to use multiple instruments.[22,23]

Regarding the biopsychosocial context, studies indicate that among biological aspects, poor sleep quality is intrinsically related to increased pain intensity, emerging as a significant element to be analyzed by health professionals.[24,25] Additionally, pain severity is associated with the presence of vertigo. A study conducted in Bahia found that TMD severity is related to vestibular changes, which can be explained by the proximity of the temporomandibular structure to the vestibular system.[26]

Regarding body structures, deficiencies were noted in the head, neck, and spinal structures, as well as movement-related structures. This finding is corroborated by a systematic review detailing that TMD affects various bony areas and contributes to the formation of trigger points in the head and neck region, which, in turn, is associated with the development of headaches, cervical pain, and movement restriction[1]

In this study, for the activity and participation components, participants experienced difficulties in relationships and performing work and leisure activities in both capacity and performance. Although no direct evidence was found in the literature addressing this context, a study conducted at a Catholic university in Rio Grande do Sul found a low quality of life in the social context domain among patients with TMD.[21] It is believed that decreased self-esteem resulting from pain significantly impacts quality of life.[21]

In this study, relating environmental factors and qualifiers, individuals with TMD identified facilitators as improvements in health conditions, such as access to medication and healthcare professionals, individualized care, and health services, systems, and policies. However, the most prevalent barrier was the lack of family support among respondents. Although there is no evidence on this environmental aspect in TMD, access to health services as a facilitator may be associated with the specialized programs offered by the Unified Health System, aimed at providing comprehensive and universal care. Additionally, a welcoming and specialized environment is considered a key facilitator for accessing health services.[27]

Optimizing the ICF is crucial in addressing TMD, as it not only facilitates and encourages the use of this instrument – given that the ICF is a large and time-consuming tool for application – but also allows for a comprehensive analysis of the patient's condition, considering not only anatomical aspects but also biopsychosocial factors. By focusing on functional capacity within the biopsychosocial context, a deeper understanding of the interactions between structures and functions related to TMD can be obtained. This includes a detailed assessment of the impacts on the patient's activity and participation, identifying barriers and facilitators for treatment. Recognizing this multidimensional complexity enables health professionals, such as physiotherapists, speech therapists, dentists, and others, to enhance their understanding of the patient's condition. This more comprehensive approach empowers professionals to offer specific and personalized treatments, aiming not only at direct symptomatology but also at aspects that may influence the effectiveness of TMD treatment.

Some limitations should be considered in this study. The bias of application in patients receiving care may have influenced the responses provided by participants regarding the components evaluated by the instrument, as perception while receiving assistance may influence participants' responses. Therefore, further studies are needed to employ this summarized checklist in a variety of clinical contexts to validate and expand it.

Conclusion

The results indicate that the development of a checklist based on the ICF and the evaluation of the functionality of individuals with TMD provide specific information regarding the affected structures, as well as the activities and participation that are impacted.

This approach also identifies the barriers and facilitators that the patient encounters with their condition, thereby facilitating a better understanding of what may be re-lated to TMD.

Authors' contribution

MOVR, AOT, IOM, and JLFS were responsible for the conception and design of the study. MOVR, IOM, and JLFS handled the data collection, analysis, and interpretation. All authors approved the preliminary and final versions.

References

1. Yin Y, He S, Xu J, You W, Li Q, Long J, et al. The neuro-pathophysiology of temporomandibular disorders-related pain: a systematic review of structural and functional MRI studies. J Headache Pain. 2020;21(1):78. DOI

2. Mendes LMR, Barreto MCA, Castro SS. Instruments that assess functioning in individuals with temporomandibular disorders and the International Classification of Functioning: systematic review. BrJP. 2021;4(1):63-7. DOI

3. Dibello V, Panza F, Mori G, Ballini A, Di Cosola M, Lozupone M, et al. Temporomandibular disorders as a risk factor for suicidal behavior: A systematic review. J Pers Med. 2022;12(11):1782. DOI

4. Valesan LF, Da-Cas CD, Réus JC, Denardin ACS, Garanhani RR, Bonotto D, et al. Prevalence of temporomandibular joint disorders: a systematic review and meta-analysis. Clin Oral Investig. 2021;25(2):441-53. DOI

5. van der Meer HA, Tol CHM, Speksnijder CM, van Selms MKA, Lobbezoo F, Visscher CM. Psychosocial factors associated with pain outcomes in patients with painful temporomandibular disorders and headaches. Eur J Oral Sci. 2023;131(2):e12919. DOI

6. Trize DM, Calabria MP, Franzolin SOB, Cunha CO, Marta SN. Is quality of life affected by temporomandibular disorders? Einstein (Sao Paulo). 2018;16(4):eAO4339. DOI

7. Schiffman E, Ohrbach R, Truelove E, Look J, Anderson G, Goulet JP, et al. Diagnostic criteria for temporomandibular disorders (DC/TMD) for clinical and research applications: Recommendations of the International RDC/TMD Consortium Network* and Orofacial Pain Special Interest Group†. J Oral Facial Pain Headache. 2014;28(1):6-27. DOI

8. Biz MCP, Chun RYS. O papel Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) para a tomada de decisão na gestão em serviços de saúde. Saude Redes. 2020;6(2):67-86. DOI

9. Prodinger B, Stucki G, Coenen M, Tennant A. The measurement of functioning using the International Classification of Functioning, Disability and Health: comparing qualifier ratings with existing health status instruments. Disabil Rehabil. 2019;41(5):541-8. DOI

10. Castaneda L. A Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) – um caminho para a Promoção da Saúde. Rev Bras Cineantropom Desempenho Hum. 2018;20(2):229-33. Link

11. Riberto M. Core sets da Classificação Internacional de Funcionalidade, Incapacidade e Saúde. Rev Bras Enferm. 2011;64(5):938-46. DOI

12. Marques JBV, Freitas D. Método DELPHI: caracterização e potencialidades na pesquisa em Educação. Pro-Posições. 2018;29(2):389-415. DOI

13. Massaroli A, Martini JG, Lino MM, Spenassato D, Massaroli R. Método Delphi como referencial metodológico para a pesquisa em enfermagem. Texto Contexto Enferm. 2017;26(4): e1110017. DOI

14. Pasquali L. Testes referentes ao construto: teoria e modelo de construção. In: Pasquali L. Instrumentos psicológicos: manual prático de elaboração . Brasilia: LabPAM; 1999. p. 37-71.

15. Pasquali L. Psicometria: teoria dos testes na psicologia e na educação. Petrópolis: Vozes; 2011.

16. Angle EH. Classification of malocclusion. Dent Cosmos. 1899;41(3):248-64. Link

17. Campos JADB, Carrascosa AC, Loffredo LCM, Faria JB. Consistência interna e reprodutibilidade da versão em português do critério de diagnóstico na pesquisa para desordens temporomandibulares (RDC/TMD - Eixo II). Rev Bras Fisioter. 2007;11(6):451-9. DOI

18. Biz MCP, Chun RYS. Operacionalização da Classificação Internacional de Funcionalidade, Incapacidade e Saúde, CIF, em um Centro Especializado em Reabilitação. CoDAS. 2020; 32(2):e20190046. DOI

19. Ferreira JB, Vianna NG, Lima MCMP. Aplicação clínica da Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) em crianças e adolescentes de um serviço público de reabilitação auditiva. Rev CEFAC. 2022;24(2):e5621. DOI

20. Novaes LA, Dantas TSB, Figueiredo V. Temporomandibular dysfunction and the impact on quality of life: a literature review. J Dent Pub H. 2018;9(1):55-66. DOI

21. Crescente BB, Bisatto NV, Rübensam G, Fritscher GG, Campos MM. Assessment of temporomandibular disorders and their relationship with life quality and salivary biomarkers in patients with dentofacial deformities: A clinical observational study. PLoS One. 2023;18(7):e0288914. DOI

22. Kim Y, Son C, Park YK, Jo JH, Park JW. Sleep duration and inflammatory mediator levels associated with long-term prognosis in temporomandibular disorders. J Oral Rehabil. 2023;50(9):830-9. DOI

23. Pereira GG, Carvalho GF, Reis TA. Disfunções temporo-mandibulares musculares e articulares: uma revisão descritiva da literatura. Res Soc Develop. 2021;10(15):e457101522944. DOI

24. Gaş S, Özsoy HE, Aydın KC. The association between sleep quality, depression, anxiety and stress levels, and temporomandibular joint disorders among Turkish dental students during the COVID-19 pandemic. Cranio. 2023;41(6): 550-5. DOI

25. Mercante FG, Fernandes G, Braido GVDV, Proença JDS, Andersen ML, Hachul H, et al. Insomnia is associated with symptoms of central sensitization in patients with painful temporomandibular disorders. J Am Dent Assoc. 2023;154(11): 1024-31. DOI

26. Guimarães TOC, Oliveira AJ, Araújo RR, Lobê NC, Vidal DG, Araújo AS, et al. The influence of degrees of severity of temporomandibular dysfunction on report of vestibular symptoms - A cross-sectional study. J Man Manip Ther. 2023; 31(1):32-7. DOI

27. Silva SV, Clemente KAP, Vieira GI, Bortoli MC, Toma T, Ramos VD, et al. Facilitadores do acesso da pessoa com deficiência aos serviços de saúde: revisão de escopo. Acta Fisiatr. 2022;29(3):219-31. DOI