ABSTRACT

Objective: to analyze questionnaires for the assessment of symptoms and Health-related Quality of Life in patients with tachyarrhythmias. Method: It is a bibliographic, bibliographic, integrative review type study of original articles, without time limit, in the MEDLINE, CINAHL, Scopus, Embase and Web of Science databases, and in the Virtual Health Library, using the descriptors “Cardiac Arrhythmias”; “Supraventricular Tachycardia”; “Ventricular Tachycardia”; “Atrial Fibrillation”; “Quality of Life”; “Symptoms” and “Questionnaire”. The descriptive analysis of the data presented in the form of figures was carried out. Results: 14 studies were found referring to 11 questionnaires, the majority evaluating only one aspect, symptoms or HRQL and only in patients with Atrial Fibrillation and only one has a greater scope and evaluates symptoms and HRQL in several forms of supraventricular and ventricular tachyarrhythmias. Conclusion: It was identified, through the integrative review, that there are several questionnaires available for the assessment of patients with tachyarrhythmias, but only one covers both symptoms and HRQL in supraventricular and ventricular tachyarrhythmias. It is added that the use of these instruments by nurses and other health professionals is important for a proper assessment of patients with arrhythmias.

Descriptors: Cardiac Arrhythmias; Quality of Life; Signs and Symptoms; Surveys and Questionnaires; Patients; Nursing.

RESUMO

Objetivo: analisar questionários de avaliação de sintomas e de Qualidade de Vida Relacionada à Saúde em pacientes com taquiarritmias. Método: trata-se de um estudo bibliográfico, bibliográfico, tipo revisão integrativa de artigos originais, sem limite temporal, nas bases de dados MEDLINE, CINAHL, Scopus, Embase e Web of Science, e na Biblioteca Virtual em Saúde, utilizando os descritores “Arritmias Cardíacas”; “Taquicardia Supraventricular”; “Taquicardia Ventricular”; “Fibrilação Atrial”; “Qualidade de Vida”; “Sintomas” e “Questionário”. Realizou-se a análise descritiva dos dados que se apresentam em forma de figuras. Resultados: encontraram-se 14
estudos referentes a 11 questionários, sendo que a maioria avalia somente um aspecto, sintomas ou QVRS e apenas em pacientes com Fibrilação Atrial e somente um tem maior abrangência e avalia sintomas e QVRS em diversas formas de taquiarritmias supraventriculares e ventriculares. **Conclusão:** identificou-se, por meio da revisão integrativa, que existem vários questionários disponíveis para a avaliação de pacientes com taquiarritmias, porém, somente um abrange tanto sintomas quanto QVRS em taquiarritmias supraventriculares e ventriculares. Acrescenta-se que a utilização desses instrumentos por enfermeiros e demais profissionais da saúde é importante para uma adequada avaliação dos pacientes com arritmias.

**Descritores:** Arritmias Cardíacas; Qualidade de Vida; Sinais e Sintomas; Inquéritos e Questionários; Pacientes; Enfermagem.

**RESUMEN**

**Objetivo:** analizar cuestionarios para evaluar síntomas y calidad de vida relacionada con la salud en pacientes con taquiarritmias. **Método:** se trata de un estudio bibliográfico, tipo revisión integradora de artículos originales, sin límite de tiempo, en las bases de datos MEDLINE, CINAHL, Scopus, Embase y Web of Science, y en la Biblioteca Virtual en Salud, utilizando las palabras clave “Arritmia cardíaca”; “Taquicardia supraventricular”; “Taquicardia ventricular”; “Fibrilación auricular”; “Calidad de vida”; “Sintomas” y “Cuestionario”. Se realizó un análisis descriptivo de los datos presentados en forma de figuras. **Resultados:** se encontraron 14 estudios referidos a 11 cuestionarios, la mayoría de los cuales evalúan solo un aspecto, síntomas o CVRS y solo en pacientes con Fibrilación Auricular y solo uno es más completo y evalúa síntomas y CVRS en diversas formas de taquiarritmias supraventriculares y ventriculares. **Conclusión:** se identificó, a través de la revisión integradora, que existen varios cuestionarios disponibles para la evaluación de pacientes con taquiarritmias, sin embargo, solo uno cubre tanto la sintomatología como la CVRS en taquiarritmias supraventriculares y ventriculares. Se agrega que el uso de estos instrumentos por parte de enfermeros y otros profesionales de la salud es importante para una adecuada evaluación de los pacientes con arritmias.

**Descriptores:** Arritmias Cardíacas; Calidad de Vida; Síntomas y Síntomas; Encuestas y Cuestionarios; Pacientes; Enfermería.

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2http://orcid.org/0000-0002-3379-5730 3http://orcid.org/0000-0001-7747-1140

* Article extracted from the dissertation entitled: ”Assessment of symptoms and quality of life in cardiac arrhythmias: adaptation and validation of the Arrhythmia Specific Questionnaire in Tachycardia and Arrhythmia (ASTA) for the Brazilian culture”. State University of Campinas/UNICAMP. 2019.
It is known that heart rhythm disorders include several forms of cardiac arrhythmias, the most common being Atrial Fibrillation (AF), occurring in 3% of the general population, with a higher prevalence in elderly people.\textsuperscript{1,2} It is revealed that the clinical manifestations of supraventricular and ventricular tachyarrhythmias can range from vague to more disabling symptoms such as dyspnea, palpitation, dizziness, chest pain and syncope; emotional manifestations such as anxiety and depression are less common, but also presented, and physical and emotional symptoms considerably impact the patient's quality of life.\textsuperscript{3-5}

The type of treatment and the Health-Related Quality of Life (HRQL), that is, the perception between the real functional state, the desired and the general impact of the disease on the patient's well-being, are portrayed by the amount of symptoms, how an individual perceives and adapts to his/her symptoms, limitations and prognosis, as well as he/she perceives his/her general health. It is recorded that each person experiences differently the degree to which the symptoms affect their quality of life.\textsuperscript{6-7}

The questionnaires for HRQL assessment are varied according to the objective of the study.\textsuperscript{8-9} Generic and validated tools are available for HRQL assessment in the literature and for Brazilian culture,\textsuperscript{10-2} However, they do not specifically assess the impact of the disease in question. It is allowed, by the specific scales of disease, to assess to what extent a certain disease influences the daily life of the patient.\textsuperscript{8-9}

Symptom assessment and HRQL can help in quantifying and assessing the impact of symptoms on the patient’s life, in addition to supporting therapeutic decisions.\textsuperscript{8-10} For this, the use of specific and validated questionnaires should be considered.

It is believed that the treatment of arrhythmias comprises a vast number of options, from not requiring specific treatment to invasive treatment such as ablation,\textsuperscript{1,2,13} that the assessment of HRQL and symptoms becomes a useful tool in the choice of the best therapeutic decision, especially when it comes to arrhythmias that do not lead to lethality.

**OBJECTIVE**

To analyze questionnaires for the assessment of symptoms and Health-related Quality of Life in patients with tachyarrhythmias.
METHOD

It is a bibliographic, descriptive, integrative literature review type study, which aims to synthesize research results on a given subject, besides pointing out existing gaps that can be filled with new researches.\textsuperscript{14-5}

For this study, the following steps were used: formulation of the problem (guiding question); survey of studies; assessment of the data; analysis and interpretation of the data and presentation of the results.\textsuperscript{14}

The research question was elaborated based on the PICO strategy, an acronym in English meaning "patient, intervention, comparison and results", being fundamental elements of the research question and of the elaboration of the question for the search of evidence in the literature. \textsuperscript{16} Thus, P, questionnaires; I, the assessment of symptoms and/or HRQL in arrhythmias; C, not applicable and O, questionnaires that evaluate symptoms and/or quality of life in patients with cardiac arrhythmias, which resulted in the following question: "What are the questionnaires available in the national and international literature that evaluate symptoms and/or quality of life related to health in patients with cardiac arrhythmias?".

In May 2020, the following databases were searched in original articles with no time limit: Medical Literature Analysis and Retrieval System Online (MEDLINE); Cumulative Index to Nursing and Allied Health Literature (CINAHL); Excerpta Medica Database (EMBASE); Web of Science; Virtual Health Library (VHL) and Scopus. It is added that no time cut was established for the inclusion of the articles.

Descriptor combinations were used to maximize the search, and the descriptors used were taken from the Health Science Descriptors (DeCS/Bireme) and Medical Subject Headings (MeSH) whose combinations were: Arrhythmias, Cardiac OR Tachycardia; Supraventricular OR Atrial Fibrillation OR Tachycardia; Ventricular AND Quality of Life AND Questionnaire and Arrhythmias, Cardiac OR Tachycardia; Supraventricular OR Atrial Fibrillation OR Tachycardia; Ventricular AND Symptom AND Questionnaire and their respective synonyms. We also searched for synonyms, suggested by EMBASE at the time of the search.

The articles were selected by two researchers with expertise in the area of cardiac arrhythmias, independently, and the inclusion criteria were: studies published in full that addressed, in the title or abstract, development or validation of questionnaires that evaluate quality of life and/or symptoms in patients with cardiac arrhythmias. In case of disagreement, a third evaluator was consulted and there was no time or language restriction. Original articles, theses, dissertations, pilot studies were included, which were identified in the databases.
There were 5474 articles identified: 2063 at Embase; 1198 at Scopus; 767 at VHL; 427 at MEDLINE; 430 at PubMed; 402 at Web of Science and 187 at Cinahl. Those that appeared in more than one database were kept in only one of the databases. The articles were selected, initially by the title, then by the abstract and, finally, with the complete reading of the article. A total of 14 articles were selected that answered the guiding question and met the selection criteria. The flowchart built according to the recommendations of Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)\(^\text{17}\) is described in figure 1.

An instrument built for the study, based on another available in the literature, was used for data collection,\(^\text{18}\) which made it possible to organize the information of the selected articles. The articles were then read again to perform an interpretative analysis based on the established objectives and guiding question.

The following were evaluated, since they are articles dealing with methodological studies,\(^\text{19}\) the psychometric properties of each instrument described in the articles and not the level of evidence.

It is informed that, due to this study being an integrative review, it was not necessary to request authorization from the Research Ethics Committee to perform it.
There were 14 studies that reported 11 questionnaires (Figure 2) that evaluated symptoms and/or HRQL in patients with tachyarrhythmias. Four questionnaires evaluated symptoms only; six, HRQL and symptoms; as for arrhythmias, eight evaluated only AF, two, supraventricular arrhythmia and one, supraventricular and ventricular arrhythmias.

Figure 2 describes the 14 articles according to the title, year and country of publication and figure 3 briefly describes each of these studies, addressing the name of the questionnaire, objective of the instrument, type of arrhythmia evaluated, domains, type of answer/punctuation, form of application.

Among the studies that evaluated only symptoms, three evaluated only symptoms in AF and one, symptoms in supraventricular tachycardia; three were self-applicable, with Likert type response, and the higher the score, the greater the amount of symptoms.

It was found that out of the six selected studies that evaluated HRQL, five evaluated HRQL only in patients with AF and one, in patients with supraventricular arrhythmias; of these, one
was developed in Brazil, and versions one and two of this instrument have been identified. It is pointed out that, in the second version, there was the addition of three new domains (fatigue, perception and well-being).  

It was found only one instrument that evaluated symptoms and HRQL, having also a greater scope for evaluating patients with supraventricular and ventricular tachyarrhythmias, which is self-applicable and, the lower the score, the better the HRQL and lower amount of symptoms.

As for the psychometric assessment, in figure 4, the tests performed in each questionnaire are described; only one study did not present psychometric assessment and, as for the reliability assessment, ten questionnaires evaluated the internal consistency by means of α-Cronbach and seven evaluated the measure stability by means of the retest test; as for the validity, ten carried out construction validity and seven, of content.

<table>
<thead>
<tr>
<th>Reference N.</th>
<th>Title</th>
<th>Year</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Development of a questionnaire to measure health-related quality of life (HRQoL) in patients with atrial fibrillation (AF-QoL).</td>
<td>2007</td>
<td>Spain</td>
</tr>
<tr>
<td>2</td>
<td>Validation of a new simple scale to measure symptoms in atrial fibrillation: the Canadian Cardiovascular Society Severity in Atrial Fibrillation scale</td>
<td>2007</td>
<td>Canada</td>
</tr>
<tr>
<td>3</td>
<td>Validity and reliability of a new, short symptom rating scale in patients with persistent atrial fibrillation</td>
<td>2009</td>
<td>Sweden</td>
</tr>
<tr>
<td>4</td>
<td>Development and initial psychometric evaluation of the Patient Perspective of Arrhythmia Questionnaire.</td>
<td>2009</td>
<td>United States</td>
</tr>
<tr>
<td>5</td>
<td>U22, a Protocol to Quantify Symptoms Associated with Supraventricular Tachycardia</td>
<td>2009</td>
<td>Sweden</td>
</tr>
<tr>
<td>6</td>
<td>Validation of the AF-QoL, a disease-specific quality of life questionnaire for patients with atrial fibrillation.</td>
<td>2010</td>
<td>Spain</td>
</tr>
<tr>
<td>7</td>
<td>Validating a new quality of life questionnaire for atrial fibrillation patients.</td>
<td>2010</td>
<td>Brazil</td>
</tr>
<tr>
<td>8</td>
<td>Development and validation of the Atrial Fibrillation Effect on Quality-of-Life (AFEQT) Questionnaire in patients with atrial fibrillation.</td>
<td>2011</td>
<td>Canada and United States</td>
</tr>
<tr>
<td>9</td>
<td>Development and validation of a new Arrhythmia-Specific questionnaire in Tachycardia and Arrhythmia (ASTA) with focus on symptom burden.</td>
<td>2012</td>
<td>Sweden</td>
</tr>
<tr>
<td>10</td>
<td>Development and validation of the AFSymp™: an atrial fibrillation-specific measure of patient-reported symptoms.</td>
<td>2014</td>
<td>United States</td>
</tr>
<tr>
<td>11</td>
<td>Development and validation of an arrhythmia-specific scale in tachycardia and arrhythmia with focus on health-related quality of life.</td>
<td>2015</td>
<td>Sweden</td>
</tr>
<tr>
<td>12</td>
<td>Validating the HeartQoL questionnaire in patients with atrial fibrillation.</td>
<td>2016</td>
<td>Denmark</td>
</tr>
<tr>
<td>13</td>
<td>Reproducibility and Reliability of the Quality of Life Questionnaire in Patients with Atrial Fibrillation.</td>
<td>2016</td>
<td>Brazil</td>
</tr>
<tr>
<td>14</td>
<td>Development and Validation of the AFImpact: An Atrial Fibrillation-Specific Measure of Patient-Reported Health-Related Quality of Life.</td>
<td>2017</td>
<td>Sweden</td>
</tr>
</tbody>
</table>
Figure 2. Results found in the studies according to the number and reference of the article, title, year of publication and country. Campinas (SP), Brazil, 2020.

<table>
<thead>
<tr>
<th>Reference N.</th>
<th>Questionnaire</th>
<th>Objective of the questionnaire</th>
<th>Type of Arrhythmia evaluated</th>
<th>Domains</th>
<th>Type of answer/Score</th>
<th>Way of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 6</td>
<td>AF-QoL</td>
<td>Evaluate quality of life</td>
<td>Atrial Fibrillation</td>
<td>Three Domains: Psychological Physical Sexual</td>
<td>- Likert Scale 0-100 points - The higher the score, the better the HRQL</td>
<td>Self-applicable</td>
</tr>
<tr>
<td>2</td>
<td>CCS-SAF</td>
<td>Classify the severity according to the amount of symptoms</td>
<td>Atrial Fibrillation</td>
<td>Not described</td>
<td>Scale from 0-4 - The higher the score, the more serious</td>
<td>Applied by the researcher</td>
</tr>
<tr>
<td>3</td>
<td>AF</td>
<td>Assess symptoms in patients with AF before and after cardioversion</td>
<td>Atrial Fibrillation</td>
<td>Not described</td>
<td>Likert Scale - The higher the score, the greater the amount of symptoms</td>
<td>Self-applicable</td>
</tr>
<tr>
<td>4</td>
<td>PPAQ</td>
<td>Assess how ablation alters patients’ perception of the arrhythmia experience and how it affects quality of life.</td>
<td>Supraventricular Arrhythmias</td>
<td>Four domains: - Episode, - Symptoms - Impact on life - Restriction in daily activities</td>
<td>Likert Scale -0-100 points - The higher the score, the greater the impact on quality of life</td>
<td>Self-applicable</td>
</tr>
<tr>
<td>5</td>
<td>U22</td>
<td>Assess symptoms</td>
<td>Supraventricular Tachycardia</td>
<td>Three domains: - General well-being and the influence of arrhythmia on well-being - Intensity of discomfort during symptomatic arrhythmia episode - Severity of symptoms.</td>
<td>Likert Scale</td>
<td>Self-applicable</td>
</tr>
<tr>
<td>7, 13</td>
<td>AFQL and AFQL - version 2</td>
<td>Assess quality of life</td>
<td>Atrial Fibrillation</td>
<td>Seven domains clinical manifestations: 1- Palpitations, 2- Shortage of air, 3- Thoracic pain 4- Dizziness therapeutic interventions: 5- Medicines, 6- Cardioversion of direct current 7- Ablation</td>
<td>Answer ‘yes’ or ‘no’ not scored - Punctuated answers: Version: 0-100 points Version 2: 0-140 points - The higher the score, the worse the quality of life.</td>
<td>Applied by the researcher</td>
</tr>
</tbody>
</table>
Figure 3. Characterization of the 11 questionnaires published in the 14 articles included in the review. Campinas (SP), Brazil, 2020.

<table>
<thead>
<tr>
<th>Instrument/questionnaire</th>
<th>Reliability - Internal consistency</th>
<th>Reliability - Test-retest</th>
<th>Validity of content</th>
<th>Construction Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF-QoL</td>
<td>Cronbach’s Alpha = 0.91</td>
<td>Test-retest</td>
<td>Committee of experts</td>
<td>Factorial analysis</td>
</tr>
<tr>
<td>CCS-SAF</td>
<td>Not referred to in Article</td>
<td>Not referred to in Article</td>
<td>Not referred to in Article</td>
<td></td>
</tr>
<tr>
<td>AF6</td>
<td>Cronbach’s Alpha = 0.81</td>
<td>Test-retest</td>
<td>Committee of experts</td>
<td>Validity diverging with SF-36</td>
</tr>
<tr>
<td>PPAQ:</td>
<td>Cronbach’s Alpha = 0.93</td>
<td>Committee of experts</td>
<td></td>
<td>Factorial analysis</td>
</tr>
<tr>
<td>U22</td>
<td>Cronbach’s Alpha = &gt;0.79</td>
<td>Relata que foi feito, mas não explicita como na metodologia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFQ and AFQL version 2</td>
<td>Version 1: Cronbach = 0.98</td>
<td>Version 1 and 2: Committee of experts</td>
<td>Version 1 and 2: Convergent validity with SF-36</td>
<td></td>
</tr>
<tr>
<td>AFEQT</td>
<td>Version 2: Cronbach 0.82</td>
<td>Version 2: ICC&gt; 0.95</td>
<td>Committee of experts</td>
<td>Factorial analysis. Convergent and divergent validity with SF-36. EQ-5D. Toronto Atrial Fibrillation Severity Scale. Symptom Checklist</td>
</tr>
<tr>
<td>ASTA</td>
<td>Cronbach HRQL scale = 0.70</td>
<td>Committee of experts</td>
<td>Factorial analysis  Convergent and discriminant validity</td>
<td></td>
</tr>
</tbody>
</table>
It is recalled that this integrative review sought to identify, in the literature, available instruments that assess symptoms and/or HRQL in patients with tachyarrhythmias. Studies evaluating HRQL in patients with arrhythmia submitted to ablation procedures were found,\textsuperscript{34-46} the pharmacological treatment of arrhythmias,\textsuperscript{47-53} as well as in patients with AF submitted to educational nursing intervention,\textsuperscript{54-6} in addition to studies that address HRQL, in general, of patients, including psychological aspects such as anxiety and depression,\textsuperscript{57-64} as well as activities of daily life, such as sleeping and driving vehicles.\textsuperscript{65-8}

As for the instruments, 14 studies were found referring to 11 questionnaires. It was found that there are several questionnaires that evaluate symptoms and/or HRQL in patients with tachyarrhythmias, which suggests there is a search for an assessment instrument that is more appropriate. In most of them, the focus is only on the assessment of one type of arrhythmia, AF, probably because it is the most prevalent tachyarrhythmia in the population.\textsuperscript{1-2}

It was found that in only one study were not performed psychometric tests\textsuperscript{20} and for the others,\textsuperscript{21,23-33} at least one assessment of validity and reliability was performed. It is revealed that internal consistency and the assessment of the measurement stability were the most frequent reliability assessments and, regarding the validity, the most used were the content and the construction assessment.

The importance of evaluating the measurement properties of the instrument before its implementation and use in research and daily clinical practice is highlighted, since the decision to use an instrument must be based on the fact that it produces valid and reliable data. It is detailed that patient acceptability, response time, cost, ease of administration, are also important considerations.

It was demonstrated, by the characterization of the questionnaires in this review, that the ASTA questionnaire is the only one that evaluates both symptoms and HRQL in patients with supraventricular and ventricular tachyarrhythmia, with good psychometric properties, being
already adapted and validated in different countries and available in three languages: Spanish, Polish and Brazilian Portuguese.\textsuperscript{69-71}

The importance of the use of these instruments by nurses and other health professionals who work in this area is highlighted, for an adequate assessment of patients with cardiac arrhythmias, in order to propose better interventions, whether educational or intervention, aiming at improving the health picture and quality of life of these patients.

Although searches have been made in seven databases in order to reach the vast majority of the available instruments, the search in grey or manual literature could further expand the identification of instruments for assessment of symptoms and HRQL in patients with tachyarrhythmias.

\textbf{CONCLUSION}

It is concluded that, although there are several validated questionnaires available in the literature that evaluate patients with tachyarrhythmias, only one covers the assessment of symptoms and HRQL, both in patients with supraventricular and ventricular tachyarrhythmias.

\textbf{CONTRIBUTIONS}

It is informed that all authors contributed equally in the conception of the research project, collection, analysis and discussion of the data, as well as in the writing and critical review of the content with intellectual contribution and in the approval of the final version of the study.

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