



Assessment instruments and depression rates in people with spinal cord injury: a systematic review

Instrumentos de avaliação e taxas de depressão em pessoas com lesão da medula espinhal: uma revisão sistemática

Instrumentos de evaluación y tasas de depresión en personas con lesión de la médula espinal: una revisión sistemática

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ABSTRACT

Objective: To identify, describe, differentiate and qualify the instruments used to evaluate depression and also identify the percentage and average rates of depression in people with spinal cord injury. **Method:** This is a systematic review of the literature implementing a qualitative approach. SciELO, LILACS, PubMed and PsycINFO databases were consulted. Original articles were classified according to the variables (Spinal Cord Injury, Depression and Assessment instruments). The studies are presented according to the instruments in recent publications in the past 11 years. **Results:** Five evaluation instruments were found. PHQ-9, a screening instrument for diagnosing depression was used in most studies, with all being performed in the United States and having a higher impact factor and number of participants. Studies with PHQ-9 presented a total score of people who met the criteria for depression without grading by severity with an average of $17.6\% \pm 7.3\%$, while BDI presented $51.6\% \pm 15.1\%$ and the HADS showed $37.5\% \pm 31\%$ of people with some degree of depression. **Conclusion:** This study was important in identifying which instruments can be used to assess depression, the description of each, some of their differences, which ones are used in the best studies and the depression rates in different parts of the world. It was also important to show how the PHQ-9 is an important instrument, but is limited to being used in the USA.

DESCRIPTORS

Depression; Paraplegia; Spinal Cord; Disability Evaluation; Psychiatric Nursing; Review.

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INTRODUCTION

Spinal cord injury (SCI) may cause partial or total loss of voluntary motor and/or sensation below the injury level, which may be tactile, painful or profound⁽¹⁾. Injury to the spinal cord can result from trauma, automobile accidents, diving, firearm assault, and may also occur through non-traumatic injuries such as hemorrhages, tumors and virus infections⁽²⁾.

Most people with SCI “experience serious psychological, psychosocial, and neurobehavioral issues and are at increased risk of developing anxiety disorders, substance abuse problems, feelings of helplessness, poor coping skills, low self-esteem, and depression”⁽³⁾, factors that undermine the subject’s routine and lead to a poor quality of life⁽³⁻⁴⁾. A survey with 233 participants assessed people in four times - six weeks, three months, one year and two years from the moment of injury, and showed that most spinal cord injury patients on medication show chronic depression⁽⁵⁾. Another study with 286 participants showed that a factor which can also contribute to the person with spinal cord injury is chronic pain (a frequent symptom in this population)⁽⁶⁾. Among the current chronic diseases, SCI is one of the most impactful conditions on human development, and requires adaptations on a daily basis. Depression is also considered one of the most impactful conditions in the world, often influencing social lives, family, work, and physical activity, among others⁽⁷⁻⁸⁾.

This study is elaborated based on authors that report depression in people with SCI, being related to the inherent characteristics to each individual; spinal cord injury itself is not a determinant in the manifestation of significant depressive symptoms, as other factors may interfere in psychological and social well-being⁽⁹⁾. The experience of suffering a spinal cord injury includes a series of daily biopsychosocial challenges such as stigma, prejudice and often the need to get help from other people for their activity, which sometimes negatively interferes in the way of perceiving a new life condition. Some subjects still have no psychologically healthy ways of dealing with their losses and social relations and investigating the mental health of people with spinal cord injury helps to identify emotional problems and possible psychological disorders for their prevention and more effective treatment⁽⁹⁾.

We believe that it is important for health professionals, researchers and those interested in the subject to know which instruments exist and which are most used to assess depression symptoms in people with spinal cord injury, what are the differences, and which are used in the best studies. In addition, we consider it important to show the percentage of depression rates in this population so that researchers have access to rates revealed by science.

Thus, a systematic review of the literature was carried out with the objective of identifying, describing, differentiating and qualifying the instruments used by the researchers to evaluate the depression symptoms in this population and to identify the percentage and average rates of depression in people with spinal cord injury according to each instrument.

METHOD

This is a systematic review of the literature implementing a qualitative approach. The systematic review is research on the existing and relevant literature, providing evidence-based practice that consists of a synthesis of the research results and previous studies related to a specific problem, presenting six steps: 1 - to identify the main issue of the search; 2 - to collect preliminary data to define the descriptors; 3 - to search the databases and select the relevant studies; 4 - to record, treat and compile the collected data; 5 - to read and evaluate the material for selecting the final sample; 6 - to compare, summarize, report and present the results⁽¹⁰⁾.

After creating the guiding question, the study was developed based on the following steps:

IDENTIFICATION OF THE STUDY QUESTION

The guiding question of the study was “What instruments are used by researchers to assess depression symptoms in people with spinal cord injury, the differences between the instruments, the quality of the research that used them, and what percentage of depression rates do the studies present in their results?”

SELECTION CRITERIA OF THE ARTICLES

Two searches were conducted with the first search being in the SciELO (Scientific Electronic Library Online), LILACS (Latin American Literature in Health Sciences) and PubMed (US National Library of Medicine National Institute of Health) Databases, where publications were between the years of 2006 and 2016. We believe that ten years is a sufficient period to find a range of studies, but without finding evaluation instruments that are outdated. After the first search we felt the need to include another database that could contribute to our study, so in 2017 we conducted another search on PsycINFO (American Psychological Association) between the years of 2006 (we kept the year of the first search) and 2017 (current year of the new search); articles had to be written in Portuguese since it is the native language of the country of our research, and/or in English since it is the language that has the most publications worldwide; have adults with spinal cord injury at all levels and time of injury as participants in the research; use of instruments to track symptoms or identify depression in this population; show the percentage of depression rates obtained in the results; answer the guiding question of the study.

First, we included articles that had the terms spinal cord injury and depression in their title or abstract, and articles research with primary data sources. From reading the abstracts we excluded the articles that included the two terms, but had participants with no spinal cord injury. Finally, we also excluded any which did not apply instruments to evaluate depression in the population or did not respond to the guiding question. We did not exclude articles that also presented other Instruments besides evaluating depression, such as “Quality of Life” or “Social Situation”; however, these instruments were not mentioned in the results of this study, because the purpose is to only cite the instruments for evaluating depression.

Following these criteria, we searched the Databases as follows: In SciELO and LILACS we used as keywords in Portuguese and their combinations: *Saúde Mental OR Depressão AND Lesão Medular OR Traumatismos da Medula Espinal*, and then in English: *Mental Health OR Depression AND Spinal Cord Injuries*. In the PubMed and PsycINFO we used the keywords and their combinations: *Mental Health OR Depression AND Spinal Cord Injuries*.

SEARCHING DATABASES AND SELECTING ARTICLES

We searched the articles in the literature on June and July 2016 in SciELO, LILACS and PubMed. In November 2017, the search was performed in the PsycINFO Database. These databases were chosen because they are publication sources of high scientific quality and come from relevant research in the studied areas.

ANALYSIS PLAN - DATA RECORDING AND COMPILATION

The analysis of the selected studies was based on the Items for Reporting Systematic Reviews and Meta-Analyses (PRISMA Recommendation) which consists of a checklist with 27 items and a four-step flowchart. The PRISMA objective is to assist authors in improving their review and meta-analyses, which may be used in randomized clinical trials or as a basis for reports of systematic reviews of other types of research, particularly intervention evaluations. PRISMA may also be useful for the critical evaluation of published systematic reviews⁽¹¹⁾.

Thus, the articles selected for analysis were classified according to the variables (Spinal Cord Injury, Depression and Assessment instruments) when they reflected the correlation between the variables, presented rates in their results and answered the study question.

Likewise, they were classified according to the theoretical framework when the action corresponded to one or more than one of the typologies recorded in Chart 1.

Chart 1 – Describes the variables and theoretical framework for the analysis of the articles.

Variables	Theoretical framework
<p>Spinal Cord Injury: A condition with significant disabling and permanent clinical manifestations caused by partial or total failure of the spinal cord functioning, due to an injury that affects the anatomical integrity of this organ⁽¹²⁾.</p>	<p>People with traumatic spinal cord injury: biopsychosocial changes and experienced expectations.</p>
<p>Depression: Depression is a mood disorder characterized by depressed mood, decreased interest or pleasure in things, significant weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness and guilt, decreased ability to think and concentrate, recurrent thoughts of death⁽¹³⁾.</p>	<p>Depression is frequent in people who have suffered spinal cord injury and is related to the inherent characteristics of each individual. Experiencing spinal cord injury includes a series of daily challenges and biopsychosocial adversities that negatively interferes with the way of perceiving the new life condition. Investigating the mental health of people with spinal cord injury helps to identify emotional problems and possible psychic disorders for their prevention and treatment⁽⁹⁾.</p>

ANALYSIS AND SYNTHESIS OF SELECTED STUDIES

The analysis and the synthesis were performed in a descriptive way, enabling a thematic classification of the main axes from the guiding question (spinal cord injury, depression and assessment instruments), expressed in the variables and theoretical framework (described in the previous topic).

RESULTS

We found 36 articles through the keywords in the SciELO Database, 97 on PsycINFO, five on LILACS, and 384 on PubMed, totaling 522 articles. After exclusion for duplicates there were 494 remaining. Then, the titles and abstracts were analyzed, with 57 selected. Some studies like the one by Teixeira⁽¹⁴⁾ were excluded at the end of the analysis, because even though it approaches interesting content, it presented limitations such as the application moment of the instrument. After reading the articles in full and conducting a bias risk analysis, we had 22 articles which were in agreement with the inclusion criteria; 19 were in English and 3 in Portuguese.

Figure 1 shows the flowchart of this process.

Table 1 presents from an analysis of the studies selected for the review.

ASSESSMENT INSTRUMENTS

Five instruments were found capable of evaluating symptoms of depression:

The *PHQ-9* was used in 14 (63.6%) articles in English. The evaluation consists of nine questions assessing the presence of major depression symptoms; those symptoms consist of depressed mood, anhedonia (loss of interest in carrying out activities), sleep difficulties, fatigue or lack of energy, change in appetite or weight, guilt or uselessness, concentration problems, feeling slow or restless, and suicidal thoughts⁽³⁵⁾.

The *Beck Depression Inventory* was used in four (18.3%) studies, two of them were only Brazilian studies. The Inventory is an Assessment instruments with 21 categories of characteristic symptoms and attitudes of mood, vegetative, social, irritability and cognitive manifestations, where each category consists of a series of four different degrees of manifestation intensity (0 to 3 points), totaling 63 points, and considering the following scores: less than nine corresponds to no depression or minimal depression; 10 to 18 mild to moderate depression; 19 to 29 moderate to severe depression; and 30 to 63 points, severe depression⁽⁸⁾.

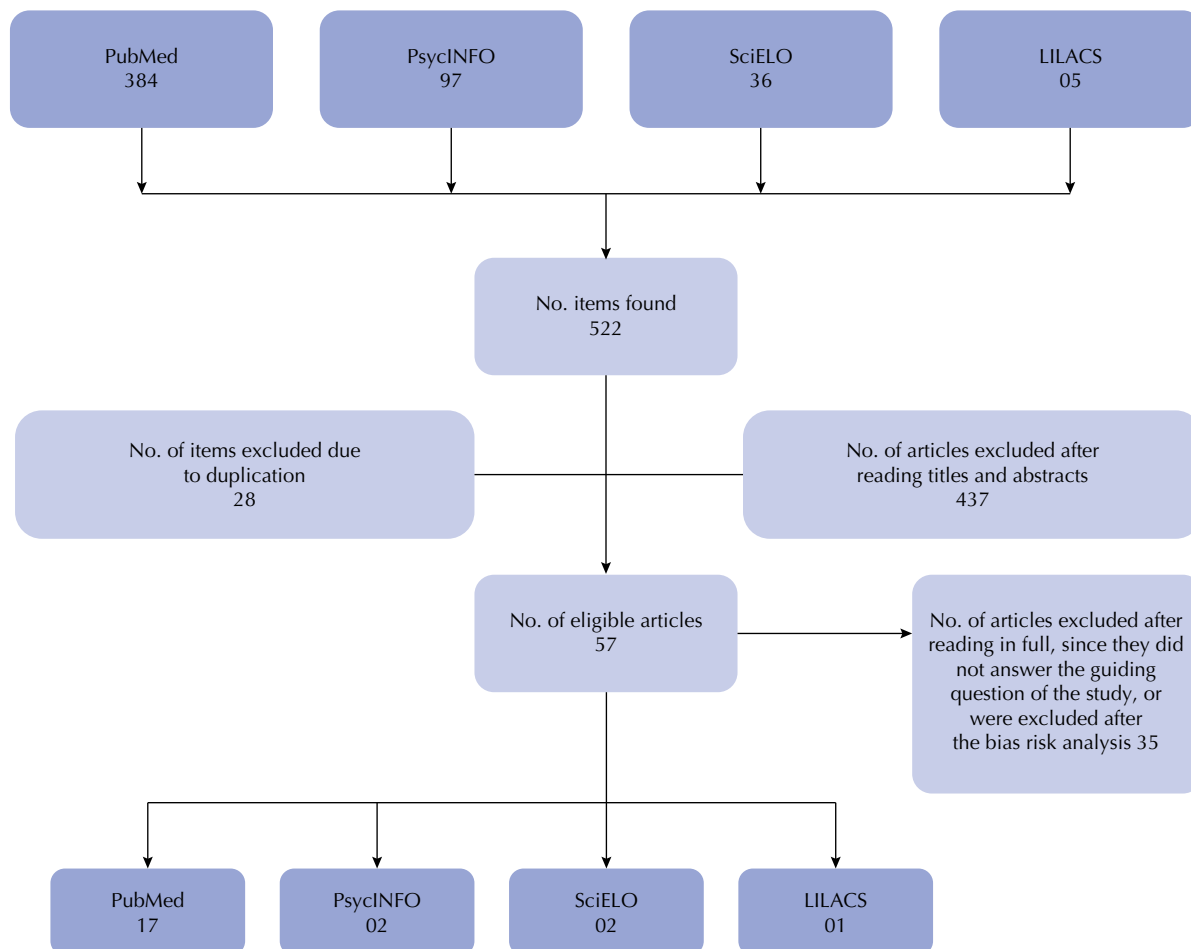

Figure 1 – Flowchart of the selection process.

Table 1 – Description of articles found – Ribeirão Preto, SP, Brazil, 2016-2017.

Reference	Year/ Country	Design / number of patients	Percentages of depression	Instrument used	Time of injury and application
Ferreira et al. ⁽¹⁵⁾	2014 Portugal	Epidemiological/ Cross-sectional n=33	3.1% mild, 12.5% moderate and 3.1% severe depression	Hospital Anxiety and Depression Scale (HADS)	People between nine months and 37 years of injury during a hospital rehabilitation service
Almeida et al. ⁽⁸⁾	2013 Brazil	Epidemiological/ Cross-sectional n=50	28% of the patients showed mild to moderate depression, 16% showed moderate to severe depression, and 6% presented severe depression	Beck Depression Inventory	People between one year and more than nine years of injury during outpatient follow-up
Conceição et al. ⁽²⁾	2010 Brazil	Epidemiological/ Cross-sectional n=125	35.2% had mild to moderate and 36.8% had moderate to severe depression	Beck Depression Inventory	People between one month and 21 years of injury during inpatient rehabilitation
Bombardier et al. ⁽¹⁶⁾	2012 USA	Epidemiological/ Cross-sectional n=244	20% were between 20 and 29 years of age, with these presenting higher average scores compared with other age categories	Patient Health Questionnaire-9 PHQ-9	People between one month and more than 30 years of injury during outpatient follow-up
Cuff et al. ⁽¹⁷⁾	2014 USA	Epidemiological/ Cross-sectional n=203	28% patients presented moderate to severe depression	Patient Health Questionnaire-9 PHQ-9	People between three days and nine months of injury during inpatient rehabilitation
Tsai et al. ⁽¹⁸⁾	2014 USA	Epidemiological / Cross-sectional n=4,618	18.1% presented depression as determined by the diagnostic method	Patient Health Questionnaire-9 PHQ-9	Reanalysis of national data collected years earlier with people with an average of 5.3 ± 0.09 years of injury
Avluk et al. ⁽¹⁹⁾	2014 Turkey	Epidemiological/ Cross-sectional n=44	38.6% showed mild depression, 43.2% had moderate depression, and 9.1% showed severe depression	Hamilton Rating Scale (HAM-D)	People with more than six months of injury during inpatient rehabilitation
Anderson et al. ⁽²⁰⁾	2007 USA	Epidemiological/ Longitudinal n=232	52.2% showed minimal depressive symptoms, 19.8% had mild depressive symptoms, 5.6% showed moderate depressive symptoms, 1.3% presented moderate to severe depression, and 0.4% had severe depression	Patient Health Questionnaire-9 PHQ-9	People between five and 34 years old accompanied by a registry of a health service

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Reference	Year/ Country	Design / number of patients	Percentages of depression	Instrument used	Time of injury and application
Kalpakjian et al. ⁽²¹⁾	2006 USA	Epidemiological/ Cross-sectional n=585	Prevalence rates for women were 7.9% for major depressive disorder and 9.7% for other depressive disorders; for men the rates were 9.9% and 10.3%, respectively	Patient Health Questionnaire-9 PHQ-9	People between one and 25 years of injury accompanied by national database
Migliorini et al. ⁽²²⁾	2013 Australia	Epidemiological/ Longitudinal n=21	No participants reported clinically significant mental health symptoms at T1 as per the participation qualifying criteria at T2, but some participants (19%) reported clinically significant mental health symptoms at T2	Depression, Anxiety & Stress Scale-short form (DASS-21)	People accompanied by community database that participated in T1 research five years earlier and agreed to participate in T2
Lasprilla et al. ⁽²³⁾	2011 USA	Epidemiological/ Longitudinal n=2,256	Prevalence of major depressive disorder was 11.9% for the 1 st year and 9.7% for 5 th year after spinal cord injury	Patient Health Questionnaire-9 PHQ-9	People accompanied by national database between 1 year and 5 years of injury
Krause et al. ⁽²⁴⁾	2009 USA	Epidemiological/ Longitudinal n=727	10.7% of the participants fulfilled the diagnostic criteria for major depressive disorder	Patient Health Questionnaire-9 PHQ-9	People with more than one year of injury accompanied by a registry of a specialized hospital
Hassanpour et al. ⁽²⁵⁾	2012 Switzerland	Epidemiological/ Longitudinal n=130	65% did not show depression, 30% had mild depressive symptoms, and 5% presented moderate to severe depressive symptoms	Beck Depression Inventory	People between one month and one year of injury during rehabilitation and clinical follow-up
Shin et al. ⁽²⁶⁾	2012 Korea	Epidemiological/ Cross-sectional n=37	40.5% presented low psychological distress and the other 59.5% presented high psychic suffering	Hospital Anxiety and Depression Scale (HADS)	People hospitalized for annual examinations with a mean of 8.35 ± 7.0 years of injury
Bombardier et al. ⁽²⁷⁾	2016 USA	Epidemiological/ Longitudinal n=168	Low/stable depression 63.8%, mild/moderate depression 29.1%, and persistent moderate/severe depression 7.1%	Patient Health Questionnaire-9 PHQ-9	Persons between three months and one year of injury accompanied by a medical center
Klyce et al. ⁽²⁸⁾	2015 USA	Epidemiological / Cross-sectional n=206	8.4% showed depression	Patient Health Questionnaire-9 PHQ-9	People with an average of 53.5 ± 40.5 days of injury admitted to rehabilitation centers
Fann et al. ⁽²⁹⁾	2013 USA	Epidemiological/ Cross-sectional n=183	28% had probable major depression	Patient Health Questionnaire-9 PHQ-9	People with an average of 51.6 ± 38.1 days of injury undergoing inpatient rehabilitation.
Hoffman et al. ⁽³⁰⁾	2011 USA	Epidemiological/ Longitudinal n=1,035	21% participants showed probable major depression in 1 st and 18% in 5 th year	Patient Health Questionnaire-9 PHQ-9	People between one year and five years of injury accompanied by a national database
Fann et al. ⁽³¹⁾	2011 USA	Epidemiological/ Cross-sectional n=947	23% had probable major depression	Patient Health Questionnaire-9 PHQ-9	People with an average of 11.0 ± 9.7 years of injury were monitored in a national database and rehabilitation centers
Khazaeipour et al. ⁽³²⁾	2015 Iran	Epidemiological / Cross-sectional n=134	49.3% participants showed mild to severe depression	Beck Depression Inventory	People with a mean of 3.86 ± 3.9 years of injury in outpatient rehabilitation
Williams et al. ⁽³³⁾	2014 USA	Epidemiological/ Cross-sectional n=204	44% had no depression symptoms, 31% had mild symptoms, 16% had moderate symptoms, 6% had moderately severe symptoms, and 3% had severe depression symptoms	Patient Health Questionnaire-9 PHQ-9	People between one month and 50 years of injury recruited from outpatient clinics, follow-up systems, hospital referrals, and clinical research records
Richardson et al. ⁽³⁴⁾	2008 USA	Epidemiological/ Longitudinal n=2,570	Depression:20.7% in the 1 st year, 17.6% in the 5 th year, 12.1% in the 15 th year and 12.2% in the 25 th year.	Patient Health Questionnaire-9 PHQ-9	People between one year and 25 years of injury accompanied by a national database

Another two (9.1%) articles had the *Hospital Anxiety and Depression Scale* (HADS) as an Assessment Instrument; one was in Portuguese, carried out in Portugal. The evaluation consists of two scales; one measures the anxiety and the other the depression, each one with seven items, with four answer options, and scores from 0 to three. Thus, according to their authors, the score is made considering the presence of values between: 0 and 7 – “normal”; 8 and 10 – “mild”; 11 and 14 – “moderate”; 15 and 21 – “severe”⁽¹⁴⁾.

One article (4.5%) used the *Hamilton Rating Scale for Depression* (HAM-D) as an assessment resource, which is a standardized assessment based on interviews with 21 items that examines the frequency and intensity of depressive symptoms, resulting in a total score ranging from 0 to 52, where a high score indicates more frequent and severe symptoms⁽¹⁹⁾.

The *Depression, Anxiety and Stress Scale (DASS-21)* assessment was used in one (4.5%) article, being composed

of 21 questions in a set of three self-reported Likert-type four-point subscales. Each subscale is composed of seven items, with the objective of assessing the emotional states of depression, anxiety and stress. The participant must indicate how much each statement can relate to him/her during the last week. Four possibilities of severity or frequency response are given and organized on a scale from zero to three points and the result is obtained by the sum of the answers to the items that make up each of the three subscales⁽³⁴⁾. “The depression subscale assesses symptoms like inertia; anhedonia; dysphoria; lack of interest/involvement; self-depreciation; devaluation of life and discouragement”⁽³⁶⁾. “The anxiety subscale evaluates excitation of the autonomous nervous system; musculoskeletal effects; situational anxiety; subjective anxiety experiences”⁽³⁶⁾. “The stress subscale assesses difficulty to relax; nervous excitation; easy perturbation/agitation; irritability/exaggerated reaction and impatience”⁽³⁶⁾.

The Patient Health Questionnaire-9 (PHQ-9) was used in most of the studies, all of them American, meaning that all the studies conducted in the United States presented this evaluation instrument. It is the only one based on the diagnostic criteria according to DSM-5 and can be used to track and aid in diagnosing depression, revealing the need for an additional clinical evaluation if it presents a “probable depression” result. Countries such as Brazil, Portugal, Turkey, Australia, Switzerland, Korea, and Iran used the other four instruments, in which the Beck Depression Inventory and HAM-D quantify the severity of depression-only symptoms, and HADS also quantifies anxiety severity. DASS-21 is used for screening, interviews that aid in diagnosing anxiety, depression and stress, and show how the person feels in the most recent days, but it is important to remember that no instrument replaces clinical evaluation^(8,19,22,25,26,36).

IMPACT FACTOR OF THE STUDIES

We consider international impact factors in this study. We found seven articles (31.8%) that were published in journals with international impact factor above 3.2. Ten (45.5%) were published in journals with an impact factor varying between 1.1 and 1.8. Another five articles (22.7%) were published in journals with an impact factor varying from 0.09 to 0.8.

All articles with the highest impact factor used PHQ-9 as an evaluation tool, two longitudinal and five cross-sectional studies. In the journals that presented impact factor between 1.1 and 1.8, six (27.3%) used PHQ-9, and the other four presented one of each instrument (Beck, HAM-D, HADS and DASS-21), being four (18.2%) longitudinal studies and six cross-sectional studies. In the studies that presented a lower impact factor, three (13.6%) used the Beck Depression Inventory, one (4.5%) to HADS and one (4.5%) to PHQ-9, two longitudinal and three cross-sectional studies.

As we can observe, more than half of the studies used the PHQ-9 as an evaluation tool, and it was found in only one study with a lower impact factor, in addition to the eight longitudinal studies found where six used PHQ-9 in the evaluation. The four studies that used the Beck Inventory were of low impact factor.

Another finding was that Charles H. Bombardier was the author who wrote the most on the subject, being the author in eight articles (36.4%), where six (27.3%) are high impact factor articles.

All articles presented methodological information regarding the participants, description of the instruments, data collection, process used for statistical analysis such as programs, type of analysis, procedures, tests or measures.

NUMBER OF STUDY PARTICIPANTS

The numbers of participants in the highest impact factor studies ranged from 168 to 4,618 with an average of 1,057 participants. The studies with impact factor between 1.1 and 1.8 ranged from 21 to 2,570 participants, with a mean of 475.7. The studies with less impact factor had between 33

to 2,256 participants, with an average of 518 people. When evaluating the study with 2,256 participants we could notice that the impact factor of the magazine was high in the year of its publication, but for two years the magazine had its factor decreased. If we consider that in the year 2011 in which the article was published its impact factor was 3.5, which is a high impact factor, but today the journal presented a factor decrease to 0.84. If we withdraw this study from this category, the number of participants from the low impact factor studies would range from 33 to 130 with an average of 84.5 people.

The studies that presented the greatest number of participants divided by instruments were those that used the PHQ-9 with an average of 1,012 participants. The Depression Inventory and Beck ranked second with an average of 110 participants. Then the HAM-D with 44 participants in a single study, as HADS had a mean of 35 DASS-21 participants with 21 participants in a single study.

DEPRESSION RATES PRESENTED IN THE STUDIES

Four studies rated the severity of depression in their results, all of which used PHQ-9, two of which brought results from people without depression by an average of $32.3\% \pm 11.7\%$. Three presented percentages between minimal and mild/moderate symptoms with a mean of $49.3\% \pm 20.1\%$. Four studies presented results classified as moderate to severe with an average of $11.4\% \pm 9.9\%$.

Five other studies using PHQ-9 only showed the total score of people who met the criteria for depression without grading by severity. These studies had an average of $17.6\% \pm 7.3\%$ with depression after spinal cord injury.

It was not possible to average the total depression between mild and severe of the nine studies that used PHQ-9 because one of them did not reveal the other obtained percentages, only revealing those of moderate/severe depression.

Beck Depression Inventory presented four studies, two of which were classified as mild and moderate severity with an average of $31.6\% \pm 3.6\%$, and moderate to severe with an average of $29\% \pm 7\%$. Another two studies only showed the total score without grading by severity with an average of $42.1\% \pm 7.1\%$ of people with depression. In analyzing the four studies and considering the percentages they presented between mild to severe depression, we get an average of $51.6\% \pm 15.1\%$.

HADS had a discrepant result between two studies, where one presented 59.5% of people with high rates of psychological suffering and the other with only 15.6% of people with moderate to severe depression. In calculating the two studies there is an average of $37.5\% \pm 31\%$ of people with higher depression scores.

One study presented results for men and women separately using the PHQ-9 showing 2% more depression in men than in women⁽²¹⁾. One study with PHQ-9 showed results associated with demographic characteristics among people aged 18 to 70 years or older and those with ages between 20 and 29 are the most severely depressed, as they presented higher mean scores of PHQ-9 in comparison with other age categories. The study also shows that 39% of the participants had up to four years of injury, thus being the ones with the greatest depression severity compared to all other time intervals⁽¹⁶⁾.

Two other longitudinal studies using PHQ-9 evaluated the prevalence of depression in the 1st year of the 5th year after injury, averaging 16.4%± 6.4% in the first year and 13.9% ± 5.9% in the fifth. Both studies had a decrease of approximately 2% of depression in the fifth year after the injury. Another study with the PHQ-9 evaluated four times: one year, five years, 15 years and 25 years after the injury, showing a decrease in the symptoms in the 15th and 25th year compared to the 1st and 5th years, as shown in Table 1.

The study that used DASS-21 evaluated people in two times, and the first did not present significance in the results for depression and other psychological problems. However, 19% of its participants had significant symptoms five years after. They were people considered to be psychologically stable, but this result showed that they may also be vulnerable to mental health problems, even after they have previously exhibited good resilience⁽²²⁾.

In the HAM-D study, moderate depression presented the highest percentage, followed by mild depression⁽¹⁹⁾.

DISCUSSION

The evaluated studies varied in their results, where some showed higher depression rates than others, ranging from mild to severe. At the mild level, the patient usually suffers from the presence of symptoms, but is likely to be able to perform most of their activities. At the moderate level, the patient apparently has a great deal of difficulty in continuing to perform routine activities. In severe depression, several of the symptoms are marked and distressing, usually causing loss of self-esteem and ideas of depreciation or guilt, ideation and suicidal acts are common and a series of somatic symptoms are usually observed, and can be accompanied by psychotic symptoms^(2,37).

We found studies involving men presenting slightly higher percentages of depression symptoms compared to women. This fact is contrary to the studies that usually show that depression is up to twice as common in women than men in people who do not suffer from spinal cord injury⁽³⁷⁾, but suggests that such discrepancy can be explained by the environment and social support in most cultures⁽³⁸⁾. Another possible explanation is that the increase in depression among men is because some of the social roles in Western culture related to men are more socially demanding than for women, such as: roles related to sexual performance, reproductive and progenitor, as well as financial provider of the family. These social roles can be severely altered from the spinal cord injury.

The population most affected by the spinal cord injury is young men, and physical disability in early adulthood is a phase of physical, psychological and social development triggers sudden and impacting changes, which affect many situations in the person's life⁽³⁹⁻⁴⁰⁾. At this stage, it is necessary that the person looks for available resources and finds coping strategies in the adaptation process and elaborates a new life project adapted to his/her current abilities and which allows the restitution of activities previous to the injury, or a conquest of new activities that give meaning to the loss of physical mobility so that it can be seen as an obstacle, but not a determinant stagnation factor⁽³⁹⁻⁴⁰⁾. These data corroborate

with our review, which presented one study with young people with spinal cord injury between 20 and 29 years old with greater depressive symptoms than other ages.

The studies found in the current review presented results in which there was a decrease in depressive symptoms over the years in people with spinal cord injury. Depression is a common symptom in this population, but people who consider themselves as capable of regulating their own emotions and finding solutions to their problems become happy and explained their adjustment and resilience as related to personality, good social support, and a spiritual connection⁽⁴¹⁾. Some people show more resilience than others, which may be associated to a decrease in depressive symptoms and increased social and physical functioning over the years⁽⁴⁰⁻⁴¹⁾. But we should also consider one study that showed persons considered to be psychologically stable in the first evaluation but presented significant symptoms of depression in the second evaluation, showing that special attention is needed regarding the mental health of these people, even if they are considered psychologically stable.

Through this review, we observed that all the studies carried out in the United States preferring the PHQ-9 may have occurred because it is linked to the DSM criteria required for billing by providers⁽¹³⁾. The PHQ-9 is also characterized as being a relatively fast assessment instrument with only nine questions, which would be an advantage compared to other instruments⁽³⁵⁾. In addition, PHQ-9 was found in all high impact factor studies, in 60% of medium impact factors and with the highest numbers of participants. This shows good reliability of this instrument.

The PHQ-9 presents a different function from the others as it is a screening instrument to diagnose depression, especially in large samples, and the other instruments are considered scales to quantify depression severity and not its existence. Quantification instruments are also great when we already have a depression diagnosis in the population and we need to know the severity level^(8,35,42-43).

The PQH-9 was translated in 2009 into Portuguese. However, it was already used in the United States almost a decade before, being created from the PHQ. It has been validated in some populations in Brazil, but never used with people with spinal cord injury. Because it is a more recent evaluation, Brazilian studies still do not use a diagnostic tool to evaluate depression in this population, and the same may occur with other countries⁽⁴⁴⁻⁴⁵⁾.

The Beck Depression Inventory is a self-rated scale that is intended to measure the intensity of the previously defined depressive symptoms and is not a psychological test. It was developed by a medical psychiatrist and is widely used by health professionals and researchers in a variety of contexts, both in research and in clinical settings, not being employed for the purpose of medical or psychological diagnosis, but only for measuring symptomatic manifestations of depression, and is commonly used by professionals in the medical area and psychologists. The PHQ-9 can be used by any healthcare professional trained for the job. Portuguese translation and validation of the DASS-21 were done by professional nurses in the area of mental health, having a short and

easy application in a clinical and non-clinical environment, and is also used by health professionals. The HAM-D was created by a psychiatrist and the author suggests that the scale be administered through an interview, applied in partnership with two well-trained and experienced clinicians: one to conduct the interview and the other to ask additional questions. HADS is considered an easy-to-apply instrument, and it is used in multi-professional health studies by nurses, doctors and psychologists^(35,36,43,46,47-48-49-50).

Charles Bombardier, a leading investigator of depression in people with spinal cord injury, along with other authors, report that: "severity measures have often been used as screening measures with cut-off scores to indicate "significant" or "clinical" depression"⁽⁴⁸⁾. The authors also report that: "the use of many different measures and different cut-off scores has contributed to rather wide variability in prevalence estimates, as well as the definition of depression and clinical decision-making."⁽⁴⁸⁾.

Some items of the evaluation instrument may be confused with symptoms of physical illness, just as the PHQ-9 features such items as "loss of appetite", "lack of energy/fatigue"; Beck Depression Inventory "changes in body image", "ability to work", "tiredness", "loss of appetite and weight" "Health concern" and "sexual interest"; on the HAM-D are also found items such as "ability to work", "loss of appetite", "loss of libido", and on the DASS- 21 "ability to work", "tremors" and "respiratory distress", so it is necessary for the administrator to be very careful in how they will guide the subject in relation to the questions. HAM-D is widely used in clinical trials to test the efficacy of certain antidepressants because of the emphasis it puts on somatic symptoms as opposed to cognitive or affective symptoms found in the minority⁽⁴³⁾. The HADS is the instrument found to be most capable of eliminating its variable items related to physical diseases⁽⁴²⁾, but it would still be important to adapt to items such as "I can sit at ease and feel relaxed" and "I am slow to do things", since sitting by this population is not a matter of choice and being slower to do things can occur due to physical limitation.

CONCLUSION

When depression and spinal cord injury are associated it may reflect on independence, causing breaks in daily

activities and occupational roles. Studies that evaluate these two variables are necessary to show how physical health problems can be directly related to mental health, contributing to overcoming concepts about health approaches that still work with fragmentation between physical and mental dimensions of human beings. The articles had several results, some presenting higher percentage of depressive symptoms in the population than others, which may be indicative that specific assessments are necessary in each place, since socio-demographic, cultural and other variables such as age, gender, and time of injury can influence the results.

Another relevant fact is that the instruments have items that can sometimes be confused with items related to physical illness, so it is necessary to prepare the administrator well for the questions.

Studies presenting variables in which depressive symptoms are most commonly found can contribute to the construction and generation of knowledge, as well as to the orientation of public policies and health promotion, protocols, clinical guidelines and clarifications for professionals and society.

Through this study, health professionals who need to evaluate depressive symptoms in their patients with spinal cord injury will have access to the instruments most used by researchers according to the literature, assisting the professionals in choosing their method of assessment and screening, generating more holistic and integral conceptions of patients in clinical care.

We know that PHQ-9 is used to diagnose depression and differs from other instruments that quantify depression. However, this study was important to show how an instrument based on the diagnostic criteria of DSM is easy to be applied by trained professionals but is not being used with this population in the world, only being found in studies in the United States.

After this study, the authors believe in the importance of evaluating the efficacy of these instruments and what the scientific evidence is in correlations between spinal cord injury and depression variables, and thus new studies will need to be carried out mainly to influence the use of good instruments around the world and especially in new studies in Brazil.

RESUMO

Objetivo: Identificar, descrever, diferenciar e qualificar os instrumentos usados para avaliar a depressão e também identificar a porcentagem e as taxas médias de depressão em pessoas com lesão da medula espinhal. **Método:** Esta é uma revisão sistemática da literatura implementando uma abordagem qualitativa. Os bancos de dados SciELO, LILACS, PubMed e PsycINFO foram consultados. Artigos originais foram classificados de acordo com as variáveis (lesão da medula espinhal, depressão e instrumentos de avaliação). Os estudos são apresentados de acordo com os instrumentos em publicações recentes dos últimos 11 anos. **Resultados:** Cinco instrumentos de avaliação foram encontrados. PHQ-9, um instrumento de triagem para o diagnóstico da depressão foi usado na maioria dos estudos, tudo realizado nos Estados Unidos e com fator de impacto e número de participantes mais altos. Estudos com PHQ-9 apresentaram um score total de pessoas que atingiram os critérios para depressão sem classificar-se por gravidade com uma média de 17,6% ± 7,3%, ao passo que a BDI apresentou 51,6% ± 15,1% e a HADS mostrou 37,5% ± 31% das pessoas com algum grau de depressão. **Conclusão:** Este estudo foi importante na identificação de quais instrumentos podem ser usados para avaliar a depressão, a descrição de cada um, algumas das suas diferenças, os quais são usados nos melhores estudos, e as taxas de depressão em diferentes partes do mundo. Também foi importante demonstrar como o PHQ-9 é um instrumento importante, mas seu uso está limitado aos EUA.

DESCRITORES

Depressão; Paraplegia; Medula Espinal; Avaliação da Deficiência; Enfermagem Psiquiátrica; Revisão.

RESUMEN

Objetivo: Identificar, describir, diferenciar y calificar los instrumentos utilizados para evaluar la depresión y también identificar el porcentaje y las tasas medias de depresión en personas con lesión de la médula espinal. **Método:** Esta es una revisión sistemática de la literatura aplicándose un abordaje cualitativo. Los bancos de datos SciELO, LILACS, PubMed y PsycINFO fueron consultados. Artículos originales fueron clasificados conforme a las variables (lesión de la médula espinal, depresión e instrumentos de evaluación). Los estudios se presentan de acuerdo con los instrumentos en publicaciones recientes de los últimos 11 años. **Resultados:** Cinco instrumentos de evaluación fueron encontrados. Se utilizó el PHQ-9, un instrumento de cribado para el diagnóstico de la depresión, en la mayoría de los estudios, todo siendo llevado a cabo en los Estados Unidos y con factor de impacto y número de participantes más altos. Estudios con el PHQ-9 presentaron un score total de personas que alcanzaron los criterios para depresión sin clasificarse por severidad con un promedio del $17,6\% \pm 7,3\%$, mientras que la BDI presentó el $51,6\% \pm 15,1\%$ y la HADS mostró el $37,5\% \pm 31\%$ de las personas con algún grado de depresión. **Conclusión:** Este estudio fue importante en la identificación de cuáles instrumentos pueden emplearse para evaluar la depresión –la descripción de cada uno, algunas de sus diferencias–, los cuales se utilizan en los mejores estudios, y las tasas de depresión en distintas partes del mundo. Fue importante asimismo demostrar cómo el PHQ-9 es un instrumento importante, pero su uso está limitado a los EE.UU.

DESCRIPTORES

Depresión; Paraplejía; Médula Espinal; Evaluación de la Discapacidad; Enfermería Psiquiátrica; Revisión.

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