Scale for the Assessment of Chemotherapy-Induced Nausea and Vomits: Translation and Transcultural Adaptation

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Escala para Avaliação de Náuseas e Vômitos Relacionados à Quimioterapia: Tradução e Adaptação Transcultural

Escala de Evaluación de Náuseas y Vómitos Relacionados con la Quimioterapia: Traducción y Adaptación Cultural

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ABSTRACT

Introduction: Chemotherapy-induced nausea and vomiting affects nearly 70-80% of patients with cancer. To achieve a better treatment it is important to utilize an adequate instrument to assess these symptoms. **Objective:** To translate and culturally adapt the Morrow Assessment of Nausea and Emesis Scale to the Brazilian context. **Method:** Survey and correlational study, with the translation and cultural adaptation of the scale according to the protocol of the European Organization for Research and Treatment of Cancer – Quality of Life Group (EORTC-QLG). The sample consisted of 160 patients undergoing chemotherapy treatment in an oncology clinic. In the validation process, multimethod correlation analyses were carried out among the items of the Morrow Assessment of Nausea and Emesis Scale items and the scores of the numerical visual scales of nausea and vomits at the level of $p<0.05$. **Results:** The author of the scale approved the translation process. The Morrow Assessment of Nausea and Emesis scale and the numerical scales presented significant correlations ($p<0.01$; $p<0.05$), considering that the items presenting stronger correlation with the numerical scales were those addressing post-chemotherapy assessment of nausea and vomit. On the other hand, the items for pre-chemotherapy assessment of these symptoms and use of the antiemetic drugs and their efficacy presented weak associations with the numerical scales. **Conclusion:** The Morrow Assessment of Nausea and Emesis scale was adequate for the assessment of chemotherapy-induced nausea and vomiting in the Brazilian context.

Key words: validation study; nausea; vomiting; drug therapy; medical oncology.

RESUMO

Introdução: Náuseas e vômitos induzidos por quimioterapia acometem cerca de 70-80% dos pacientes com câncer. Assim, é importante a utilização de um instrumento para avaliar melhor esses sintomas, visando um tratamento mais adequado. **Objetivo:** Traduzir e adaptar culturalmente a escala *Morrow Assessment of Nausea and Emesis* para o contexto brasileiro. **Método:** Estudo correlacional do tipo *survey*, com tradução e adaptação cultural da escala segundo o protocolo da *European Organization for Research and Treatment of Cancer – Quality of Life Group* (EORTC-QLG). A amostra foi constituída por 160 pacientes em tratamento quimioterápico em uma clínica de oncologia. No processo de validação, realizaram-se análises de correlação multimétodos entre os itens da escala *Morrow Assessment of Nausea and Emesis* e os escores das escalas visuais numéricas de náusea e vômito com nível de $p<0,05$. **Resultados:** O autor da escala autorizou a tradução. A escala *Morrow Assessment of Nausea and Emesis* e as escalas numéricas apresentaram correlações significativas ($p<0,01$; $p<0,05$), sendo que os itens que apresentaram correlação mais forte das escalas numéricas foram os que se referiram à avaliação de náusea e vômito pós-quimioterapia. Já os itens destinados à avaliação desses sintomas no momento pré-quimioterapia e ao uso da medicação antiemética e sua eficácia apresentaram associações fracas com as escalas numéricas. **Conclusão:** A escala *Morrow Assessment of Nausea and Emesis* apresentou-se adequada para a avaliação de náuseas e vômitos induzidos por quimioterapia no contexto brasileiro.

Palavras-chave: estudo de validação; náusea; vômito; tratamento farmacológico; oncologia.

RESUMEN

Introducción: Las náuseas y vómitos inducidos por la quimioterapia afectan aproximadamente al 70-80% de los pacientes con cáncer. Por lo tanto, es importante utilizar un instrumento para evaluar mejor estos síntomas, con el objetivo de un tratamiento más adecuado. **Objetivo**: Traducir y adaptar culturalmente la escala de *Morrow Assessment of Nausea and Emesis* al contexto brasileño. **Método**: Estudio correlativo del tipo de encuesta, con la traducción y adaptación cultural de la escala según el protocolo de la *European Organization for Research and Treatment of Cancer – Quality of Life Group* (EORTC-QLG). La muestra consistió en 160 pacientes sometidos a quimioterapia en una clínica oncológica. En el proceso de validación, se realizaron análisis de correlación multimétodos entre los elementos de la escala de *Morrow Assessment of Nausea and Emesis* y las puntuaciones de las escalas visuales numéricas de náuseas y vómitos con nivel de $p<0,05$. **Resultados:** El autor de la escala autorizó la traducción. La *Morrow Assessment of Nausea and Emesis* y las escalas numéricas mostraron correlaciones significativas ($p<0,01$; $p<0,05$), y los elementos que presentaron una correlación más fuerte de las escalas numéricas fueron los que se refirieron a la evaluación de las náuseas y los vómitos después de la quimioterapia. Por otro lado, los elementos destinados a la evaluación de estos síntomas en el momento anterior a la quimioterapia y el uso de medicamentos antieméticos y su eficacia presentaron asociaciones débiles con escalas numéricas. **Conclusión**: La *Morrow Assessment of Nausea and Emesis* fue adecuada para la evaluación de náuseas y vómitos inducidos por quimioterapia en el contexto brasileño.

Palabras clave: estudio de validación; náusea; vómitos; quimioterapia; oncología médica.

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INTRODUCTION

Cancer is a world public health issue accounting for nearly 30% of early deaths by non-communicable diseases in adults from 30 to 69 years of age[1]. Until 2040, 37 million people worldwide will be affected[1]. In Brazil, the biggest Latin American country, 625 thousand new cases are anticipated for each year of the triennium 2020-2022[2].

Antineoplastic chemotherapy is one of the main types of treatment for oncologic diseases, however, because of low or non-selectivity of tumor cells, these drugs can cause anguishing side effects as nausea and vomits in approximately 70-80% of the patients with cancer[3,4].

Chemotherapy-induced nausea and vomiting (CINV) are known to diminish remarkably the quality of life of these patients because they can affect the immune system and the cognitive functioning, causing social problems, damaging mental health and the ability to carry out the activities of daily life further to other harms[5]. Possibly, nearly 20% of these patients would refuse to continue the treatment if nausea and vomiting failed to be correctly managed[5]. As early as CINV is detected and evaluated for effective intervention and management, the better.

For this, proper and validated tools are required to plan the interventions and identify objectively the physical changes and subjective issues to ensure the follow-up of the clinical condition and standardize the medical conduct[6]. The cross-cultural adaptation of an instrument contributes for the reduction of time spent with a deeper evaluation and without objective parameters and ensures the results are comparable with other contexts for effective management of symptoms[7].

The Morrow Assessment of Nausea and Emesis (MANE) scale originally developed in the United States of America is a screening tool evaluating the frequency, severity and duration of pre and post-chemotherapy related nausea and vomits[8]. It allows to evaluate the use and effectiveness of the antiemetic medication the patient takes. According to Morrow[9], nausea and vomits are associated with subjective symptoms which ensures the use of indirect measures for the evaluation.

To date, according to the current literature when this study was developed there are no evaluation tools specifically for CINV symptoms. The objective of this article is to translate and conduct the cross-cultural adaptation of the MANE scale for the Brazilian culture.

METHOD

Survey correlational design study. Translation and cultural adaptation followed the European Organization for Research and Treatment of Cancer (EORTC) – Quality of Life Group (QLG)[10] protocol according to the following stages:

- 1st stage: translation of the instrument from the original language (English) into the target-language (Portuguese) without professional translators.
- 2nd stage: the independent translations according to the previous item were reconciled and summarized in only one version by the investigators with the objective of reaching the ideal translation for each item.
- 3rd stage: the version of the instrument reconciled and summarized was back-translated into English by two independent and fluent translators. After this stage, the versions translated and back-translated were submitted to the first author of the original scale.
- 4th stage: the final version of the MANE scale was submitted to eight judges (oncology expert physicians and nurses) according to the EORTC protocol to review the content of the scale for clarity. They evaluated the scale in general and each item individually.
- 5th stage: pilot-test with the application of the instrument in a group of 15 patients to check the applicability of the adapted version who did not participate of the final study sample.

The current study was developed in an oncologic clinic of the National Health System (SUS) in the south of the Minas Gerais State, with outpatient services and consultations for 26 municipalities within its regional coverage, in addition to radiotherapy and palliative care. Based in data from the Cancer Hospital Registry and the National Cancer Institute José Alencar Gomes da Silva (INCA)[11], skin cancers are the most frequent (25.58%) followed by male genitals cancers (17.03%) and digestive organs (16.82%) in this clinic.

The antiemetic medication protocol addresses the use of Ondansetron, Bromopride and Cimetidine before and after chemotherapy.

The Institutional Review Board of "*Universidade Federal de Alfenas*" (CAAE: 91681118.0.0000.5142, report 2.815.937 approved the study.

The sample was non-probabilistic by convenience, consisting of patients with cancer in antineoplastic treatment present at the clinic when data were collected. All the patients were treated according to the CINV prevention protocol.

The inclusion criteria were: 18 years of age or older diagnosed with cancer (any type), in antineoplastic treatment, with acceptable clinical conditions to join the study and able to respond to the instruments applied. Patients with scores higher than 3 by the Eastern Cooperative Oncology Group (ECOG) were excluded.

The following instruments were utilized in the cross-cultural process of the MANE scale to Brazil.

Questionnaire for clinical and sociodemographic characterization

The questionnaire to evaluate sociodemographic and clinical aspects was developed by the study authors to investigate age, sex, education and marital status, type of cancer, duration of the antineoplastic treatment, prescribed antiemetic and efficacy at home.

Eastern cooperative oncology group – ECOG

It is a public domain scale to assess how a patient's disease is progressing and how it affects the daily living abilities (performance status). The scale was developed by the ECOG, now part of the ECOG-ACRIN Cancer Research Group published in 1982. It describes a patient's level of functioning in terms of the ability to care for itself, daily activity, and physical ability[12,13].

The scores range from 0 to 5, the higher the scores, worse is the patient's functioning level. Score 0 means that the person is fully active, able to carry on all the activities without restriction; score 1, restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work; score 2, ambulatory and capable of all selfcare; score 3, capable of only limited selfcare, confined to bed or chair more than 50% of waking hours; score 4, completely disabled, cannot carry on any selfcare, totally confined to bed and score 5, dead[12].

Numerical rating scale

The scale is a widely utilized instrument to evaluate the intensity of chemotherapy-induced nausea (NRS-N) and emesis (NRS-E) with numerical marks uniformly spaced (0 to 10): the higher the score, high is the intensity of the symptom evaluated[14]. They are easily understood and interpreted both by clinicians and investigators[15]. According to the literature, NRS is able to differentiate changes in the severity of diseases and vomit reliably[16].

Morrow assessment of nausea and emesis scale

The MANE scale evaluates CINV-related aspects consisting of a brief 16-item assessment of the frequency, severity and duration in pre and post antineoplastic treatment[8]. Without a supporting dimensional model as originally designed by the author of the original scale, it has no final score, therefore, each item must be analyzed individually matched to the patient's characteristics.

Data were acquired in the waiting room of the oncologic clinic at the chemotherapy section where potential participants were approached and invited to join the study. After signing the Informed Consent Form, the instruments were applied to collect the data. According to Morrow[8], the instrument can be self-applied, however, it was decided that the investigators (GMI, ACGF, EMCP) would interview the participants. Based in the conclusions of the pilot-test, most of the participants had low education and/or difficulties to complete the instruments, as for example, visual problems. To avoid possible biases related to data acquisition through interviews the investigators were trained according to standards, only reading the items but not interpreting them.

The instruments utilized were digitalized through Google Forms (free-access app to create online forms) and the data were registered online. The questionnaires were applied in average for 20 minutes.

The content validity index (CVI) was utilized to evaluate the judges' concurrence of the translation and cross-cultural adaptation of MANE into Brazilian Portuguese. Items with CVI below 75% were readjusted as proposed by the judges[17,18]. After the readjustment suggested, the items were corrected and submitted to the judges for review. A CVI was calculated for the general scale and one for each item in separate.

Descriptive statistics (frequency and valid percentage) were utilized to review the data. Validity evidences were based in the relation of MANE's items with external variables. Multi-methods correlation analyzes were carried out to estimate the level of association with the items of the MANE scale and scores of NRS-E and NRS-N at $p<0.05$.

Spearman's correlation was utilized to determine the correlation among ordered categorical variables, and Pearson's for the correlation among metrical variables of the numerical scales. The power of the association resulting from the ratio calculated was expressed as: perfect association: 0.9 to 0.7; strong association: 0.6 to 0.4; moderate association: 0.3 to 0.1; weak association: 0; no association[19].

RESULTS

The sample consisted of 160 patients, mean age of 65.37 years (SD=12.19). Mean time of antineoplastic chemotherapy was 23 months (SD=32.52). The other data of the clinical and sociodemographic characteristics are described in Table 1.

The translations from the origin-language to the target-language had but a few discrepancies; the first were words in its literal meaning while the second utilized words and expression common in Portuguese. Both versions were summarized in one scale by the investigators. Backtranslations from the single scale had not relevant

Table 1. Sociodemographic and clinical characteristics of the participants

Variables	N	%
Sex		
Female	58	36.3
Male	102	63.7
Marital Status		
Single	24	15.0
Married	102	63.7
Widow/Widower	17	10.6
Living together	6	3.,8
Divorced without spouse	7	4.4
Divorced with spouse	4	2.5
Education		
Illiterate	29	18.1
Low (complete and incomplete elementary school)	94	58.8
Intermediate (complete and incomplete high school)	25	15.6
High (complete and incomplete university)	12	7.5
Type of cancer		
Prostate	44	27.5
Breast	22	13.8
Intestine	20	12.5
Others	74	46.2

differences. At the end of the translation process, the back-translated versions were submitted to the original author of the MANE scale who corroborated the conceptual equivalence. Items 1, 2, 4, 5, 7, 9, 10, 12, 13, 15 and 16 had CVI above 75%, no revision was needed. The others were revised according to the judges. 87.5% of the judges approved the title of the scale "chemotherapy-related nausea and emesis evaluation scale".

As the patients suggested in the pilot-test, the options "Did not feel nausea" or "Did not vomit" were included in the items 4, 7, 8, 10 and 13, depending on the symptom addressed in the item. More than 90% of the respondents found the items clear, easily understood and not-aggressive. Table 2 shows the scale items according to the characteristic to be evaluated.

The mean score of intensity of NRS-N was 3.03 (SD=3.49) and NRS-E, 1.72 (SD=3.18), corroborating the results of the MANE scale since most respondents did not have nausea and/or vomits or, when reported, had low frequency, duration or severity (Table 3).

Highly significant correlation coefficients ($p<0.01$ and $p<0.05$, respectively) were found between the items of the MANE scale and the NRS-N and NRS-V (point biserial correlation and Spearman's), indicating convergence of the two evaluation methods of nausea and emesis (NRS and MANE). Items 1 and 8 of the MANE scale had strong to moderate association with NRS-N and NRS-E, corresponding to the evaluation of the symptoms nausea and vomit post chemotherapy. Items 9 to 16 had weak correlation in relation to NRS-N and NRS-E (Table 3). Items 9 to 14 address the evaluation of symptoms of nausea and vomit before chemotherapy and items 15 and 16, use of antiemetic medication and their efficacy.

The results of the correlation were understood as follows: the relation between NRS-N and item 1 of MANE was – 0.54 (negative) (Table 4) indicating that the participants who scored higher in NRS-N, scored lowest in item 1 of MANE (1 = yes, had nausea after chemotherapy) and so on. For positive relations as, for instance, between item 2 of MANE and NRS-N (r=0.77), the higher the score in NRS-N, high is the score of item 2 of MANE (higher frequency of nausea before chemotherapy).

DISCUSSION

Because of the paucity of instruments to evaluate CINV, it was deemed necessary to translate and adapt the MANE scale to the Brazilian culture. According to Morrow[8], it is an instrument which ensures the healthcare professional a wide and objective evaluation and help the clinical decision and management of the symptoms[8].

Through a systematic method of translation and cross-cultural adaptation, it is possible to adjust an instrument from a different culture into another culture and language and its peculiarities. Cross-cultural adaptation is a process which reviews the language through translation and investigates issues related to the target-culture, a condition to be utilized in studies with the same instrument and different cultures[20].

CINV can impact the physical and emotional health of a person with cancer and damaging its quality of life. It is necessary to evaluate the side effects correctly to improve medical care[21,22]. Underage, gestational-related nausea, less sleeping hours in the night before chemotherapy, advanced tumor stage and chemotherapy emetogenic potential can increase the frequency and severity of these symptoms[23].

Low frequency of CINV of the patients investigated can be explained by the use of the protocol with antiemetic medications since the beginning of the chemotherapy treatment at the service where the data were acquired. These patients, according to the literature, had low incidence of CINV than those treated according to different protocols[24]. As strategy to manage these

Table 2. Distribution of the items of the Morrow Assessment of Nausea and Emesis scale according to the characteristics of evaluation

	Screening (yes or no)	Frequency (5-points ordinal scale)	Intensity (8-points ordinal scale)	Duration (8-points ordinal scale)
Before CT				
Nausea	Item 9		Item 10	Item 11
Vomit	Item 12		Item 13	Item 14
After CT				
Nausea	Item 1	Item 2	Item 3	Item 4
Vomit	Item 5	Item 6	Item 7	Item 8
Antiemetic medication	Itens 15 and 16			

Caption: CT = Chemotherapy.

Table 3. Results of the Morrow Assessment of Nausea and Emesis scale

Items of the MANE scale	Categories of Response	Freq.	%
1. Did you have nausea after your last chemotherapy? Check one option	Yes	47	29.4
	No	113	70.6
2. How many times did you have nausea after chemotherapy?	Not once	90	56.3
	1 to 3 times	37	23.1
	4 to 6 times	9	5.6
	7 to 9 times	2	1.3
	9 or more times	22	13.8
3. How was your worst nausea after the last chemotherapy? Check one of the options	Very mild	91	56.9
	Mild	15	9.4
	Moderate	20	12.5
	Strong	13	8.1
	Very strong	13	8.1
	Unbearable	8	5.0
4. When did your worst nausea occur? Check one of the options	Did not feel nausea	88	55.0
	During chemotherapy	8	5.0
	0 to 4 hours after chemotherapy	26	16.3
	5 to 8 hours after chemotherapy	6	3.8
	9 to 12 hours after chemotherapy	5	3.1
	13 to 24 hours after chemotherapy	5	3.1
	More than 24 hours after chemotherapy	18	11.2
	Feeling of nausea continued all the time	4	2.5
5. Did you vomit after your last chemotherapy? Check one of the options	Yes	15	9.4
	No	145	90.6
6. How many times did you vomit after the chemotherapy?	Not once	126	78.8
	1 to 3 times	16	10.0
	4 to 6 times	5	3.1
	7 to 9 times	2	1.2
	9 or more times	11	6.9

to be continued

Table 3. continuation

Items of the MANE scale	Categories of Response	Freq.	%
7. Evaluate your worst vomit after your last chemotherapy. Check one of the options	Did not vomit	125	78.1
	Very mild	2	1.2
	Mild	3	1.9
	Moderate	11	6.9
	Strong	9	5.6
	Very strong	6	3.8
	Unbearable	4	2.5
8. When was your last vomiting? Check one of the options	Did not vomit	126	78.8
	During chemotherapy	2	1.2
	0 to 4 hours after chemotherapy	14	8.8
	5 to 8 hours after chemotherapy	3	1.9
	9 to 12 hours after chemotherapy	4	2.5
	13 to 24 hours after chemotherapy	1	0.6
	More than 24 hours after chemotherapy	8	5.0
	Vomiting continued all the time	2	1.2
9. Did you feel nausea before your last chemotherapy? Check one of the options	Yes	14	8.8
	No	146	91.2
10. How was your nausea before chemotherapy? Check one of the options	Did not feel nausea	145	90.6
	Very mild	1	0.6
	Mild	3	1.9
	Moderate	7	4.4
	Strong	2	1.3
	Very strong	1	0.6
	Unbearable	1	0.6
11. How long before the last chemotherapy did you feel nausea?	Did not feel nausea before the last chemotherapy	146	91.3
	Felt nausea 1 to 3 hours before the last chemotherapy	7	4.4
	Felt nausea 4 to 6 hours before the last chemotherapy	1	0.6
	Felt nausea 7 to 9 hours before the last chemotherapy	1	0.6
	Felt nausea 9 hours or more before the last chemotherapy	5	3.1
12. Did you vomit before the last chemotherapy? Check one of the options	Yes	3	1.9
	No	157	98.1
13. How was your worst vomit before your last chemotherapy? Check one of the options	Did not vomit	156	97.6
	Very weak	1	0.6
	Weak	1	0.6
	Strong	1	0.6
	Very strong	1	0.6
	Unbearable	0	0

to be continued

Table 3. continuation

Items of the MANE scale	Categories of Response	Freq.	%
14. How long did you vomit before your last chemotherapy?	Did not vomit before the last chemotherapy	157	98.1
	Vomited 1 to 3 hours before the last chemotherapy	2	1.3
	Vomited 4 to 6 hours before the last chemotherapy	1	0.6
	Vomited 7 to 9 hours before the last chemotherapy	0	0
	Vomited 9 hours or more before the last chemotherapy	0	0
15. Did you take any medication for nausea and/or vomit in your last chemotherapy? Check one of the options	Yes	36	22.5
	No	124	77.5
16. Was this medication helpful?	Yes	34	21.2
	Little	4	2.5
	Very little	3	1.9
	No	119	74.4

Captions: MANE = Morrow Assessment of Nausea and Emesis; Freq. = frequency.

Table 4. Multi-methods correlation table among the scale items and numerical scales of intensity of nausea and emesis

	NRS-N	NRS-E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MANE	0.68**‡																
1	-0.54**	-0.33**															
2	0.77**	0.56**	-0.69**														
3	0.79**	0.53**	-0.61**	0.89**													
4	0.73**	0.40**	-0.65**	0.89**	0.87**												
5	-0.33**	-0.57**	0.31**	-0.24**	-0.31**	-0.19*											
6	0.60**	0.83**	-0.27**	0.57**	0.59**	0.43**	-0.58**										
7	0.61**	0.80**	-0.22**	0.54**	0.60**	0.41**	-0.56**	0.95**									
8	0.57**	0.79**	-0.22**	0.54**	0.57**	0.42**	-0.56**	0.95**	0.97**								
9	-0.26**	-0.16*	0.43**	-0.31**	-0.31**	-0.29**	0.28**	-0.25**	-0.22**	-0.23**							
10	0.32**	0.19*	-0.41**	0.36**	0.37**	0.33**	-0.27**	0.32**	0.29**	0.30**	-0.90**						
11	0.30**	0.16*	-0.43**	0.36**	0.36**	0.33**	-0.27**	0.30**	0.26**	0.27**	-0.92**	0.97**					
12	-0.20*	-0.19*	0.11	-0.11	-0.10	-0.06	0.11	-0.28**	-0.28**	-0.31**	0.28**	-0.28**	-0.30**				
13	0.23**	0.24**	-0.07	0.17*	0.15	0.09	-0.09	0.34**	0.32**	0.33**	-0.23**	0.23**	0.25**	-0.86**			
14	0.19*	0.21**	-0.11	0.11	0.10	0.06	-0.12	0.28**	0.28**	0.31**	-0.28**	0.28**	0.30**	-1.00	0.86**		
15	-0.37**	-0.25*	0.44**	-0.38**	-0.43**	-0.43**	0.14	-0.16*	-0.21**	-0.15	0.26**	-0.29**	-0.26**	0.04	-0.01	-0.04	
16	-0.31**	-0.23**	0.36**	-0.32**	-0.36**	-0.37**	0.08	-0.13*	-0.17*	-0.11	0.22**	-0.25**	-0.22**	0.03	-0.07	-0.03	0.91**

Captions: MANE = Morrow Assessment of Nausea and Emesis; NRS-N = Numerical rating scale for nausea severity measurement; NRS-E = Numerical rating scale for emesis severity measurements
(*) $p<0.05$.
(**) $p<0.01$.
(‡) Pearson correlation (correlation among metric variables of the numerical scales).

Note: Point biserial correlation (correlation among dichotomic variables [items 1, 5, 9, 12 e 15] of screening and metric variables of the numerical scales); Spearman's correlation (correlation among ordered categorical variables [items evaluating the frequency of nausea and vomits before and after chemotherapy = 2 and 6; intensity = 3, 10, 7 and 13; and duration = 4, 11, 8 and 14]).

symptoms for better quality of life and adherence, it is preferable to adopt antiemetic treatment protocols[24,25].

It is a priority to evaluate CINV through well-structured instruments both in scientific research or clinical practice because it can help understanding the effect of antiemetic therapy to alleviate the symptoms, provide information for epidemiology studies, improve team reporting and communication further to better care to individuals with cancer[6,26]. However, the subjective nature, mainly of nausea and difficulty of communication among patients and professionals are challenging for management purposes[26].

As the current study concluded, MANE NRS-N and NRS-E scales are concurrent evaluation instruments. MANE items evaluating CINV in post-chemotherapy hold strong and moderate associations with NRS-N and NRS-E respectively, showing MANE is able to identify the intensity of these symptoms. MANE and NRS scales are ease to administer and well accepted by the patients[27]. Nevertheless, based in the national literature, low education levels can obstruct the interpretation of the information[28].

Both evaluations are useful and less time consuming in addition to reaching eligible numerical values for statistical analysis coding[8]. Nevertheless, the NRS allow only the evaluation of the intensity of these conditions, not addressing the time of occurrence or leaving out anticipatory nausea and vomits, typically associated with previous chemotherapy and potentially exacerbated as the cycles of chemotherapy increase. Unknown sounds, smells and images can be related to subsequent nausea and vomits, triggering these manifestations once more even before the administration of the chemotherapy[29].

There was weak correlation among MANE and NRS scales of the evaluation of anticipatory nausea and vomits. According to Morrow[8], these are events with ample variation of frequency, duration and severity, being less frequent among patients as the current study concluded[9], which can explain the correlation. In a study with women with breast cancer in use of moderately emetogenic chemotherapy, only 11.9% had anticipatory emesis[30].

Similar weak correlation was found among the NRS-N and NRS-E scales and the use of antiemetic medication and utility in MANE scale. Possibly, this can be explained by the fact that numerical virtual scales utilized in this study were adopted to evaluate only the intensity of the symptoms, not other conditions as, for example, the efficacy of the medications.

Most likely, only one oncologic clinic may impede the generalization of the results because of the broad cultural and sociodemographic diversity found in Brazil. Future studies should attempt to evaluate and adapt the scale culturally to other regional and population settings to strengthen its validity. Additionally, data acquisition through interviews could be a limitation, a choice the participants preferred due to age, disease progression and the own treatment, actually impacting the response process.

MANE scale can help to improve healthcare to individuals with cancer in antineoplastic chemotherapy because it favors objective evaluation and management of nausea and vomits through multi-dimensional approach. It can still be adopted in scientific research as, for instance, experimental studies about CINV management interventions.

CONCLUSION

The MANE scale is the correct tool for evaluation of CINV in the Brazilian context. It is a scale that allows a wide evaluation of CINV as distinguished phenomena in different timelines since pre until post antineoplastic chemotherapy. The utilization can contribute for improved quality of health care to individuals affected by these signs and symptoms and clinical trials in that area.

CONTRIBUTIONS

Geovanna Maria Isidoro, Ana Cristina Gonçalves Ferreira, Eliza Mara das Chagas Paiva and Ana Cláudia Mesquita Garcia contributed substantially to the study conception/design, data acquisition, analysis and/or interpretation. Jodi De Hunt Ferreira do Amaral and Everson Cristiano de Abreu Meireles contributed to the wording and critical review. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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