Brief Report

Assessing care-related regret among nurses specialized in multiple sclerosis: A psychometric analysis of a new assessment battery

Multiple Sclerosis Journal—Experimental, Translational and Clinical

October–December 2022, 1–4

DOI: 10.1177/20552173221144226

© The Author(s), 2022. Article reuse guidelines: sagepub.com/journals-permissions

Javier Ballesteros, Guillermo Bueno-Gil, Alfredo Rodríguez-Antigüedad, Ángel P Sempere, Beatriz del Río, Mar Baz, Nicolás Medrano, Gustavo Saposnik and Jorge Maurino

Abstract
Experiences of regret associated with caring for patients with multiple sclerosis (MS) can affect medical decisions. A non-interventional study was conducted to assess the dimensionality and item characteristics of a battery including the Regret Intensity Scale (RIS-10) and 15 items evaluating common situations experienced by nurses in MS care. A total of 97 nurses were included. The RIS-10 showed good internal reliability and a unidimensional structure according to Mokken analysis. All-item homogeneity coefficients exceeded 0.30, whereas scalability for the overall RIS-10 was 0.66, indicating a strong scale. This battery showed adequate psychometric properties to evaluate regret among MS nurses.

Keywords: Multiple sclerosis, regret, nurses, psychometric methods

Date received: 4 October 2022; accepted: 23 November 2022

Introduction

Different cognitive and emotional biases can influence the efficacy of healthcare decisions.[1] Regret is a negative emotion experienced when one believes that the current situation would have had a better outcome by choosing a different course of action.[2] The experience of regret in the context of patient care is a common phenomenon that may lead to suboptimal medical decisions and negative health consequences for physicians and nurses.[2–4] Back pain, sleep problems, poor quality of life, low job satisfaction, absenteeism, and high staff turnover have been reported among nurses experiencing care-related regret.[2] The current multiple sclerosis (MS) management landscape is a common ground for the emergence of regretful experiences due to the uncertain disease trajectory and different treatment options with complicated safety risk profiles.[2,5,6]

Courvoisier et al. designed the Regret Intensity Scale (RIS-10), a 10-item self-report questionnaire to assess the affective, physical and cognitive intensity of the experience of regret among healthcare professionals.[7] However, there are no specific tools to assess the impact of care-related regret in MS. The aim of this study was to evaluate the psychometric properties of an assessment battery to measure regret related to management decisions among nurses specialized in MS.

Methods

This was an online, non-interventional, cross-sectional study in collaboration with the Spanish Society of Neurology Nursing (SEDENE). All members received an email with an invitation to participate in the study. Key eligibility criteria included nurses actively involved in MS care. The study was approved by the institutional review board of the Hospital Clínico San Carlos (Madrid, Spain). All participants provided written informed consent and were recruited from December 21, 2020, to April 16, 2021.

Outcome measures

Regret was assessed through the combination of the RIS-10 and 15 items designed by the research team and reviewed by a panel of seven MS nurses. The rationale underlying the development of this regret battery has been published elsewhere.[2]

Correspondence to:
Jorge Maurino
Medical Department, Roche Farma, Ribera del Loira, 50, Madrid 28042, Spain.
jorge.maurino@roche.com

Javier Ballesteros,
Department of Neurosciences and CIBERSAM, University of the Basque Country (UPV/EHU), Leioa, Spain

Guillermo Bueno-Gil,
Medical Department, Roche Farma, Madrid, Spain

Alfredo Rodríguez-Antigüedad,
Department of Neurology, Hospital Universitario Cruces, Bilbao, Spain

Ángel P Sempere,
Department of Neurology, Hospital General Universitario de Alicante, Alicante, Spain

Beatriz del Río,
Department of Neurology, Hospital Universitario de La Princesa, Madrid, Spain

Mar Baz,
Department of Psychiatry, Hospital Universitari Vall d'Hebrón, Barcelona, Spain

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (https://us.sagepub.com/en-us/nam/open-access-at-sage).

Nicolás Medrano,
Medical Department, Roche Farma, Madrid, Spain

Gustavo Saposnik,
Clinical Outcomes & Decision Neuroscience Unit, Li Ka Shing Institute, University of Toronto, Toronto, Canada
Division of Neurology, Department of Medicine, St. Michael's Hospital, Toronto, Canada

Jorge Maurino,
Medical Department, Roche Farma, Madrid, Spain

Table 1. RIS-10 item scores and scalability coefficients.

Item	Median score (IQR)	Scalability (SE)
1. Emotions come back to me	3 (2, 4)	0.57 (0.07)
2. I feel uncomfortable	2 (1, 3)	0.71 (0.04)
3. I feel devalued	2 (1, 3)	0.66 (0.06)
4. I feel ashamed	2 (1, 2)	0.71 (0.04)
5. I have a knot in my stomach	2 (1, 3)	0.73 (0.04)
6. I feel anger rising in me	2 (1, 2)	0.64 (0.05)
7. I have trouble falling sleep	2 (1, 2)	0.67 (0.05)
8. I have trouble concentrating	1 (1, 2)	0.65 (0.06)
9. I am not really made for this work anymore	1 (1, 2)	0.63 (0.07)
10. I want to cry	1 (1, 2)	0.67 (0.06)
Overall RIS-10	1.9 (1.3, 2.6)	0.66 (0.04)

IQR: interquartile range; RIS-10: Regret Intensity Scale; *SE*: standard error.

Each RIS-10 item is assessed with a five-point Likert scale ranging from 1 ("not at all") to 5 ("absolutely").[7] Higher scores indicate greater intensity of regret. The first six additional items assess regret in different common social domains, including financial, driving, sports recreation, work, own health, and confidence in people.[2] The following eight items assess whether the participant has faced common situations experienced by MS nurses in clinical practice.[2] A final item assesses the presence of MS-related regret in the last three months.[2] Respondents must score on a scale from 0 (little affected) to 10 (very affected) the degree of regret experienced in the situation evoked by each item. If participants reported no regret, a mean intensity of 0 is imputed.

Statistical analysis

The dimensional structure and item characteristics of the RIS-10 scale were assessed with a non-parametric item response theory procedure, Mokken analysis.[8] Each item was required to have a scalability coefficient (Hi) $\geq$0.30 and an overall scale scalability index (H) $\geq$0.30 to support its ability to rank people regarding the latent trait being measured (care-related regret).[9] Associations between the RIS-10 and the additional 15 items were analyzed using Spearman's rank correlations.

Results

A total of 97 nurses were included. The mean age (SD) was 44.7 (9.8) years and 92% were female. Fifty (52.1%) nurses worked at MS care units. Participants had a mean of 7.4 (5.3) years of experience managing a median of 15 MS patients weekly (interquartile range 5.0–35.0).

The RIS-10 showed good internal reliability (Cronbach's alpha = 0.94, 95% CI 0.92–0.95). The automated item selection procedure of the Mokken analysis suggested a unidimensional structure with all items showing scalability >0.30. The RIS-10 overall scalability was 0.66 resulting in a strong scale (Table 1). *"Having a knot in the stomach"* (#5), "*feeling ashamed"* (#4), and "*feeling uncomfortable"* (#2) were the items more strongly related to the construct of regret.

The RIS-10 overall score correlated significantly with the financial, driving, and confidence in people domains ($rho > 0.20$, $p < 0.05$) (Table 2). *"Not being able to take a call/answer an email with a patient's question"* (#3), *"Not being able to discuss with a patient all the topics"* (#4), *"Answering with complete certainty even though I was not sure"* (#5), and *"Providing directions that may not have been the best"* (#6) were the MS regret experiences significantly correlated with overall RIS-10 score ($rho > 0.40$, $p < 0.05$) (Table 2).

Discussion

Nurses play an essential role in the care of MS patients, but are usually exposed to a high care burden that can lead to suboptimal therapeutic choices, regret, and burnout.[2,4,10] Identifying regret among nurses may be critical for implementing specific strategies to maintain an adequate functioning of MS care units.[2]

The assessment of regret has been carried out using qualitative and quantitative methods.[2] In our study, the internal consistency of the RIS-10 was good with a Cronbach's alpha similar to those of the French and German versions administered to physicians and nurses (0.94 in this study compared to

Table 2. Spearman's rank correlations between RIS-10 overall score and additional regret items.

Regret in social domains	Rho	*p*-value
Financial	0.23	0.026
Driving	0.24	0.017
Sports/recreation	0.20	0.046
Work	0.18	0.082
Own health	0.15	0.144
Confidence in people	0.31	0.002
Regret in MS care		
1. I identified a patient with an adverse event to a new treatment, but did not mention it to the neurologist	NA	NA
2. I was unable to convey to the neurologist that I had detected disease progression in one of our patients	NA	NA
3. I was unable to take a call/answer an email with a patient's question because I did not have enough time	0.45	<0.001
4. I did not discuss with a patient all the topics I would have liked to talk about	0.48	<0.001
5. The patient asked me about his/her illness and I answered with complete certainty even though I was not sure my answer was true	0.52	0.016
6. I provided some directions to a patient that as time has passed I have seen may not been the best in his/her particular case	0.56	<0.001
7. I had the chance to suggest a switch to a more effective treatment for a patient with the neurologist, but I failed to do so	NA	NA
8. I did not treat the patient as politely as I would have liked because I was worried about other things	0.15	0.474
9. Recent regret	0.22	0.413

MS: Multiple sclerosis; RIS-10: Regret Intensity Scale.

0.90 and 0.88, respectively).[7,11] It was also confirmed that it is a strong scale with a unidimensional structure. Overall, the 15 additional items showed appropriate concurrent relationship between their clinical elements, which allowed us to use this battery to evaluate healthcare regret experiences.

The RIS-10 was the first tool developed to assess the intensity of regret among health professionals, but it restricts the temporal context to the last five years.[7] Although many health professionals described episodes of intense regret dating back to their early years of practice or training, these experiences can occur at any time during professional activity.[12] Moreover, the intensity of the regret depended on the amount of time that had elapsed since the regret-causing event that was being asked about.[12] It is, therefore, necessary to supplement the RIS-10 with a specific short-term question or to follow up longitudinally with periodic questions.

This study has several limitations that deserve mention. First, this study was conducted through an email invitation sent by the Spanish Society of Neurology Nursing. We recognize a possible selection bias, given that the people most motivated to collaborate or with a greater collaboration with this scientific society may have enrolled in the study. Second, the study is cross-sectional and might be affected by recall bias of regret experiences in the past. Since the professional experience of nurse practitioners in this study is large, potential recall bias might have possibly downgraded the importance of those past regret experiences and attenuated the associations between components of regret.

Conclusions

Understanding MS nurses' experiences of regret using a standardized assessment battery may help to identify problems that impact on their own health and also facilitate appropriate decision-making in MS care. We propose an easy-to-implement battery with good psychometric properties that includes measures of nurses' past and recent regret in different domains. Further studies are needed to demonstrate its usefulness in other healthcare professionals involved in MS care.

Acknowledgments

The authors are most grateful to the Spanish Society of Neurology Nursing (SEDENE) and all nurses who kindly participated in the study.

Declaration of conflicting interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: The funding source had no role in the design, analysis, and interpretation of the data, review or approval of the manuscript, and decision to submit for publication. APS received personal fees for consulting, serving on a scientific advisory board or speaking from Almirall, Biogen Idec, Bayer Schering Pharma, Merck Serono, Novartis, Roche, Sanofi-Aventis, and Teva. GS reported receiving operating grants from Roche Canada and Spain and Servier Canada and research support from the Heart and Stroke Foundation of Canada Scientist Award. GB-G, NM, and JM are employees of Roche Farma Spain. The rest of the authors declared no conflict of interest The abstract of this paper was presented at the 8th Congress of the European Academy of Neurology (EAN) as an eposter presentation with interim findings (EPV220; Vienna, Austria; June 25–28, 2022).

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the Medical Department of Roche Farma Spain (SL42129).

ORCID iDs

Gustavo Saposnik https://orcid.org/0000-0002-5950-9886
Jorge Maurino https://orcid.org/0000-0001-9858-3555

References

1. Featherston R, Downie LE, Vogel AP, et al. Decision making biases in the allied health professions: a systematic scoping review. *PLoS One* 2020; 15: e0240716.
2. Saposnik G, Bueno-Gil G, Sempere AP, et al. Regret and therapeutic decisions in multiple sclerosis care: literature review and research protocol. *Front Neurol* 2021; 12: 675520.
3. Becerra Pérez MM, Menear M, Brehaut JC, et al. Extent and predictors of decision regret about health care decisions: a systematic review. *Med Decis Making* 2016; 36: 777–790.
4. Saposnik G, Del Río B, Bueno-Gil G, et al. Behavioral aspects of nurse practitioners associated with optimal multiple sclerosis care in Spain. *PLoS One* 2021; 16: e0261050.
5. Day GS, Rae-Grant A, Armstrong MJ, et al. Identifying priority outcomes that influence selection of disease-modifying therapies in MS. *Neurol Clin Pract* 2018; 8: 179–185.
6. Soelberg Sorensen P, Giovannoni G, Montalban X, et al. The multiple sclerosis care unit. *Mult Scler* 2019; 25: 627–636.
7. Courvoisier DS, Cullati S, Haller CS, et al. Validation of a 10-item care-related regret intensity scale (RIS-10) for health care professionals. *Med Care* 2013; 51: 285–291.
8. Sijtsma K and van der Ark LA. A tutorial on how to do a Mokken scale analysis on your test and questionnaire data. *Br J Math Stat Psychol* 2017; 70: 137–158.
9. Meijer RR, Sijtsma K and Smid NG. Theoretical and empirical comparison of the Mokken and the Rasch approach to IRT. *Appl Psychol Meas* 1990; 14: 283–298.
10. Meehan M and Doody O. The role of the clinical nurse specialist multiple sclerosis, the patients' and families' and carers' perspective: an integrative review. *Mult Scler Relat Disord* 2020; 39: 101918.
11. Richner SC, Cullati S, Cheval B, et al. Validation of the German version of two scales (RIS, RCS-HCP) for measuring regret associated with providing healthcare. *Health Qual Life Outcomes* 2017; 15: 56.
12. von Arx M, Cullati S, Schmidt RE, et al. "We won't retire without skeletons in the closet": healthcare-related regrets among physicians and nurses in German-speaking Swiss hospitals. *Qual Health Res* 2018; 28: 1746–1758.