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# The Revised Memory and Behavior Problems Checklist for Nursing Homes: Validation among Different Spanish Territories

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**Abstract:** Memory and behavioral difficulties among older people living in nursing homes can cause burden and other consequences in professional caregivers. There is a lack of instruments that evaluate these behaviors and their influence in formal caregivers. The aim of this study is to develop and psychometrically test—the Revised Memory and Behavior Problems Checklist for Nursing Homes (RMBPC-NH). A cross-sectional study was carried out. The sample was made up of 312 formal caregivers working in nursing homes from different territories in Spain, 87.5% were women and 12.5% were men. The average age of participants was 39 years (SD = 12.2). The sample was recruited from January 2019 to March 2020. Participants completed a self-administered questionnaire, which included sociodemographic information, and assessed quality of technical equipment, level of training, experience of working with older people, job satisfaction, professional quality of life, burnout, and conception of negative stereotypes held towards aging. The four-factor structure of the RMBPC-NH showed a good fit, namely in relation to memory, functional, and emotional factors, and other problems. It has shown adequate psychometric properties, internal consistency, and validity (correlations with professional quality of life, job satisfaction, burnout, and negative stereotypes). The RMBPC-NH is a useful instrument to evaluate the frequency of older people's memory and behavior problems and professional caregivers' burden. The practical application in nursing homes is discussed.

**Keywords:** behavior problems; memory problems; long-term care; nursing homes; professional quality of life; professional caregivers; burnout; job satisfaction; territory and instrument development

## 1. Introduction

Behavior and memory problems (BMP) in institutionalized older people are frequent. These problems may be associated with processes of cognitive decline and dementia diagnoses, and these symptoms normally increase over time [1]. Studies focused on long-term care residents indicate that prevalence of dementia is 58%, and the prevalence of behavioral and psychological symptoms of dementia is 78% among residents with dementia diagnoses [2]. Not only dementia is associated with BMP, for example, major depressive disorder and other psychiatric diagnoses, such as anxiety, could be associated with BMP in long-term care residents [1,3]. In Spain, around 62% of older people in institutional settings are diagnosed with dementia. Due to increased life expectancy among the general population, as people living longer into old age, these problems will become more prevalent [3,4]. Traditionally, the presence of BMP problems is a predictor of burden among informal caregivers [5]. The presence of BMP in institutionalized older people may

also affect professionals, specifically in terms of their quality of life and job satisfaction and stress [6,7].

### *1.1. Job Satisfaction, Professional Quality of Life, Stress, and Stereotypes towards Old Age among Professional Caregivers in Nursing Homes*

Professional caregivers' commitment and job satisfaction have been associated with different factors. A well-organized and pleasant work environment and low levels of staff turnover have been linked to high job satisfaction [8]. Job satisfaction has also been strongly associated with good job environment, teamwork, a safe climate, and adequate staffing resources [9]. When comparing job satisfaction between different types of staff, nurses are more satisfied with their job than nursing assistants. Nursing assistants show less satisfaction because of work monotony, position-related strain, and under recognition of work efforts [10].

Professional' quality of life results from the balance between work demands and psychological, social, and employment resources. Recently, a study has highlighted the relationship between care burden and quality of working life in professional caregivers of older people [11].

In this sense, suffering significant stress could affect the quality of care provided by formal and informal caregivers. People who suffer from dementia could have memory and behavior problems and functional problems. Specifically, Sun et al. [7] point that formal caregivers of people with dementia find some environmental factors to be sources of stress, for example, other staff or residents' family members. However, they identified personal factors as feelings of not being able to provide good care, the lack of resources, or not find the opportunity to do best for the people they care for, causing strain. In general, formal caregivers experience job satisfaction, but they also experience significant stress that can affect the quality of care they provide [12].

Furthermore, negative stereotypes held towards aging may influence the relationship established with older people and facilitate overprotection and paternalist attitudes, unnecessary interventions, and may reduce the autonomy of the older adults [13]. These attitudes could relate to BMP, as well as create more dependence in residents, which may produce lower job satisfaction and stress. Higher levels of training reduced the presence of negative stereotypes held towards aging. Being a woman aged between 45 and 59 years has been associated with higher levels of negative stereotypes held towards aging. This has been the typical profile for professional caregivers in nursing homes in the past, woman around middle age [14].

Interestingly, there is a significant amount of research analyzing the relationship between the BMP of institutionalized older people and professional caregivers' burden, quality of professional life, and job satisfaction. Moreover, Islam et al. [15] have pointed out the importance of training professional caregivers, because higher levels of training have been associated with higher levels of well-being and lower levels of burden.

### *1.2. The Revised Memory and Behavior Problems Nursing Homes*

The first questionnaire to evaluate MBP was "The Revised Memory and Behavior Problems" (RMBP; [16]) questionnaire, that was used to assess informal caregivers of dementia patients. In this research line, Ray et al. [17] created the Nursing Home Behavior Problems Scale (NHBPS). It was designed to be completed by professional caregivers (nurses and nursing assistants) with 29 items concerning serious behavior problems. The NHBPS [17] has 6 subscales: uncooperative or aggressive behavior, irrational or restless behavior, sleep problems, annoying behavior, inappropriate behavior, and dangerous behavior. This inventory was very difficult to implement among nursing home staff. Later, Wagner et al. [18] used the Memory and Behavior Problems Checklist (MBPC-NH) which was an adaptation of the MBPC-NH (Orr-Rainey and Terri, unpublished manuscript).

The Revised Memory and Behavior Problems Checklist for Nursing Homes (RMBPC-NH) was modified by Allen et al. [19]. The RMBPC-NH was designed to be answered by

professional caregivers. It included a 6-point Likert scale, with response options from 0 (not at all/not applicable) to 5 (several times a day). Adequate psychometric properties were obtained [19], and it has been related with users' variables (cognitive ability, activities of daily life) and professional caregivers' variables (depression and job stress). However, the RMBPC-NH has not been validated in the Spanish population. Additionally, this topic is very important in this moment, because the consequences of the COVID-19 pandemic may have a negative impact on cognitive and functional capabilities of the older population, especially among dementia patients, provoking the presence of more memory and behavioral symptoms [20].

The purpose of this study was to validate the RMBPC-NH [19] in a Spanish sample of professional caregivers in nursing homes from different territories. We examined the factor structure, the psychometric properties, and their relationship with other measures, such as professionals' quality of life, job satisfaction, burden, and negative stereotypes held towards aging.

## 2. Materials and Methods

### 2.1. Participants

From January 2019 to March 2020, 312 professional caregivers working in nursing homes in Spain participated in the study. A proportion of 87.5% of participants were women and the average age was 39 years ( $SD = 12.2$ ). Additional demographic information is presented in Table 1.

**Table 1.** Sample characteristics.

	N	%
Gender		data
Male	39	12.5
Female	273	87.5
Job position		
Nursing assistants	202	58.3
Graduates (doctors, nurses, psychologists, physiotherapists, etc.)	104	33
Others (cooks, cleaners and/or administration)	15	5.4
Territory		
Community of Madrid	174	55.8
Catalonia	66	21.2
Extremadura	38	12.2
Valencian Community	25	8
Andalusia	9	2.9
Care professional experience		
Less than a year	100	32
Less than 2 years	32	10.3
2–5 years	29	12.5
More than 5 years	141	45.2
Level of professional training		
Much training	86	27.5
Enough training	159	50.8
Some training	55	17.9
No training	12	3.8
Quality in technical equipment		
Very appropriate	95	30.4
Enough appropriate	126	40.3
Some appropriate	84	26.8
No appropriate	8	2.6

Note:  $N = 312$ .

## 2.2. Instruments

- *The Revised Memory and Behavior Problems Checklist for Nursing Homes (RMBPC-NH)* [19]: This 42-item instrument was used to measure the frequency of resident BMP (cognitive, emotional, functional, and other problems) and its relationship with staff's burden and other residents' well-being.
- *Professional Quality of Life Questionnaire (QPL-35)* [21]: This 35-item instrument was used to measure the balance between work demands and personal resources. Items were scaled from "none" (values 1 and 2), to "some" (values 3, 4, and 5), to "quite a lot" (values 6, 7, and 8), to "a lot" (values 9 and 10). In this sample, a high reliability was found for the general scale ( $\alpha = 0.91$ ) and its subscales: management support ( $\alpha = 0.92$ ), workload ( $\alpha = 0.89$ ), and intrinsic motivation ( $\alpha = 0.82$ ).
- *Job Satisfaction Questionnaire S10/12* [22]: This 12-item questionnaire was used to measure job satisfaction. Items were scored from 1 (very unsatisfied) to 7 (very satisfied). In this sample, a high reliability was found for the general scale ( $\alpha = 0.92$ ) and its subscales: supervisory practices ( $\alpha = 0.93$ ), working environment ( $\alpha = 0.71$ ), and benefits received ( $\alpha = 0.81$ ).
- *Maslach Burnout Inventory (MBI)* [23]: This 22-item questionnaire requests that professionals indicate the frequency with which they experienced some statements of "job-related" feelings. Items were scored from 0 (never experienced such a feeling) to 6 (experience such feelings every day). In this sample, a high reliability was found for the general scale ( $\alpha = 0.85$ ) and its subscales: emotional exhaustion ( $\alpha = 0.86$ ), depersonalization ( $\alpha = 0.49$ ), and personal accomplishment ( $\alpha = 0.78$ ).
- *Negative Stereotypes towards Aging Questionnaire (CENVE)* [24]: This 15-item measure was used to evaluate negative stereotypes held towards aging. Items were scored from 1 (strongly disagree) to 4 (strongly agree). In this sample, a high reliability was found for the general scale ( $\alpha = 0.90$ ) and its subscales: health ( $\alpha = 0.83$ ), character–personality ( $\alpha = 0.77$ ), and motivational–social ( $\alpha = 0.66$ ).

## 2.3. Procedure

A cross-sectional study was carried out in different nursing homes in Spain. We contacted managers of nursing homes and gave them verbal and written information about the research, and they invited workers to take part in the study. The participants were volunteers, and one person from the research team explained to the nursing home staff how to complete the questionnaires. The time taken to complete the self-administered questionnaire was around 30 minutes. The validation process of the Spanish version of the RMBPC-NH [19] followed the defined guidelines for adapting tests [25,26] (Hambleton, 2005; ITC, 2016). First, two authors of this study translated the original English scale into Spanish. Then, a bilingual independent translator performed the back translation. Discrepancies emerging between the original and the Spanish version were discussed, and the research team of CEU adjusted the translation.

## 2.4. Data Analysis

In order to study the psychometric properties of the Spanish version of the RMBPC-NH, we conducted different confirmatory factor analyses (CFAs) using R's lavaan package [27]. We examined and compared the two different factor structures proposed in the literature: the unidimensional model and the four-factor model. Given that items presented high kurtosis and skewness, the weighted least mean square and variance adjusted (WLSMV) estimator was used because it is a robust estimator for ordered data and does not assume normal distributions (e.g., Muthén and Muthén [28]). The reliabilities of the scale and its subscales were analyzed through Cronbach's  $\alpha$  2, using R's CTT [29] and psych [30] packages, respectively. Different descriptive analyses were conducted to describe the state of the professional caregivers. The statistical differences between territories (autonomous communities—AACC) in total of frequency of behavior and memory problems and care-related burdens were analyzed with univariate ANOVAs. Different mixed-effects models

with random intercepts for participants were conducted to analyze potential differences in the burden scale of RMBPC-NH and subscales, considering the different levels of the participants, using R's lme4 package [31]. We analyzed the construct validity of RMBPC-NH scale scores, exploring its relationships with different variables using Pearson's correlation coefficients and mixed-effects models with random intercepts for participants. All the statistical analyses were performed in R software version 3.6.1 [32]. The statistical significance was corrected using the Holm–Bonferroni correction when multiple comparisons were conducted in mixed-effects models [33].

### 2.5. Ethical Considerations

The study was approved by the University Ethics Committee. Informed consent was obtained from all respondents, and confidentiality was explicitly guaranteed. Participants were volunteers, and they were asked to fill out a self-administered questionnaire, which included sociodemographic information, their staff category, level of training, and caring experience.

## 3. Results

### 3.1. Factor Structure

Two CFAs were fitted to test the unidimensional and the four-factor models for the Spanish validation of the RMBPC-NH scale by frequency and care-related burden scores. Model fit results can be found in Table 2. In the case of frequency scores, the unidimensional model showed a moderate fit to the data, whilst the four-factor structure, proposed by Wagner et al. [18], obtained a good fit. A robust  $\chi^2$  difference for the nested model comparison [34] showed that the four-factor structure obtained significantly better performance than the unidimensional one ( $\Delta\chi^2 = 68.66$ ,  $\Delta df = 6$ ,  $p < 0.001$ ). In the case of care-related burden, the same pattern of results was found: the unidimensional model showed a good fit to the data, but the four-factor structure [18] obtained a better fit. The same robust  $\chi^2$  difference for the nested model comparison was conducted, showing that the four-factor structure obtained significantly better performance than the unidimensional one ( $\Delta\chi^2 = 17.27$ ,  $\Delta df = 6$ ,  $p < 0.01$ ). We only present care-related burden results because social–emotional burden results did not present relevant differences. Moreover, we explored item descriptive analysis (mean and standard deviation) and factor loadings for the four-factor structures. All factor loadings were adequate for RMBPC-NH subscales.

**Table 2.** Results of confirmatory factor analysis for unidimensional and four-factor structures in frequency and care-related burden scores of the RMBPC-NH scale.

RMBPC-NH Score	Factor Structure	Model Fit					
		$\chi^2(df)$	$p$	CFI	TLI	RMSEA [90% IC]	SRMR
Frequency	Unidimensional	$\chi^2(819) = 1964.31$	<0.001	0.93	0.93	0.07 [0.06, 0.08]	0.114
	Four-factors	$\chi^2(813) = 1687.73$	<0.001	0.95	0.95	0.06 [0.05, 0.06]	0.099
Care-related burden	Unidimensional	$\chi^2(819) = 2012.13$	<0.001	0.98	0.98	0.07 [0.07, 0.08]	0.053
	Four-factors	$\chi^2(813) = 1968.75$	<0.001	0.98	0.98	0.07 [0.06, 0.07]	0.050

Note:  $N = 312$ .

### 3.2. Reliability and Descriptive Analysis

Table 3 presents descriptive analysis of frequency, care-related burden, and social–emotional burden for each subscale of the adaptation of the RMBPC-NH for Spanish professional caregivers working in nursing homes. As can be observed, the reliability of the general scale and its subscales was high (Cronbach's  $\alpha$  ranging from 0.80 to 0.99). Means and medians showed a positive skewness for item responses in both frequency and burden scores. Accordingly, the descriptive results of the different subscales of care-related and social–emotional burdens were very similar, which explains their lack of differences in the following statistical analyses.

**Table 3.** Descriptive analysis and reliability of RMBPC-NH scale and its subscales.

Variable		Descriptive Analysis					Reliability	
Score	Problem	Items	<i>M</i>	<i>SD</i>	<i>Mdn</i>	Range	Empirical Range	Cronbach's $\alpha$
Frequency	Total	42	52.46	39.17	41	0–210	0–185	0.96
	Memory	12	18.48	16.42	14	0–60	0–60	0.94
	Functional	11	11.60	9.87	9	0–55	0–52	0.84
	Emotional	12	17.49	12.04	15	0–60	0–56	0.85
	Other	7	4.90	5.79	2	0–35	0–34	0.80
Care-related burden	Total	42	32.96	40.56	17	0–168	0–167	0.99
	Memory	12	9.75	11.82	5	0–48	0–48	0.96
	Functional	11	8.62	10.76	5	0–44	0–44	0.95
	Emotional	12	10.01	12.21	5	0–48	0–48	0.96
	Other	7	4.59	7.06	1	0–28	0–28	0.95
Social-emotional burden	Total	42	30.67	38.79	15	0–168	0–168	0.99
	Memory	12	8.94	11.27	5	0–48	0–48	0.97
	Functional	11	7.39	10.51	2	0–44	0–44	0.96
	Emotional	12	9.85	11.45	6	0–48	0–48	0.96
	Other	7	4.49	6.87	1	0–28	0–28	0.95

### 3.3. Validity Evidence

As it was previously shown, all the problems presented a similar distribution of care-related and social-emotional burden experienced by professional caregivers. In this way, mixed-effects models with random intercepts for participants revealed no statistically significant differences between problems for care-related burden staff ( $F(3,1122) = 1.46$ ,  $p = 0.23$ ) nor for social-emotional burden staff ( $F(3,1120) = 1.72$ ,  $p = 0.16$ ).

The relationship between the frequency of problems and the care-related burden and its subscales was analyzed. Pearson correlation coefficients revealed a medium relationship between the reported frequency of problems and how this affected the care-related burden of professional caregivers for all problems ( $r = 0.40$ ,  $p < 0.01$ ), memory problems ( $r = 0.32$ ,  $p < 0.01$ ), functional problems ( $r = 0.51$ ,  $p < 0.01$ ), emotional problems ( $r = 0.40$ ,  $p < 0.01$ ), and other problems ( $r = 0.49$ ,  $p < 0.01$ ). There were important individual differences related to subjectively judging how those problems increased their care-related burden. No substantive differences were found for social-emotional burden scales, compared with care-related burdens.

We analyzed the validity of the Spanish version of the RMBPC-NH scale and its subscales for professional caregivers in Spanish nursing homes, exploring its relationship with quality of professional life, job satisfaction, negative stereotypes held towards aging, and burnout variables, using Pearson correlation coefficients. Results can be found in Table 4. All the correlation coefficients were medium, but they were in accordance with theoretical predictions (these results will be explained in more detail in Discussion Section). It is worth mentioning here that, in general, correlation coefficients with these variables were higher for care-related burden than for problem frequency. Again, Table 4 only reports care-related burden results, because social-emotional burden results did not present substantive differences with care-related burden.

Table 5 presents the results of different mixed-effects models with random intercepts for participants to explore the differences in RMBPC-NH scale scores in different categorical and ordinal covariates (see Table 1). Specifically, a mixed-effects model was conducted for each score and covariate, correcting the statistical significance of fixed effects with the Holm-Bonferroni correction [33]. Results for the sex variable show that women tend to report more care-related burden than men, but no differences were found in the frequency of problems. Results for care experience with older people (in months) indicate a negative relationship between time and the frequency of reported memory problems, and a positive relationship between time and care-related burden (that is, the more time the person has been working in nursing homes, the more burden he/she felt). Results for technical equipment show that,

although it is only related to the frequency of reported functional problems, the lack of quality in technical equipment has a great impact on professional caregivers' care-related burden. Results for the level of training show that people with a higher level of training report lower frequency of general, functional, emotional, and other problems, and they also have less staff burden related to functional and emotional problems.

**Table 4.** Pearson correlation coefficients between RMBPC-NH factor scores and different work-related burnout, quality of professional life, and job satisfaction.

Variables	Frequency					Care-related Burden				
	All	Memory	Functional	Emotional	Other	All	Memory	Functional	Emotional	Other
Professional quality of life (PQL)	-0.15 *	-0.06	-0.21 **	-0.16 **	-0.14 *	-0.22 **	-0.20 **	-0.20 **	-0.24 **	-0.20 **
Workload (PQL-WL)	-0.06	0.03	-0.121 *	-0.09	-0.11	-0.18 **	-0.14 *	-0.16 **	-0.22 **	-0.19 **
Intrinsic motivation (PQL-IM)	-0.08	-0.09	-0.08	-0.07	-0.03	-0.06	-0.08	-0.04	-0.03	-0.02
Managerial support (PQL-MS)	-0.19 **	-0.10	-0.25 **	-0.18 **	-0.16 **	-0.22 **	-0.19 **	-0.22 **	-0.23 **	-0.19 **
Job satisfaction (total)	-0.19 **	-0.10	-0.27 **	-0.17 **	-0.17 **	-0.24 **	-0.22 **	-0.24 **	-0.26 **	-0.22 **
Supervisory practices	-0.12 *	-0.04	-0.19 **	-0.11	-0.10	-0.14 *	-0.11	-0.13 *	-0.16 **	-0.15 *
Working environment	-0.16 **	-0.11	-0.20 **	-0.13 *	-0.14 *	-0.22 **	-0.21 **	-0.23 **	-0.24 **	-0.17 **
Benefits received	-0.22 **	-0.11	-0.31 **	-0.20 **	-0.21 **	-0.25 **	-0.24 **	-0.24 **	-0.24 **	-0.23 **
Negative stereotypes held towards ageing	0.14 *	0.11	0.17 **	0.09	0.16 **	0.14 *	0.17 **	0.21 **	0.09	0.11
Health stereotypes	0.14 *	0.12 *	0.17 **	0.08	0.13 *	0.11	0.15 *	0.17 **	0.04	0.07
Motivational-social stereotypes	0.05	0.03	0.10	0.00	0.07	0.15 *	0.17 **	0.21 **	0.11	0.12 *
Character-personality stereotypes	0.19 **	0.15 **	0.19 **	0.16 **	0.21 **	0.13 *	0.13 *	0.21 **	0.09	0.11
Burnout (MBI)	0.08	0.03	0.09	0.14 *	0.02	0.10	0.08	0.10	0.12 *	0.08
Burnout emotional exhaustion (EE)	0.00	-0.06	0.05	0.04	0.01	0.08	0.03	0.08	0.11 *	0.07
Burnout depersonalization (DP)	0.12 *	0.05	0.16 **	0.15 **	0.13 *	0.21 **	0.20 **	0.21 **	0.21 **	0.19 **
Burnout personal Accomplishment (PA)	0.02	0.05	-0.04	0.06	-0.07	-0.07	-0.05	-0.06	-0.07	-0.08

Note: \*\* =  $p < 0.01$ . \* =  $p < 0.05$ .

**Table 5.** Estimations (and standard errors) of mixed-effects models for sex, care experience, technical equipment, and level of training of mixed-effects models.

RMBPC-NH		Sex (Reference: Male)	Care Experience	Technical Equipment	Level of Training
Frequency	All	0.21 (0.18)	-0.03 (0.05)	0.08 (0.07)	-0.11 * (0.05)
	Memory	0.19 (0.25)	-0.17 * (0.07)	-0.07 (0.10)	-0.04 (0.07)
	Functional	0.29 (0.18)	0.03 (0.05)	0.16 * (0.07)	-0.15 ** (0.05)
	Emotional	0.25 (0.19)	0.04 (0.05)	0.07 (0.08)	-0.11 * (0.05)
	Other	0.07 (0.17)	0.01 (0.04)	0.17 * (0.07)	-0.11 * (0.05)
Care-related burden	All	0.45 * (0.19)	0.14 ** (0.05)	0.33 ** (0.08)	-0.09 (0.05)
	Memory	0.38 * (0.19)	0.09 † (0.05)	0.28 ** (0.08)	-0.07 (0.06)
	Functional	0.44 * (0.19)	0.11 * (0.05)	0.31 ** (0.08)	-0.11 * (0.06)
	Emotional	0.55 * (0.19)	0.21 ** (0.05)	0.39 ** (0.08)	-0.10 † (0.06)
	Other	0.42 * (0.21)	0.15 ** (0.05)	0.38 ** (0.08)	-0.09 (0.06)

Note:  $N = 312$ . A mixed-effects model was conducted for each RMBPC-NH scale score and covariate. The statistical significance of fixed effects was corrected with the Holm-Bonferroni correction [29]. \*\* =  $p < 0.01$ . \* =  $p < 0.05$ . † =  $p < 0.10$ .

Additionally, we analyzed the differences between AACC levels using univariate ANOVAS. No differences between AACC levels were found for frequency total ( $F(4,262) = 1.056, p = 0.379, \eta^2 = 0.016$ ), frequency cognitive ( $F(4,277) = 1.379, p = 0.241, \eta^2 = 0.020$ ), frequency emotional ( $F(4,276) = 1.558, p = 0.186, \eta^2 = 0.022$ ), nor frequency other ( $F(4,279) = 1.355, p = 0.250, \eta^2 = 0.019$ ). Only frequency functional presented statistically significant differences between AACC levels with a small effect size ( $F(4,270) = 2.465, p = 0.045, \eta^2 = 0.035$ ). On the contrary, we found significant differences between AACC levels for care-related burden ( $F(4,244) = 11.263, p < 0.001, \eta^2 = 0.156$ ), care-related burden cognitive ( $F(4,263) = 8.150,$

$p < 0.001$ ,  $\eta^2 = 0.110$ ), care-related burden functional ( $F(4,257) = 11.560$ ,  $p < 0.001$ ,  $\eta^2 = 0.152$ ), care-related burden emotional ( $F(4,260) = 11.697$ ,  $p < 0.001$ ,  $\eta^2 = 0.153$ ), and care-related burden other ( $F(4,266) = 10.559$ ,  $p < 0.001$ ,  $\eta^2 = 0.137$ ). All these differences had relevant effect sizes. Pairwise comparisons were observed between Catalonia and Community of Madrid ( $p < 0.001$ ) and Catalonia and Valencian Community ( $p < 0.001$ ) for total, cognitive, and other care-related burden. Catalonia showed the same differences with Community of Madrid and Valencian Community, but also with functional care-related burden ( $p = 0.024$ ) and emotional care-related burden ( $p = 0.018$ ) with Extremadura.

#### 4. Discussion

There is a lack of instruments for measuring behavioral and memory problems and their impact in formal caregivers. For this reason, we set out to validate and analyze the psychometric characteristics of RMBPC-NH. Our results provide satisfactory evidence for the reliability and validity of the RMBPC-NH, consistent with the standards for psychological testing [35]. Additionally, for this reason, the RMBPC-NH may be considered an adequate scale to evaluate the frequency of BMP in older people living in nursing homes and how it affects professional caregivers. Questionnaires adapted to different sociocultural contexts are necessary. The four-factor structure of the RMBPC-NH proposed by Wagner et al. [18] (namely: memory, functional, emotional, and other problems) has shown excellent psychometric properties in formal caregivers working in nursing homes in Spain. Item descriptive analysis (mean and standard deviation) and factor loadings for this four-factor structure were appropriate. Internal consistency reliability was high, not only in the global scale but also in all subscales. Similar results were found in the original scale [19].

The Spanish version of the RMBPC-NH is a useful tool to evaluate the prevalence of common BMP in nursing homes, as well as the impact on professionals' burden. The two questions associated with every problem in evaluating staff burden are especially important for focusing not only on the presence/absence of the problem, but also on showing which problems affect professional caregivers or their work environment.

Regarding the validity analyses, results showed a negative relationship between total frequency problems, functional problems, emotional and others, and professional quality of life. According to Sun et al. [7], behavioral and psychological symptoms impact directly over caregiver quality of life. Moreover, previous research published has pointed out the relationship between professional quality of life and stress and burden in formal caregivers [9,21]. Furthermore, this relationship was stronger in care-related burden experienced by professional caregivers in all the subscales. Kalanlar and Kuru [11] point out how care-related burden directly influences the daily lives of professional caregivers working in nursing homes. Moreover, feelings of emotional demand and poor quality of team supervision predict burnout in professional caregivers. Burnout has been associated with elderly abuse in nursing homes [36]. The validity of the Spanish version of the RMBPC-NH has been established using the mediating role of burden to promote good care in institutionalized older adults [37].

Higher job satisfaction in professional caregivers has been linked to a lower frequency of BMP. These findings are in line with the study by Allen et al. [19]. Burden and stress in both formal and informal caregivers of people with dementia have been described traditionally [5]. However, the present study highlights the importance of job satisfaction associated with the prevalence of BMP. A strong correlation between depersonalization and frequency of BMP and care-related burden has been found. Gallego-Alberto et al. [38] have highlighted depersonalization as a significant predictor of anxiety in professional caregivers.

Another relevant finding in the current study is that professional caregivers who experience more care-related burden have lower levels of professional quality of life and job satisfaction, and higher levels of negative stereotypes held against aging. It seems that objective frequency of memory and behavioral problems is not related so much to quality of life and job satisfaction, but is related to the professional interpretation of these situations.



The frequency of memory problems does not have a relationship with any of the other variables studied, excluding health and character–personality negative stereotypes. These results may be explained by the fact that memory problems do not affect job performance as much as other types of problems do. In this line, behavior problems, aggressiveness, irritation, and disinhibition are those that require more supervision time by the caregivers [39,40].

Female professional caregivers tend to present with more care-related burden than men. However, they do not report more frequency of problems in older people. Similarly, people with more experience working with older adults report lower frequency of problems, but higher levels of burden. This may be because the problems that residents present are repetitive, and they may feel that they do not have enough strategies to handle them, which, in turn, is related to burden [7,40]. In this line, the lack of quality in technical equipment is significantly related to staff burden. This result was found also in previous studies. Adequate technical equipment is required to promote good care practices in older people nursing homes [41,42].

Finally, professionals with a higher level of training report lower frequency of problems and they also have lower care-related burden. This result also demonstrates the importance of training as an essential component in professional caregivers of nursing homes [6,7,40]. Carrying out adequate assessments and interventions is quite important when approaching BMP among residents living in nursing homes [43].

There were significant differences found among levels for care-related burden between AACCs. These differences may be due to the differences in health care in the different AACCs in Spain. This result warrants further analysis of factors related to care-related burden, because health decisions are implemented specifically in each AACC [44].

The study presents some methodological limitations which may limit the external validity of the instrument. We will consider increasing the sample of participants to include professional caregivers from different territories and different cultures, to analyze the results and to promote the external validation of the Spanish questionnaire.

Interventions that aim to increase job satisfaction, stress, and professional quality of life, as well as reduce negative stereotypes held towards aging, may have direct benefits for professional caregivers and indirect benefits for users [8,10,37]. Focusing on these variables would allow professionals to be more involved in their work and promote the good care of older people. For this, training professional caregivers is the main tool to promote good practices in the care of older people [7,45].

## 5. Conclusions

The Spanish version of the RMBPC-NH shows excellent psychometric properties and provides information about the care-related and social burdens of professional caregivers, associated with residents' memory and behavior problems. The evaluation of the frequency of memory and behavior problems can be an innovative proposal in nursing homes because of their relationship with factors related to occupational mental health. Professionals with higher levels of quality of life and job satisfaction will provide better care for older adults. In this line of thought, concrete intervention models could be generated to promote good practices for both professionals and older people in nursing homes. Moreover, nursing homes have been heavily affected by COVID-19, which has provoked an increase in behavioral and psychological symptoms in older people with dementia; consequently, caregivers have experienced higher levels of burnout and job dissatisfaction, and lower quality of life, which could have an impact on quality of care.

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