Reports of Neuropsychiatric Symptoms of Older Care Recipients by Their Family Members and Their Foreign Home Care Workers: Results From Triadic Data

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Reports of Neuropsychiatric Symptoms of Older Care Recipients by Their Family Members and Their Foreign Home Care Workers: Results From Triadic Data

Liat Ayalon, PhD[1]

Abstract

Objectives: To evaluate reports of neuropsychiatric symptoms (NPS) per family members and round the clock foreign home care workers. Design, setting, and participants: A cross-sectional matched sample of family members, foreign home care workers, and care recipients. **Measurements:** Family members and foreign home care workers completed a measure of NPS. All 3 stakeholders provided a variety of demographic and clinical characteristics. **Results:** There was a low agreement between family members and foreign home care workers with regard to reports of depression and disturbing behaviors in care recipient and a good agreement with regard to reports of memory problems. In addition to care recipients' characteristics, family members' characteristics were primarily correlated with family members' reports of NPS and foreign home care workers' characteristics were primarily associated with foreign home care workers' reports of NPS. **Conclusions:** Because much of the evaluation of NPS relies on reports of formal (ie, paid) and informal caregivers (ie, unpaid), clinicians should be aware of the fact that these reports are based in large part on the subjective perception of the caregiver.

Keywords

globalization, neuropsychiatric symptoms, caregivers, long-term care

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Neuropsychiatric symptoms (NPS), such as agitation, wondering, aggressive behaviors, depression, and apathy, are present in a variety of neurological conditions.[1-3] Although, NPS are most common in the moderate and severe stages of dementia, they may also be present in the early stages of the disease and even in individuals with mild cognitive impairment.[1] The management of NPS deems particularly challenging as both pharmacological and nonpharmacological techniques have only a moderate evidence base.[4,5] Thus, many caregivers respond by exhibiting higher levels of burden and depression.[6,7] Not surprisingly, research has also shown that older adults who present with NPS have higher health care costs and are more susceptible to early institutionalization.[8-10]

To date, the majority of research has focused on NPS as precipitators of a variety of negative outcomes at the caregiver and care recipient level.[6,7] Less attention has been given to caregivers' characteristics that may contribute to the perception of NPS in care recipients.[11,12] The few studies conducted found that younger, less educated, more burdened, and more depressed caregivers, or those caregivers who spend more hours giving care are more likely to report NPS in their care recipients.[11,13-15] Whereas informative and innovative, these studies concluded that caregivers' characteristics had contributed to NPS. The studies paid only minimal attention to the possibility that these various caregivers' characteristics simply affect caregivers' perception of NPS but do not precipitate NPS. By evaluating reports from both formal (ie, paid; in the current study round-the-clock foreign home care workers) and informal (ie, unpaid; family and friends) caregivers, the current study can disentangle the role of subjectivity in the perception of NPS versus the hypotheses that caregivers' characteristics actually precipitate NPS. Because much of the evaluation of NPS relies on the reports of either formal or informal caregivers, this study is particularly important.

In Israel, the welfare system makes every attempt to maintain older adults in the community for as long as possible by partially funding 2 main alternatives: (*a*) several hours of paid care provided almost exclusively by Israeli Arabs or new immigrants or (*b*) full-time care, provided almost exclusively by

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round-the-clock foreign home care workers. Degree of support is determined by level of disability and only the most impaired older adults are eligible for the greatest level of financial support, which also entitles them to hire a foreign home care worker.[16] Currently, almost all round-the-clock personal home care in Israel (eg, assistance with grooming, feeding, etc.) is provided by foreign female workers from Asia or East Europe.[16] These workers are considered temporary and are expected to leave the country after several years or when their care recipient dies. To limit their stay in the country, they are not allowed to bring their family members with them and their prospects of becoming citizens in the country are slim.[17,18]

The international literature views foreign home care as a global, though largely invisible phenomenon. According to some researchers, foreign home care workers are considered ''invisible'' as long as there are no problems in the provision of care.[19,20] There is a growing body of literature arguing that direct care workers in general and more specifically foreign home care workers are exposed to inhumane working conditions, discrimination, severe abuse, and even violence.[19,21-23] Nonetheless, others have noted that direct care workers often capture not only a functional role but also social and emotional roles in the life of their care recipients, as they are the ones most involved in their care.[24,25]

The current study evaluates reports of NPS made by family members and foreign home care workers. It is expected that family members' characteristics are primarily associated with family members' reports of NPS, whereas foreign home care workers' characteristics are primarily associated with foreign home care workers' reports of NPS. Thus, supporting the hypothesis of subjectivity in the interpretation of NPS rather than the hypothesis that certain caregivers' characteristics actually precipitate NPS.

Methods

Procedure

This study was based on prior qualitative research conducted with Filipino home care workers, family members of older adults cared by these workers, and social workers in charge of this caregiving arrangement.[23,26,27] Measures were pilot-tested and a priori evaluated for readability and content by the involved parties. Inclusion criteria were for *family members*, self-identifying as the primary caregiver of a family member aged 60 or older who receives round-the-clock home care by a foreign home care worker; for *paid carer*, being a foreign home-care worker who provides round-the-clock care to a person aged 60 or more years; and for *care recipient*, being 60 years or older, and receiving round-the-clock foreign home care.

All interviews were conducted by trained research assistants who were blinded to research hypotheses. Participants were recruited through snowballing techniques, such as adult day centers, meetings of the Alzheimer's Association, and other settings usually attended by the involved parties. Research assistants first approached family members and subsequently contacted the care recipient and the foreign home care worker regarding participation in the study. Each stakeholder was interviewed separately. Each interview took approximately 45 minutes. All measures were administered at the same time. Participation was voluntary and all participants signed an informed consent prior to their enrolment in the study. The study was approved by the ethics committee of Bar Ilan University.

Overall, 148 matched dyads of foreign home care worker-family member completed the survey, but due to severe disorientation, confusion, and physical disability of a substantial number of older adults, only 94 care recipients completed the quality-of-life questionnaire. As can be seen, the 3 groups differed on a variety of measures. All home care workers provided full-time care, with the majority of the sample having less than 2 free hours per day. Overall, 23% of the family caregivers self-identified as a spouse. Family members provided on average 28 hours of care per week. Table 1 summarizes the demographic and clinical characteristics of the sample.

Measures. Measures were available in Hebrew, English, Romanian, Russian, and Tagalog to cater to the diverse ethnic origins of foreign home care workers.

Neuropsychiatric symptoms of care recipient. Neuropsychiatric symptoms were assessed by the Revised Behavior and Memory Checklist (RMBC). This is a 24-item informant measure of common problem behaviors in older adults with dementia.[28] In the current study, I used the 3-factor model that represents 3 main categories of NPS: depression (eg, sad or depressed, hopelessness; range 0-9), disturbing behaviors (eg, destroying property, verbally aggressive; range 0-8), and memory problems (repetitive questions, problem remembering recent events; range 0-7).[29] The reliability of the 3 factors was .79 for depression, .66 to .60 for disturbing behaviors, and .86 to .83 for memory problems, for foreign home care workers and family members.

Cognitive status. Cognitive status was assessed using a 6-item screener (3 orientation to time items and 3 memory items)[30] taken from the Mini-Mental Status Examination. This measure has shown to be as sensitive as the 30-item Mini-Mental Status Exam for the identification of cognitive impairment. Range is 0 to 6, with a higher score representing better cognitive functioning. A score lower than 4 is indicative of cognitive impairment. Reliability in the current study is .71.

Activities of daily living/instrumental activities of daily living (ADL/IADL). Family members were asked to indicate whether older care recipients needed assistance with 6 ADLs (eg, eating, grooming) and 5 IADLs (eg, running errands, cooking). Measure ranges between 0 and 11, with a higher score indicating worse impairment. Reliability in the current study is .86.

Table 1. Demographic and Clinical Characteristics[a]

	Foreign Home Care Workers (n =148)	Family Members (n = 148)	Older Care Recipients (n = 148)[b]	*P*
Age (20-97)	38.2 (8.7)	58.8 (13.1)	82.8 (8.0)	<.001
Gender				<.001
Female	119 (81.5%)	89 (60.1%)	97 (69.3%)	
Education (0-28)	11.2 (4.1)	14.3 (3.9)	10.6 (5.0)	<.001
Marital status				<.001
Married	52 (35.1%)	121 (82.9%)	42 (29.8%)	
Financial status				<.001
Comfortable	66 (45.5%)	108 (73.5%)	92 (60.9%)	
Social support (2-10)	4.7 (1.9)	6.5 (1.7)	6.6 (1.5)	<.001
Well-being[c] (0-25/13-52)	18.7 (5.2)	16.2 (4.9)	29.6 (5.7)	<.001
Satisfaction with care recipient (0-35)	28.1 (5.7)	25.7 (7.3)		.007
Alcohol problems	7 (4.6%)	2 (1.3%)		.09
Care recipients' measures				
Cognitive status (0-6)			2.8 (2.5)	
ADL/IADL (0-11)		7.6 (2.8)		
Measures completed only by foreign home care workers				
Acculturation (6-48)	19.7 (8.9)			
Providing care to a couple	24 (16.3)			
Sleeps in the home of care recipient	133 (92.4%)			
Number of hours off work				
Not at all	20 (13.6%)			
1-2 hours	88 (59.9%)			
3-5 hours	23 (15.6%)			
More than 5 hours	16 (10.9%)			
Ethnic origin				
Asia	115 (79.3%)			
Posttraumatic stress symptoms (0-3)	.5 (1.02)			
Exposure to abuse (0-19)	1.4 (2.4)			
Measures completed only by family members				
Relationship to care recipient		35 (23.8%)		
Spouse				
Weekly hours of informal caregiving (0-24 × 7)		28.3 (53.2)		

NOTE: ADL/IADL = Activities of daily living/instrumental activities of daily living.

a. Nonparametric tests for dependent samples were conducted for categorical variables, repeated measures Analyses of Variance (ANOVAs) and paired *t* test analyses were conducted for continuous variables. Results are presented as mean (SD) for continuous variables and frequency (%) for categorical variables.

b. Demographic data were available for 148 older adults, but older adults who were cognitively impaired or too physically frail did not complete the quality of life questionnaire (n = 54).

c. Measure of older adults' well-being differs from measures of the other parties. Hence, *P* value relates to a comparison of family members to foreign home care workers only.

Satisfaction with the relationship with care recipient. This is a 7-item self-report scale that assesses satisfaction in various areas of the relationship, such as communication, intimacy, role in the relationship, and overall satisfaction.[31] In the current study, participants were specifically instructed to refer to their relationship with their care recipient. Participants were asked to rate each of the items on a scale of 0 = *very dissatisfied* to 5 = *very satisfied*. Scale ranges from 0 to 35. Both family members and foreign home care workers completed the measure. Reliability in the current study is .93 for foreign home care workers and .91 for family members.

Well-being. The World Health Organization Well-Being Index (WHO-5) is a 5-item questionnaire endorsed by the WHO as a screening measure. Questions range on a scale of 0 = *at no time* to 5 = *all of the time*, with a higher score representing better well-being. Range of the entire scale is 0 to 25. Both family members and foreign home care workers completed this measure. Reliability in the current study is .86 for family members and .88 for foreign home care workers. Because many of the care recipients are cognitively impaired, they completed a quality of life measure that has already been validated for use in individuals with cognitive impairment as a proxy of well-being: the Quality of Life in Alzheimer's Disease (QOL-AD).[32] Questions are rated on a scale of 1 = *poor* to 4 = *excellent*, with a greater score representing greater well-being. Range is from 13 to 52. Reliability in the current study is .78.

Burden. Family members completed a short version of the Zarit Burden Inventory.[33,34] This is a 12-item self-report scale to assess burden in family caregivers. Scale ranges from 0 to 48, with a higher score indicating greater burden. In the current

study, reliability was .83. Because the measure addresses family caregivers, it was not administered to foreign home care workers.

Alcohol abuse. Three screening questions were used to identify alcohol problems (eg, number of days drinking alcohol, number of alcoholic drinks per day). A positive screen for at-risk drinking was defined as consumption of more than 7 drinks per week or more than 4 drinks in a day more than twice in a 3-month period (binging).[35] This measure was completed by both foreign home care workers and family members.

Acculturation. Number of years in the country, number of years speaking Hebrew, food, language, and social preferences were evaluated to assess foreign home care workers' level of acculturation. This measure was adapted based on the Short Acculturation Scale for Filipino Americans[36] and qualitative interviews with the involved parties.[23,27] The measure ranges between 6 and 48. Reliability in the current study is .59.

Worker's abuse within the home/work environment. Foreign home care workers were specifically asked about their experiences within the home/work environment since their arrival to Israel. Questions from a scale of sexual harassment[37] were added to an existing questionnaire of abuse within the home/work environment specifically developed for use with foreign home care workers.[23] The final measure contains 19 items. Example questions are "not receiving the food you need and like; been told offensive stories or jokes." Scale ranges from 0 to 19, with a higher score representing greater exposure to abuse. Reliability in the current study is .84.

Posttraumatic stress symptoms. Posttraumatic stress symptoms were assessed using a 4-item screen that focused on numbing, avoidance, and hyperarousal.[38] In the current study, a higher score indicated greater posttraumatic symptoms, ranging from 0 = *none* to 3 = *all symptoms endorsed*. Only foreign home care workers completed this measure because of their presumed exposure to abuse within the home/work environment.

Demographic information. Age, gender, education, marital status (married vs not), perceived financial status (have just enough vs comfortable), relationship to care recipient (spouse vs nonspouse), number of informal caregiving hours, ethnic origin of home care worker (Asian vs East European), and working conditions of foreign home care worker (eg, number of hours off work per day, providing care to a couple vs a single, sleeping in the home of care recipient) were gathered from the involved parties. Family members provided information for those care recipients who were unable to participate due to cognitive or functional impairments.

Statistical Analysis

Prior to the conduct of this study, it was estimated that a sample of 100 to 150 persons in each group would be adequate to test the main hypotheses, using 6 predictors with α of .05 and yielding power between .75 and .90.

To identify the characteristics of the sample, descriptive statistics were performed. Intraclass correlations coefficients (ICC) were calculated to assess the agreement in reports of problem behaviors (eg, depression, memory problems, disturbing behaviors) across family members and foreign home care workers. Next, correlates of reports of problem behaviors made by family members and foreign home care workers at the care recipient (eg, cognitive status, ADL/IADL), family member (eg, well-being, burden), and foreign home care worker (eg, well-being, exposure to abuse within the home) levels were evaluated using bivariate analyses. All significant correlates were entered into 2 separate multivariate regression models, clustered by family. Caregivers' age and education were included in all multivariate analyses as potential covariates to control for potential differences between reporting sources. Reports of problem behaviors made by family members and foreign home care workers served as outcome variables. Pairwise deletion was used.

Results

There were significant differences in mean number of care recipients' depressive symptoms reported by family members (3.4 [STD = 2.5]) relative to foreign home care workers (2.3 [STD = 2.3]; paired $t[130] = 3.87$, $P < .001$), but not in reports of the other 2 categories of NPS (for memory problems: mean per family members = 3.2 [STD = 2.4], mean per foreign home care workers = 2.6 [STD = 2.4]; paired $t[127] = 1.79$, $P = .07$; for disturbing behaviors: mean per family members = 1.3 [STD = 1.4], mean per foreign home care workers = 1.2 [STD = 1.4]; paired $t[130] = .54$, $P = .58$).

There was a low agreement between family members and foreign home care workers with regard to the presence of depressive symptoms (ICC = .25, $P = .05$) and disturbing behaviors (ICC = .26, $P = .03$), and a good agreement with regard to the presence of memory problems (ICC = .63, $P < .001$).

Correlates of Reports of Problems Behaviors Made by Family Members

In bivariate analyses, fewer years of education of home care worker ($r = -.19$, $P = .04$), greater burden of family members ($r = .29$, $P < .001$), and lower quality of life of care recipients ($r = -.46$, $P < .001$) were all associated with greater depressive symptoms reported by family members.

In bivariate analyses, impaired cognitive functioning ($r = -.55$, $P < .001$), greater ADL/IADL impairment ($r = .25$, $P = .003$), lower level of education of family members ($r = -.18$, $P = .02$), higher levels of burden of family members ($r = .22$, $P = .005$), and family members' lower levels of satisfaction with the relationship with care recipient ($r = -.17$, $P = .04$) were all significant correlates of reports of memory problems by family members.

In bivariate analyses, lower cognitive functioning of older adults ($r = -.36$, $P = .001$), higher levels of ADL/IADL impairment ($r = .22$, $P = .008$), older adults who were married ($r = .20$, $P = .01$), family members of lower financial status ($r = -.20$, $P = .01$), family members who self-identified as a spouse ($r = .25$, $P = .002$), lower levels of satisfaction of family members ($r = -.40$, $P < .001$), higher levels of burden reported by family members ($r = .48$, $P < .001$), lower levels of well-being reported by both family members ($r = -.24$, $P = .005$) and foreign home care workers ($r = -.19$, $p = .01$), and having the home care worker provide care to a couple rather than an individual ($r = .16$, $P = .04$) were all significant correlates of reports of disturbing behaviors by family members.

In multivariate analysis, higher levels of burden reported by family members and lower quality of life reported by older care recipients were both associated with more depressive symptoms reported by family members. In multivariate analysis predicting reports of memory impairment by family members, greater cognitive impairment of care recipient, lower levels of education of family members, and higher levels of burden reported by family members were associated with greater reports of memory problems. In multivariate analysis examining correlates of family members' reports of disturbing behaviors, higher levels of burden reported by family members and lower levels of workers' well-being were significant correlates, see Table 2.

Table 2. Multivariate Analyses Examining Correlates of Family Members' Reports of Neuropsychiatric Symptoms

	β	Standard Error	*P*
Reports of depression[a]			
Workers' education	–.06	.05	.22
Family members' education	–.06	.06	.32
Workers' age	–.01	.03	.54
Family members' age	.01	.02	.37
Family members' burden	.12	.02	<.001
Older adults' quality of life	–.11	.04	.01
Reports of memory problems[b]			
Workers' education	.02	.06	.69
Family members' education	–.13	.06	.04
Workers' age	.02	.03	.43
Family members' age	–.02	.02	.29
Cognitive functioning	–.35	.12	.008
ADL/IADL impairment	.02	.09	.75
Family members' burden	.10	.02	<.001
Family members' satisfaction with care recipient	–.03	.04	.44
Reports of disturbing behaviors[c]			
Workers' education	.05	.04	.16
Family members' education	.05	.04	.29
Workers' age	–.02	.02	.34
Family members' age	.001	.01	.93
Cognitive impairment	–.02	.08	.79
ADL/IADL impairment	–.01	.06	.80
Marital status of older adult	.11	.70	.87
Financial status of family member	–.01	.55	.97
Marital status of family members	–.31	.38	.42
Family members' satisfaction with care recipient	–.04	.02	.06
Family members' burden	.03	.01	.02
Family Members' well-being	.006	.03	.84
Workers' well-being	–.07	.03	.01
Providing care to a couple	.57	.62	.36

NOTE: ADL/IADL = Activities of daily living/instrumental activities of daily living.
a. reports of depression in care recipient according to family member.
b. reports of memory problems in care recipient according to family member.
c. reports of disturbing behaviors in care recipient according to family member.

Correlates of Reports of Problems Behaviors Made by Foreign Home Care Workers

In bivariate analyses, greater cognitive impairment of care recipients ($r = -.22$, $P = .007$), higher burden of family members ($r = .19$, $P = .02$), lower quality of life reported by care recipients ($r = -.23$, $P = .04$), and higher levels of abuse of foreign home care workers within the home/work environment ($r = .30$, $P < .001$) were all significant correlates of reports of depressive symptoms by foreign home care workers.

In bivariate analyses, older adults of greater cognitive impairment ($r = -.45$, $P < .001$), older adults who were male ($r = -.18$, $P = .04$), foreign home care workers of higher levels of acculturation ($r = .17$, $P = .04$), and greater exposure of workers to abuse within the home/work environment ($r = .27$, $P = .001$) were all correlated with greater foreign home care workers' reports of memory problems.

In bivariate analyses, lower cognitive functioning of older adults ($r = -.30$, $P < .001$), lower levels of education of family members ($r = -.20$, $P = .02$), family members of lower financial status ($r = -.18$, $P = .03$), unmarried family members ($r = -.18$, $P = .02$), lower levels of workers' well-being ($r = -.24$, $P = .004$), lower levels of workers' satisfaction ($r = -.22$, $P = .01$), and greater exposure of workers to abuse within the home/work environment ($r = .33$, $P < .001$) were all correlated with greater reports of disturbing behaviors made by foreign home care workers.

In multivariate analysis, younger family members and greater abuse of foreign home care worker were significant correlates of depressive symptoms reported by foreign home care workers. In multivariate analysis, lower cognitive functioning was a significant correlate of foreign home care workers' reports of memory problems. In multivariate analysis, unmarried family members and reports of abuse of foreign home care worker were correlates of workers' reports of disturbing behaviors, see Table 3.

Discussion

The overall goal of the current study was to identify reports of NPS made by 2 different sources: informal and formal caregivers. Because much of the evaluation of NPS relies on reports from these 2 sources, it is important to identify the level of agreement between them. Furthermore, identifying caregivers' correlates of reports of NPS from 2 different reporting

Table 3. Multivariate Analyses Examining Correlates of Foreign Home Care Workers' Reports of Neuropsychiatric Symptoms

	β	Standard Error	*P*
Reports of depression[a]			
Workers' education	.06	.07	.36
Family members' education	.02	.08	.80
Workers' age	−.01	.04	.78
Family members' age	−.05	.02	.04
Cognitive impairment	−.36	.28	.21
Burden of family members	.02	.02	.47
Quality of life of older adults	−.07	.05	.23
Abuse of foreign home care workers	.72	.21	.002
Reports of memory problems[b]			
Workers' education	.05	.06	.39
Family members' education	.08	.07	.30
Workers' age	.01	.03	.57
Family members' age	−.02	.02	.17
Cognitive impairment	−.49	.14	.002
Gender of care recipients	−.006	.63	.99
Acculturation of foreign home care workers	.009	.03	.75
Abuse of foreign home care workers	.15	.09	.11
Reports of disturbing behaviors[c]			
Workers' education	−.02	.03	.48
Family members' education	.01	.04	.75
Workers' age	−.01	.01	.37
Family members' age	−.01	.01	.22
Cognitive impairment	−.11	.08	.17
Financial status of family members	−.31	.67	.63
Marital status of family members	−.80	.39	.05
Workers' well-being	−.01	.03	.59
Workers' satisfaction with the relationship with older adult	−.02	.02	.29
Abuse of foreign home care workers	.17	.05	.004

a. reports of depression in care recipient according to foreign home care worker; Adjusted *R*^2 =.21.
b. reports of memory problems in care recipient according to foreign home care worker.
c. reports of disturbing behaviors in care recipient according to foreign home care worker.

sources can provide information about the role of caregivers' characteristics as potential precipitators of NPS versus the role of these characteristics in influencing one's subjective perception of NPS.

Although there was a good agreement between family members and foreign home care workers with regard to the presence of memory problems, agreement concerning the presence of depressive problems or disturbing behaviors was moderate at best, suggesting that much of the variability in reports of NPS depends on the reporting source. The good agreement found regarding the presence of memory problems is likely due to the deteriorated cognitive status of the majority of this sample, as approximately 50% of this sample of older care recipients was too severely impaired to participate in even a minimal interview. Depression and disturbing behaviors, in contrast, represent less clear-cut entities that are more prone to the subjective interpretation of the reporting source, as can be clearly seen in the current study.

Nonetheless, it is clear that both reporting sources base their perception of NPS at least to some degree on the same source of information, which is the actual status of the care recipient. This is evident from the finding that the cognitive status of care recipient was a significant correlate of memory problems per the reports of both family members and foreign home care workers alike. Similarly, quality of life as reported by older care recipients was a significant correlate of depressive problems per the reports of family members.

At the same time, several unique caregivers' characteristics have shown to be associated with reports made by one of the caregiving sources, but not the other one, reemphasizing the subjective nature of reports of NPS. The most consistent foreign home care workers' characteristic associated with reports of NPS was workers' exposure to abuse within the home/work environment, with those workers who reported greater exposure to abuse within their home/work environment also reporting more NPS. Yet, workers' exposure to abuse within the home/work environment was not a significant correlate of NPS per the reports of family members. It is important to note that past research of abuse of foreign home care workers found workers to be exposed to abuse by both family members and care recipients alike [23]. Hence, making the assumption that, exposure to abuse within the home/work environment colors workers' perception of NPS more plausible. Similarly, family members' burden was associated with their reports of NPS in older care recipients but was not associated with reports of NPS made by foreign home care workers.

The current pilot study has several limitations that should be addressed. First, this is a convenience sample of a medium sample size. Hence, only major hypotheses were examined. Second, the cross-sectional nature of the sample does not allow for inferences about cause and effect. Thus, it is just as likely that care recipients' NPS affect some of the caregivers' characteristics identified in the current study, such as well-being, burden, and exposure to abuse within the home/work environment. Third, the study relied only on assessment of NPS by the 2 reporting sources and did not obtain potentially "more objective data" from an independent evaluator. Although such an assessment could have enhanced our understanding, an outside evaluator does not go without limitations, as this individual may influence the behaviors of the involved parties and does not spend as much time with the care recipients as the other 2 sources of information evaluated in the current study. In addition, the study has no data on the specific cognitive deficits and treatments of the care recipients, factors that might affect assessors' impression of NPS. Finally, there is always a chance that formal and informal caregivers were aware of each others' reports. However, our results emphasize that ratings of NPS are often discordant. Thus, any bias resulting from awareness of caregiver's response would bias our results toward the null, suggesting that our results are even more conservative.

To sum, by evaluating reports from 2 different sources, the current study can identify those caregivers' characteristics that are more likely to shape the perception of the caregiver versus caregivers' characteristics that are more likely to precipitate

NPS in the older adult. Overall, the current study provides greater support to the subjectivity hypothesis, rather than the precipitation hypothesis, by demonstrating that certain caregivers' characteristics are consistently associated with reports by one source but not the other. Because much of the evaluation of NPS relies on reports of formal and informal caregivers, clinicians should be aware of the fact that these reports are based in large part on the subjective perception of the caregiver. Potentially, integrating these 2 sources of information could provide a better understanding of the occurrence of NPS in older adults.

Declaration of Conflicting Interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

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