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Effectiveness of a Fotonovela for Reducing Depression and Stress in Latino Dementia Family Caregivers

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Abstract

The clinical need to address stress and depression in Latino dementia caregivers (CGs) combined with low health literacy and less accurate knowledge of dementia motivated the development of a pictorial tool (called a fotonovela {FN}) to teach a) coping skills for CG stress, b) self -assessment of depression, and c) encourage improved utilization of available resources. To test the effectiveness of the FN, 110 of 147 Latino CGs, who were randomly assigned to the Fotonovela Condition (FNC) or the Usual Information Condition (UIC), were included in the final analyses. Self-report measures were given at baseline and post intervention. Results showed that FNC CGs demonstrated significantly greater reductions in level of depressive symptoms than UIC CGs. A significant decrease in level of stress due to memory and behavioral problems exhibited by their loved ones was similar in both groups. The FNC CGs reported that the FN was more helpful and that they referred to it more often than the UIC CGs did with regard to the informational materials they were provided about dementia. In conclusion, a culturally tailored FN can be an effective tool for Latino CGs given their high unmet needs for assistance and various barriers in accessing resources.

Keywords

Alzheimer's disease; dementia caregiving; Fotonovela; caregiver depression; stress

By 2050, it is estimated that 16 million individuals in the U.S. will be suffering from Alzheimer's Disease (AD)¹. The number of Latinos in the U.S. suffering from AD is likely to show a 6-fold increase over this time period². Latinos have a greater risk of developing

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AD earlier (age 67.6 for Latinos vs. 73.1 for non-Latino Caucasians)³ and have a higher incidence rate than non-Latino Caucasians^{4,5}. Ethnic differences are less evident when education is controlled³, which highlights the importance of sociocultural factors in understanding dementia prevalence. Latinos are at a higher risk for developing dementia because they are more likely to have certain comorbid health conditions that are related to significant vascular problems associated with dementia⁶. Several studies found that when compared to subjects without diabetes, those with diabetes had accelerated cognitive decline and increased incidence of dementia^{7,8}. Latinos as a group are more likely to have diabetes (22% vs. 13%) and hypertension (39% vs. 18%) compared to their Non-Hispanic White counterparts³. Data from the Sacramento Area Latino Study on Aging (SALSA) showed a comparable prevalence rate of cognitive impairment in the Latino sample and the non-Latino White sample⁶. In the SALSA study, Haan and colleagues⁹ identified AD risk factors in community dwelling older adults. It was conducted with a large Latino sample (N=1789) of individuals 60 years and older; and is one of the most influential studies on how stroke and type 2 diabetes can lead to a higher risk of dementia in the population. According to the SALSA findings, the risk of dementia is eight times higher in those with both stroke and type II diabetes mellitus and 43% of dementia is attributable to type II diabetes mellitus, stroke, or a combination of the two⁹. An epidemiologic study conducted by Rotkiewicz-Piorun et al. (2006) using data from the Hispanic Established Population for the Epidemiological Study of the Elderly (H-EPESE) of 808 community-dwelling older Mexican Americans, found that circulation, kidney problems and diabetes were major risk factors for cognitive decline over time¹⁰. This supports the idea that Latinos are at greater risk for developing dementia than non-Latino Whites.

The typical Latino CG is a woman between 35 and 60, caring for parent(s) or parents-in-law¹¹. Latino CGs are typically younger, care simultaneously for more children under 18 in the home¹² and have lower household incomes than non-Latino Whites¹³. Reports of unmet needs and problems in accessing available resources are frequently noted, and continued efforts to remedy this problem are warranted^{14,15}. These CGs provide significant hands-on care: 58% assist their care recipient (CR) with getting in and out of beds and chairs; 53% help with feeding; 47% with getting dressed; and 50% with toileting¹⁶. On average, Latino CGs spend more time on caregiving tasks (approximately 30 hours per week) and more likely to experience high burden from caregiving than non-Latino whites¹⁷. Increased burden was also reported in a recent study conducted in Mexico by Guerra-Silla et al¹⁸.

Common behavioral symptoms have been noted across ethnic and racial minority dementia patients¹⁹⁻²², including delusions of theft and persecution, visual hallucinations, wandering, apathy, dis-inhibition, and physical aggression. Latinos are found to display higher levels of behavioral problems than non-Latinos Whites.²³ Latinos also report earlier onset of AD³⁻⁵, along with more intense symptoms upon initial presentation in an urban Alzheimer's Disease Center²⁴ and in community samples²⁵. Latino CGs also frequently attribute dementia behavioral symptoms to causes other than dementia²⁶, which tends to increase their frustration and stress. Given the strong association between CR behavioral problems and level of depression in Latino CGs¹¹ one can expect higher levels of depressive symptoms in Latino CGs than in non-Latino White CGs²¹. Significant depressive symptoms have been reported in several studies with female Latino CGs. For example, Adams et al.

found that Mexican American CGs experienced greater levels of depressive symptoms than African Americans and Whites. In fact, 89% of the Mexican American CGs reported substantial depressive symptoms (slightly more than half of whom had probable major depression) compared to only 66% of Anglo Americans and 57% of African Americans. In addition, Latino CGs have been found to have smaller social support networks and hold a more pessimistic view of their situation when compared to other CGs. Valle, Yamada, and Barrio (2004)²⁷ observed that, compared to White CGs, Latinos reported having smaller social support networks. Valle et al.²⁷ also reported that 50% of their participants identified extended family members that provide them with support compared to 72% of White participants. Adams et al. (2002)²⁸ similarly found that Mexican-Americans reported less social support and held a more pessimistic view of their situation compared to Whites, Blacks, and Japanese Americans. Inadequate support from extended family toward Latino CGs continues to be a significant and frequent finding²⁹.

In a review of interventions for Latino CGs, Llanque and Enriquez³⁰ concluded that numerous approaches were helpful in decreasing depressive symptoms and improving CGs' quality of life, including: supportive therapy, family therapy, coping strategy training and psycho-education, which can be delivered in person, via telephone communication or using technology-based interventions^{31,32}. A low-cost, easily obtainable intervention such as a FN devoted to CG stress management could be potentially helpful to this group. FNs have been used successfully as a tool to impart information on a variety of health-related topics³³⁻³⁵ including depression and diabetes. An excellent example of an educational FN about preventing Type II diabetes can be found and ordered from the Centers for Disease Control and Prevention website.

At present, there is only one other FN focusing on dementia care, developed some years ago; there is no other FN specifically focused on the needs of the Latino CG.

If our FN is successful in alleviating stress experienced by CGs we would expect them to rate it as a helpful "tool", and we anticipate that the level at which it is valued would be higher than ratings by CGs in the UIC group of the standard information provided to them. This latter information is frequently distributed by medical and allied health professionals; it explains dementia and management of a person with dementia (PWD) but does so in a didactic, lecture- type format which contrasts with the dramatic FN story-line. Further, if the FN is rated as more helpful than usual information alone, we would expect CGs to refer to the FN more often than CGs would refer to standard information. Thus, if CGs in the FNC group were to rate materials provided as more helpful and were to refer to these materials more frequently than CGs in the UIC group, we would view this as additional support for the effectiveness of the FN as a useful tool to aid CGs in dealing with the stresses that arise during the course of caregiving.

In sum, the purpose of this study was to evaluate the effectiveness of a FN designed specifically to focus on the need for education about caregiving, while simultaneously illustrating (in a culturally appropriate manner) constructive ways of coping with various stressful situations confronting Latino CGs. The independent variable is the type of materials provided to each group. The primary dependent variables are level of depressive

symptoms, level of stress due to inappropriate memory and behavioral problems evidenced by the PWD, reported frequency using the materials provided, and a rating of how helpful the materials were in dealing with the stress of caregiving.

Hypothesis I. CGs randomly assigned to the FNC will show greater improvement in level of depressive symptoms than CGs who receive usual information/ educational materials (UIC) about dementia and caregiving.

Hypothesis II. CGs in the FNC will report less stress in responding to memory and behavior problems overall, observed in the PWD compared to CGs in UIC.

Hypothesis II a. CGs in the FNC will report less stress in responding to problems specifically involving memory function demonstrated by the PWD compared to CGs in UIC.

Hypothesis II b. CGs in the FNC will report less stress in responding to problems specifically involving evidence of depression demonstrated by the PWD compared to CGs in UIC.

Hypothesis II c. CGs in the FNC will report less stress in responding to specific disruptive behavioral problems evidenced by the PWD compared to CGs in UIC.

Hypothesis III. CGs randomly assigned to FNC will report that the materials are more helpful than materials provided to CGs in UIC.

Hypothesis IV. CGs randomly assigned to FNC will refer to the materials they receive more often than CGs in UIC.

2. Methods

2.1 Participants

Participants were referred by service providers or because they heard about it from other family or community members. CGs contacting us were given a telephone screen to determine project eligibility. Inclusion criteria were: 1) Hispanic/Latino/o ethnic background; 2) at least 21 years of age; 3) serving as the primary CG for a family member who was diagnosed with dementia or who had serious memory problems; 4) caring for the relative at least 6 months; 5) provide at least 12 hours of care per week; 6) report evidence of significant stress during initial interview; and 7) agree to random assignment to one of two intervention conditions. Evidence of significant stress was determined using a set of 6 questions, with the first four asking the participant to respond with 'Yes' or 'No' about whether they i) felt overwhelmed; ii) had crying spells or felt like he/she often needed to cry; iii) been angry or frustrated as a result of his/her caregiving; and iv) felt cut off from his/her family and/or friends. Followed by asking the CG to rate their current level of stress on a scale of 1 to 10 (the score needs to be 6 or higher to be considered a positive response), and lastly, rate own current health compared to what it was this time last year ('Better,' 'The Same' or 'Worse'). CG needs to rate his/her health as worse to count as a positive response. CGs who reported less than two positive responses were excluded.

A total of 147 Latino CGs met entry criteria and were randomly assigned to either the FNC or UIC. Thirteen were deleted subsequently because of data problems that could not be rectified, such as excessive data missing, conflicting responses on scales suggesting inadequate comprehension or members in the same household being assigned to different conditions. Thirteen were deleted because they were not the primary CG. After baseline testing 11 (9%) dropped, citing time constraints or lack of interest. This left 110 CGs with 55 in each condition.

Table 1 shows demographic data and baseline measures. Most CGs in this study were women (82%), with average age in the mid-50s (Mean 54.9; SD=11.0; age range: 36–85). Most (71%) were born in Mexico; 23% in the U.S.; and the remainder in other Latin American countries. They had lived in the U.S. for about 37 years (range: 5–80 years). CGs' mean education was 9.5 years, (SD=4.5; education range: 0–17; less than half received a high school diploma). Over 40% reported that their health was poor and an additional 20+% reported health status was fair. Most were caring for a parent or parent-in-law with dementia, whose average age was 81.9 years (SD=8.7, range: 52 – 100). Most PWDs were born in Mexico (75%) and had about 4 years of formal education (mainly in Mexico). Less than 40% of the CGs were working full time. Roughly 30% were working part time and the remaining third identified themselves as a homemaker (11.9%), retired (11.9%) or not employed (9.2%). The majority (71%) were living with their immediate family, while roughly 29% were living alone or with other distant family or friends.

2.2 Procedure

Following screening bilingual/bicultural research assistants (RAs) met with CGs in their homes or in another convenient location. They obtained informed consent and administered baseline measures. CGs were then randomized to either the FNC or UIC and received the relevant materials and instructions for that condition. They were encouraged to read the materials several times during the coming months and discuss the information with family members. RAs explained that they would make monthly calls asking CGs about their level of stress and how they were using the materials provided. All CGs were also invited to attend an optional group meeting described below (specific to their condition) that was held after the first call.

At the end of the first month a telephone interview was done to ask whether and how often CGs had read their materials, whether they were helpful, and whether they were using available community resources. Similar calls were made at the end of months 2 and 3.

At the end of month 4, key outcome measures were obtained. Finally, a follow-up call was made at the end of month 6 in which outcome measures were re-administered.

2.3 Interventions

Fotonovela—The FN is entitled, “Together We Can! Facing memory loss as a family.” This newly created 16-page “picture book” (in Spanish and English) has a dramatic storyline where Latino(a) actors depict specific challenging scenes designed to illustrate key skills for managing difficult behaviors, using adaptive coping strategies, asking for help from other

family members, and managing stress. Content development was based on findings from ten focus groups conducted in Northern and Southern California that included a total of 35 service providers working with Latino families and 42 Latino CGs. They identified challenging behaviors confronting families, and developed the rationale and procedural guidelines for dealing with these problems. A major theme was the importance of family members to develop flexibility in their roles as CGs and to help them adjust cultural expectations to the realities of caregiving. Details of this work are described elsewhere³⁶. Copies of the FN can be obtained by contacting the senior author and/or by downloading a free bilingual copy from the national Alzheimer's Association website: http://www.alz.org/espanol/downloads/novella_spanish_081213.pdf (Spanish version) and http://www.alz.org/espanol/downloads/Novella_english_081213.pdf (English version).

Usual Information Condition—The text pamphlet was entitled: “Take Care of Yourself: 10 ways to be a healthier CG” and its Spanish version: “*Cuidese: 10 maneras de ser un cuidador más sano.*” Both were developed by the Alzheimer's Association. They are downloadable online from http://preview.alz.org/national/documents/brochure_CGstress.pdf and http://preview.alz.org/national/documents/sp_brochure_CGstress.pdf. They were selected because they provide basic information about managing CG stress and are publicly available in English and Spanish.

Participants in both conditions could also attend a group meeting in which caregiver problems were discussed and information was provided on how best to use the specific handout materials assigned to their particular intervention,

2.4 Measures

Demographic Survey—This baseline interview questionnaire asks about both CG and PWD age, country of birth, educational level, relationship status, employment status, living situation, and self-rated health.

Center for Epidemiologic Studies Depression Scale (CES-D)—The CES-D³⁷ is a 20-item self-report scale to determine level of depressive symptoms over the past week. CGs rate frequency on a 4-point Likert scale (0 =None of the time or rarely: <1 day; to 3=Most or all of the time: 5–7 days). Higher scores indicate more depressive symptoms with a cut-off score of 16 and above considered clinically significant. Coefficient alpha in this sample was .926.

Revised Memory and Behavior Problems Checklist (RMBPC)—This is a 24-item, CG self-report measure listing possible PWD problematic behaviors. CGs indicate which of these have occurred and how bothered they were by each on a 5-point Likert scale (0=not at all to 4=extremely)³⁸. Problem behaviors listed fall into three categories: a) memory-related problems; b) behaviors reflecting depression or anxiety; and c) highly disruptive and inappropriate behaviors. Three scores are obtained: (1) total number of problems in the past week; (2) average bother rating of items occurring; and (3) total amount of burden reported. We report the average bother/distress resulting from problems that actually occurred. Coefficient alpha in this sample was .928.

Monthly Call Questions—CGs were asked if a) they had read either the FN or the UIC standard material; b) how often did they read it during that time; and c) how helpful was it on a 5-point scale (1=not at all helpful; 2=not helpful; 3=not helpful or unhelpful; 4=helpful; 5=very helpful).

2.5 Data Analysis

Primary Analyses—Comparisons of completers and non-completers were obtained using student t tests or χ^2 on demographic and baseline measures. Similarly differences between the FNC and UIC groups on demographic and baseline measures of dependent variables were examined using student t tests or χ^2 .

A between-within subjects Analysis of Variance for repeated measures was used to evaluate the effect of the intervention overall, change across time and the intervention (group) by time interactions for the CES-D, the RMBC, and the frequency of use and level of helpfulness of the materials provided in each intervention. The difference between the two groups regarding whether or not they had read any of the materials by the first phone call was evaluated using χ^2 .

Post-Hoc Exploratory Analyses—After the 1- month follow up phone call, CGs had the option to attend a group meeting to discuss any questions they had about the materials they were given and to review helpful tips to maximize the usefulness of these materials. However, not all of the CGs attended this meeting and the materials discussed were different for the two conditions. These differences raised questions concerning what effect that attending the meeting might have on the outcome data. If there were a significant effect, then this would need to be accounted for in testing our primary hypotheses. Exploratory analyses were completed to ascertain the effect of this meeting on the outcome variables using a 2 (intervention) by 2 (attending group meeting or not) ANOVA for repeated measures.

3. Results

A comparison of completers and non-completers on initial measures (with the exception of age) were not significant. This suggests that results are not biased by selective individual factors responsible for dropout..

Table 1 provides a comparison of the final sample of CGs in the FNC and UIC on sociodemographic and baseline variables. A description of the sample is provided in the participants' section. There were no significant differences ($p>.05$ on all measures) between the two groups on any of the demographic variables. Similarly, there was no significant difference between the two groups for the baseline level of depressive symptoms reported by the CG (CES-D; $t=1.14$ (df, 108), $p=.255$) or their baseline reaction to items on the memory and behavior problems checklist (RMBPC; $t=0.266$ (df, 108), $p=.791$).

The between-within subjects ANOVA for repeated measures yielded a significant linear interaction between treatment condition and time on the CES-D ($F(2,216)=3.77$, $p=.025$) which supports Hypothesis I. The quadratic interaction was not significant. Table 2 gives

means and SDs for both groups at the three times of measurement. Both groups have a significant linear decrease in level of depressive symptoms over time, but this reduction is greater for the FNC than for UIC.

Follow-up pairwise comparisons using Tukey's Least Significant Difference (LSD) method confirm that the greater decrease for FNC than UIC in level of depressive symptoms reflected a significant decrease from baseline to Month 4 ($p < .001$), and also from Month 4 to Month 6 ($p < .002$). This finding indicated that CGs in the FNC continued to show symptom reduction throughout the 6-month period. Although there was a significant linear decrease across the 6-month period for the UIC, there was no significant change from baseline to Month 4 ($p > .05$) and from Month 4 to Month 6 ($p > .05$).

Table 3 contains means and SDs for the two conditions across three times of measurement showing how bothered CGs' were by memory and behavioral problems evidenced by PWDs. The between-within subjects ANOVA was significant for the linear effect of time ($F(2,216)=14.397, p < .001$) but not for the quadratic. There also was no significant effect for condition ($F(2,216)=0.30, p > .05$) or for condition by time interaction ($F(2,216)=0.75, p > .05$). The means in Table 3 clearly show that CGs in both groups reported feeling less bothered over the time of the intervention by the PWD's memory and behavioral problems.

Items on the RMBPC were then grouped according to whether they a) focused on memory problems; b) reflected depressive symptoms; or c) specific disruptive behaviors. There were significant changes over time in both the FNC and UIC in all three subgroup analyses, but there were no group or group by time interaction effects. Because the pattern for all three sub-categories was similar to the total, only the data analyses obtained for the total scores are presented here. In summary, the analyses of the RMBPC data did not support Hypothesis II.

Table 4 shows at one-month, 65% of CGs in FNC reported they had read the materials, compared to 47% of those in UIC. A Chi Square test showed this difference to be significant ($\chi^2=3.696, p=.042$). In subsequent calls there was no significant group difference in the proportion of CGs that read the materials during that time period. When asked about number of times participants read their materials, the FNC reported about 2 times per month across the three calls, and the UIC about 1.5 times. This overall group effect was significant ($F(1,108)=4.631, p=.034$). There was no change across time in how often materials were used for either group ($F(2,216)=1.577, p=.209$) and no significant interaction effect between time and condition ($F(2,216)=1.541, p=.216$). Overall the FNC also read the materials significantly more often than the UIC. Responses to the two questions on usage at time one offer partial support for Hypothesis III.

Table 4 also shows the helpfulness of the materials. CGs in the FNC reported ratings ranging on average from helpful to very helpful, while those of the UIC were more in the neutral to helpful range. The between-subjects ANOVA for the overall condition effect was highly significant ($F(1, 108)=15.362, p=.000$). Independent t tests at each time of measurement were significant for the second ($t(108)=3.05; p < .003$) and fourth call ($t(108)=3.54; p < .001$), but not for the third ($t(108)=1.93; p < .056$). The overall effect for

change in helpfulness across the calls was not significant ($F(2,216)=1.439$, $p=.239$), nor was the condition by time interaction effect ($F(2,216)=0.710$, $p=.493$). The overall group effect shows that the FNC found the materials more helpful from the outset and remained more helpful throughout the intervention, which supports Hypothesis IV.

Post-Hoc Exploratory Analyses

We found that 70% of CGs in FNC and 67% of those in UIC attended a group meeting. Fisher's Exact Probability Test of this distribution was $p=.830$. We wanted to explore whether or not attending this meeting affected change across time in level of depressive symptoms. ANOVA for repeated measures obtained no group by time or third order interaction effects of group by meeting attendance by time. There was a linear effect of time with level of symptoms decreasing at a similar rate in both conditions ($F(1/95)=5.949$; $p=.017$). Irrespective of intervention condition, CGs who attended the meeting also reported higher levels of depressive symptoms than those who did not attend at all phone calls and this difference was significant at the time of the third phone call ($t(97)=2.076$; $p=.041$). Thus, while results suggest that attending the meeting had no significant effect on change in level of depressive symptoms across time and did not interact with time or intervention, level of depressive symptoms was generally higher for those who attended the optional meeting. These findings suggest that CGs who were suffering more were more likely to attend the meeting, whereas CGs who were not suffering as much were less likely to take the time to attend a meeting.

Results pertaining to the level of reaction to problematic behaviors as measured on the RMBPC were similar to those obtained in the primary analyses. Both groups showed significant improvement in their reaction to problematic behaviors across time, but neither condition nor meeting attendance had any effect on change across time and the two factors did not interact significantly. Furthermore, there was no suggestion that those who attended a meeting were reacting more intensely to problems that occurred compared to those who did not attend.

In sum, it did not appear that attending the meeting had any major impact on the two primary outcome measures, although there was a suggestion that those who attended the meeting may have been suffering more than those that chose not to attend.

4. Discussion

These results suggest that a culturally tailored FN can reduce level of depressive symptoms in Latino CGs by illustrating effective coping skills to deal with problems and stressors inherent in family caregiving. Three hypotheses regarding the effectiveness of the FN were supported: there was a significantly larger decrease in level of depressive symptoms compared to UIC; CGs in FNC reported reading and referring to the booklet more often than CGs in UIC; and they reported that the FN was more helpful. Contrary to expectations the reaction to behavioral problems was not different across the two groups.

The FN may be a particularly effective tool for Latinos given their high unmet needs for assistance, low health literacy, and other barriers to accessing resources¹⁴. This speaks to the

transferability of a tool like a *fotonovela*, and is similar to findings by Unger, Cabassa, Molina, Contreras, and Baron³⁹, showing that this type of material is more likely to be shared with friends and family.

Our results are also consistent with those obtained by Valle and colleagues³⁴, who noted that most CGs in their study found the content of their Alzheimer's *fotonovela* understandable and informative, as well as enjoyable and helpful. The uniformity of outcomes throughout different studies may be because FNs are designed in a way that individuals are able to relate to a narrated story more than impersonal reading materials. This suggests that in clinical and community settings, use of a FN may facilitate positive outcomes for CGs who may lack skills needed to seek counseling or to participate in psychoeducational programs or support groups. The FN used in this study appears to be a useful model to follow: it includes cultural details such as bright colors, pictures of people that look like the participants (i.e. Mexican actors), and a story line that included immediate and extended family members. The language was elementary Spanish, which allowed even CGs with low literacy to comprehend the content.

To our knowledge this is the first study that has evaluated clinical implications of using a FN and the first to report reduced depressive symptoms among Latino CGs. Recently,³⁹ FNs were used to educate Latinos who were attending a community adult school in Los Angeles about depression, but no mention was made about whether level of depression actually changed.

There was no significant difference between the two groups in how bothered they were by PWD's memory and behavior problems. It is noteworthy that participants in both conditions reported that they were less reactive to problematic behaviors evidenced by their care recipients. These results are of interest because they suggest that Latino CGs can benefit from different kinds of health care information. Latinos, as a group, experience many socioeconomic and structural barriers to getting the help they need, including: lower income; lack of access to health information and services; language barriers; and scarce availability of culturally competent health care providers. CGs who enrolled in this study may have had such limited resources that their levels of stress related to caregiving decreased simply by participating in the study. It may be that educational materials providing general information about AD, which was true in both conditions, helped CGs gain better understanding of their situation, thus leading to an experience of less stress reaction in both groups. Also, our usual care is most likely "enhanced" compared with what is normally available in primary care settings. Giving detailed educational materials following up with phone calls and offering group discussions about the materials is probably not the norm in primary care or other care services. Thus, we set a high standard for the FN by using a control condition that is beyond what most people get in primary care.

The FN may have been more effective for reducing depression because it depicted the CG effectively managing difficult everyday situations – which likely was empowering to the CG. This in turn may enhance CGs' sense of self-efficacy, which has been found in prior studies with Latino CGs to be positively related to fewer depressive symptoms³².

Lastly, CGs were encouraged to attend one 1.5 hour small group meeting offered at a convenient location in their community. Results showed that this had little impact on changes in the dependent measures. However, we did find that CGs experiencing more depressive symptoms were more likely to participate in the face-to-face meeting, probably because they needed more resources beyond what the materials alone could provide. This suggests that while the FN itself can bring awareness and increase self-care skills, having face-to-face meetings might further reinforce these skills and render the FN more effective in a clinical or community setting. Therefore, to augment the FN, our team developed a “facilitator’s guide” that can be used by a leader in small group settings (or one-on-one) to bring out the major points emphasized in the FN and to stimulate discussion. This was developed after the study was over and its efficacy has not been evaluated; it is available at no cost from the first author on request.

Several limitations of this study should be noted. First, findings cannot be generalized to Latino CGs of non-Mexican heritage as the sample primarily consisted of Mexican Americans. Second, we do not know the extent to which this FN would be perceived as helpful by Latinos who were more well-educated than those who participated in this study. It is possible that such individuals would obtain information about caregiving from a variety of other sources, or that they might find the FN too simplistic for their needs. Third, the sample size is relatively small; replication with larger samples is needed so that possible moderating variables, such as type of relationship (spouse vs. parent) could be evaluated. These results are promising, but clearly, additional research is needed to determine how robust the effects are over a longer time period, and what other aspects of caregiving might be impacted by use of this material (e.g., accurate knowledge about dementia might increase and could be another potentially informative outcome to assess). Future investigations could also focus on specific elements of the FN (i.e. dramatic storyline, pictures, relatable characters, etc.) to determine what is maximally impactful, and how more difficult content (e.g. planning for the future and end of life decision making) could be presented, using this format, in a culturally acceptable manner.

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List of Abbreviations Used

AD	Alzheimer's disease
CES-D	Center for Epidemiologic Studies Depression Scale
CG	caregiver
FN	fotonovela
FNC	fotonovela condition
PWD	person with dementia
RA	research assistant
RMBPC	Revised Memory and Behavior Problem Checklist
UIC	usual information condition

Table 1

Demographic data for participants completing study

	Total (N=110)	FNC (n=55)	UIC (n=55)	<i>t</i> test or χ^2	<i>p</i>
	Mean(SD)/ Percentage	Mean(SD)/ Percentage	Mean(SD)/ Percentage		
Age of CG	54.89(11.00)	53.60(10.76)	56.18(11.18)	1.234	>.05
Years in USA of CG	36.58(16.83)	35.49(18.35)	37.67(15.24)	0.678	>.05
Education in years of CG	9.45(4.47)	9.15(4.66)	9.75(4.30)	0.696	>.05
Age of CR	81.92(8.70)	80.93(9.19)	82.91(8.15)	-1.197	>.05
Education in years of CR	4.06(4.01)	4.24(4.36)	3.89(3.65)	0.451	>.05
Gender (%)					
Male	18.2	14.5	21.8	0.978	>.05
Female	81.8	85.5	78.2		
Marital Status of CG (%)					
Never Married	18.2	20.0	16.4	2.068	>.05
Married	61.8	63.6	60.0		
Widowed	6.4	7.3	5.5		
Divorced/Separated	13.6	9.1	18.2		
Living Situation of CG					
With Immediate Family	70.9	63.7	78.2	2.82	>.05
Alone	7.3	9.1	5.5		
With Others	21.8	27.2	16.4		
Employment Status					
Full-time	37.6	38.9	36.4	8.295	.084
Part-time	29.4	31.5	27.3		
Homemaker	11.9	16.7	7.3		
Retired	11.9	3.7	20.0		
Not Employed	9.2	9.3	9.1		
Country of Birth of CG (%)					
USA	22.7	21.8	23.6	.234	>.05
Mexico	70.9	72.7	69.1		
Other	6.4	5.5	7.3		
Relationship to CR (%)					
Parent	70.9	74.6	67.2	1.005	>.05
Parent-in-law	10.9	10.9	10.9		
Spouse	10.9	10.9	10.9		
Other Relative	7.3	3.6	11.0		
Self-rated Health of CG (%)					
Excellent	7.3	9.1	5.5	1.552	>.05
Good	15.5	16.4	14.5		
Fair	33.6	36.5	30.9		
Fair	43.6	38.2	49.1		

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	Total (N=110)	FNC (n=55)	UIC (n=55)	t test or χ^2	p
	Mean(SD)/ Percentage	Mean(SD)/ Percentage	Mean(SD)/ Percentage		
Poor					

Table 2

Means and Standard Deviations Indicating Change over Time for FN vs. UIC on the CES-D

		CES-D Total		
		Baseline	Month4	Month6
FNC	Mean	19.66	15.37	10.01
	SD	11.85	11.30	9.82
UIC	Mean	16.81	14.47	12.51
	SD	13.74	12.01	10.34
Total	Mean	18.23	14.92	11.26
	SD	13.09	11.74	10.24

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Table 3

Means and Standard Deviations Indicating Change over Time for FN vs. UIC on the RMBPC Reaction Rating.

		RMBPC Reaction Rating		
		Baseline	Month4	Month6
FN	Mean	1.26	1.08	.88
	Std. Deviation	.92	.85	.81
UIC	Mean	1.31	.95	.75
	Std. Deviation	1.08	.81	.71
Total	Mean	1.28	1.02	.82
	Std. Deviation	1.00	.83	.76

Note: RMBPC = Revised Memory and Behavior Problem Checklist. RMBPC Reaction Rating asked the caregiver to rate on a 5-point scale about to what extent they feel upset about the memory problems of the CR, with a 0 standing for “not at all” and a 4 standing for “extremely”.

Table 4
 Comparison of Reported Usage and Helpfulness of Educational Materials Over Time

	Group		χ^2	p
	FNC(n=55)	UIC n=55		
Have you read the FN/brochure? Yes (%)				
Month1	65.5	47.3	3.696	.042
Month3	41.8	25.5	3.299	.053
Month4	52.7	36.4	2.981	.062
Number times read in the past month(Mean(SD))			F	df
	FNC n=55	UIC n=55		
Month 2	2.29(1.23)	1.95(1.65)	4.631	1/108 .034
Month 3	2.20(2.98)	1.36(.87)	1.577	2/216 .209
Month4	1.84(1.15)	1.75(1.21)	1.541	2/216 .216
How helpful were the materials?(Mean(SD))			F	df
Month 2	4.13(1.38)	3.31(1.44)	15.362	1/108 .000
Month3	3.82(1.40)	3.33(1.26)	1.439	2/216 .239
Month4	4.22(.88)	3.44(1.39)	0.710	2/216 .493