Psychosocial Effects of Physical and Verbal Abuse in Postmenopausal Women

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ABSTRACT

PURPOSE The purpose of this study was to examine the psychological effects of physical and verbal abuse in a cohort of older women.

METHODS This observational cohort study was conducted at 40 clinical sites nationwide that are part of the Women's Health Initiative (WHI) Observational Study. We surveyed 93,676 women aged 50 to 79 years using the mental health subscales and the combined mental component summary (MCS) score of the RAND Medical Outcomes Study 36-item instrument.

RESULTS At baseline, women reporting exposure to physical abuse only, verbal abuse only, or both physical and verbal abuse had a greater number of depressive symptoms (1.6,1.6, and 3 more symptoms, respectively) and lower MCS scores (4.6, 5.4, and 8.1 lower scores, respectively) than women not reporting abuse. Compared with women who had no exposure to abuse, women had a greater increase in the number of depressive symptoms when they reported a 3-year incident exposure to physical abuse only (0.2; 95% confidence interval [CI], –0.21 to 0.60), verbal abuse only (0.18; 95% CI, 0.11 to 0.24), or both physical and verbal abuse (0.15; 95% CI, –0.05 to 0.36); and they had a decrease in MCS scores when they reported a 3-year incident exposure to physical abuse only (–1.12; 95% CI, –2.45 to 0.12), verbal abuse only (–0.55; 95% CI, –0.75 to –0.34), and both physical and verbal abuse (–0.44; 95% CI, –1.11 to –0.22) even after adjustment for sociodemographic characteristics.

CONCLUSION Exposure to abuse in older, functionally independent women is associated with poorer mental health. The persistence of these findings suggests that clinicians need to consider abuse exposure in their older female patients who have depressive symptoms. Clinicians caring for older women should identify women at risk for physical and verbal abuse and intervene appropriately.

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INTRODUCTION

Abuse is an ongoing concern for older women.[1] Physical abuse is the infliction of physical pain, injury, or physical coercion, and involves at least 1 act of violence. Verbal abuse is the infliction of mental anguish through yelling, screaming, threatening, humiliating, infantilizing, or provoking intentional fear.[1,2] Exposure to acts of abuse is a stressful event that has a negative effect on a woman's psychological well-being. It is known that in younger age-groups, domestic violence victims are at increased risk for psychological problems.[3-5] Female victims are 2 times more likely to have a psychiatric diagnosis and 1.7 to 4.6 times more likely to develop an anxiety disorder, a mood disorder, posttraumatic stress disorder, or an eating disorder.[6,7] Women exposed to abuse are more than 3 times as likely to report poor overall mental health, lower SF-12 Health Survey short-form mental component summary (MCS) scores, and lower vitality.[3,7-10] Abused women are 2.4 to 3 times more likely to report depression.[6,11-14] In addition to the direct psychological effects, abuse may negatively affect the factors that improve psychological well-being.[14,15]

Abuse is also a problem for older women. Fisher and Regan reported 47% of their sample of women older than 60 years reported abuse that occurred after age 55 years.[16] In a community-based sample, Pillemer and Finkelhor showed the prevalence of abuse in older adults to be 3.2%.[17] In our previous work in more than 90,000 functionally independent older women from the Women's Health Initiative (WHI), we showed that 11.1% were abused in the past year, with a 5% 3-year incidence among women not previously reporting abuse.[18] Additional analyses from this large national sample showed that exposure to abuse was associated with being in the younger age cohort (younger than 58 years), being of nonwhite race/ethnicity, having less than high school education, having family incomes $20,000 or less, being divorced or separated, being a past or current smoker, and drinking more than 1 drink per week (all P values $\leq .01$). For older, functionally dependent adults, the prevalence of abuse ranges from approximately 1% for physical abuse to approximately 25% for psychological abuse.[2,19]

As with the younger population, abuse in older women is associated with poorer health outcomes. In a cohort of more than 150 older African American women, Paranjape et al showed that women exposed to abuse had worse SF-12 physical and mental component summary scores.[10] We have also previously reported data from the WHI Observational Study showing that exposure to abuse affects an older woman's perceived physical health.[20] Women exposed to emotional abuse had lower scores on physical functioning (–6.91; 95% confidence interval [CI], –9.95 to –3.86) and general health (–8.20; 95% CI, –10.92 to –5.48). We report on the mental health findings associated with abuse exposure from the WHI cohort of more than 93,000 older, functionally independent women.

To date, no study has examined the psychosocial effects of physical and verbal abuse in a large cohort of functionally independent, cognitively intact, older women. We hypothesized that late-life abuse is associated with mental health problems, and its impact is modified by social support and optimism. Physical abuse may have a greater effect on mental health than verbal abuse. The purpose of this study was twofold: (1) to examine the effects of abuse exposure at baseline on baseline mental health; and (2) to examine the change in mental health in postmenopausal women newly exposed to abuse during the 3-year follow-up period.

METHODS

Subjects

We analyzed survey responses from 93,676 women in the observational study arm of the WHI. The design of the WHI and its observations study arm has been described in detail previously.[21] In brief, the WHI is a large, multicenter study of women, aged 50 to 79 years, with 2 components, an observational study and a clinical trial. All participants in the observational study arm completed questionnaires at enrollment, including questions about abuse. Three years after enrollment, participants had a follow-up clinic visit and completed similar questionnaires. The mean age was 65 ± 9 years, 83% were non-Hispanic white, 3.9% were Hispanic, 8.2% were African American, and 4.7% were from other or unknown racial or ethnic groups. Forty percent had incomes in excess of $50,000, and 62% were married.

Definition of Abuse Variables

To determine the occurrence of physical abuse, the following standard screening question was asked: "Over the past year, were you physically abused by being hit, slapped, pushed, shoved, punched or threatened with a weapon by a family member or close friend?" To assess the severity of reported abuse, participants chose from the following responses: (1) no; (2) yes, and it upset me not too much; (3) yes, and it upset me moderately; or (4) yes, and it upset me very much. To determine the occurrence of verbal abuse, the following standard question was asked: "Over the past year, were you verbally abused by being made fun of, severely criticized, told you were a stupid or worthless person, or threatened with harm to yourself, your possessions, or your pets by a family member or close friend? Participants chose from the following responses: (1) no; (2) yes, and it upset me not too much; (3) yes, and it upset me moderately; or (4) yes, and it upset me very much. To determine the 3-year incidence of abuse in women who had no abuse exposure at baseline, we asked these same questions at their 3-year follow-up visit.

Any woman who indicated to clinic staff that she had been exposed to physical or verbal abuse was encouraged to use the Domestic Violence hotline, given information about domestic violence and the nearest battered women's shelter, and urged to seek help from Adult Protective Services and receive psychological counseling for domestic violence.

The baseline and follow-up abuse variables were our main predictor variables. Other predictor variables included age, race/ethnicity, occupation, marital status, household income, education, smoking history, alcohol intake, and living arrangement. These variables were chosen based on previous literature suggesting an association of sociodemographic characteristics (age, race/ethnicity, education, occupation, and income) and health behaviors (smoking and alcohol use) with elder abuse and intimate partner violence, as well as depressive symptoms and overall mental health.

Outcome Variables

Overall mental health was assessed using the 36 questions from the RAND 36-Item Health Survey 1.0[22] (RAND 36). The RAND 36 has 2 component summary scores made up of 8 subscales. We used the mental component summary score (MCS) as our main measure of overall mental health. The component summary scores range from 0 to 100, with a mean of 50 and standard deviation of 10. Higher scores indicate better mental health. Details of the reliability and predictive ability of this instrument have been described previously.[23]

Depressive symptomatology was assessed with a 6-item version of the Center for Epidemiological Studies Depression Scale.[24] Participants responded to the following items: (1) you felt depressed, (2) your sleep was restless, (3) you enjoyed life, (4) you had crying spells, (5) you felt sad, and (6) you felt people disliked you. Participants rated the frequency of these depressive symptoms during the past week as rarely, some or a little of the time, occasionally, or most of the time. Total scores could range from 0 to 18. Higher scores indicate greater depressive symptomatology.

Social support was measured with 9 items from the Medical Outcomes Study Social Support Survey,[22] a widely used and validated instrument, and scores could range from 9 to 45, with higher scores indicating greater social support. Social strain (negative social support) was derived from 4 items that were part of a scale measuring negative aspects of social relations, with higher score indicating greater social strain.[25,26] Optimism was derived from the revised Life Orientation Test. It consists of 6 5-point response items with higher scores indicating greater optimism about the future.[27]

Because social support, social strain, and optimism were measured only at baseline, our main dependent variables at 3-year follow-up were depressive symptomatology and the MCS scale. We calculated the change in score from baseline for the depressive symptomatology scale and the MCS score, which became our main dependent variables at follow-up.

Statistical Methods

We examined descriptive statistics of each variable at baseline. We also examined the baseline and 3-year change from baseline of the depressive symptomatology score and the MCS score by the categories of physical and verbal abuse exposure. We used simple linear regression to perform tests for trends to assess the bivariate associations of increasing levels of abuse-related distress (reported as being upset), comparing each measure at baseline with differences in measures at a 3-year follow-up. There was no significant trend noted for increasing levels of distress; thus, the responses were dichotomized as no or yes. These responses determined 4 mutually exclusive categories (no abuse, physical abuse only, verbal abuse only, and both physical and verbal abuse) at baseline and at 3-year follow-up. At baseline and 3-year follow-up, *t* tests from the simple linear regression models were used to test the association of each category of abuse at baseline with each of our outcome measures vs women reporting no abuse, unadjusted for any other factors.

To examine multiple dependent variables and control for type 1 error, we used multivariate analysis of variance (MANOVA) to assess for an association of new reports of the 3 abuse categories with changes in depressive symptomatology and the overall MCS score, controlling for other independent predictors. Overall *P* values assessing the effect of a predictor variable on the dependent variables as a whole are reported from Wilks' λ statistics. Complete case analysis was used for all modeling, and the data set was restricted to women with no report of abuse at baseline for this follow-up analysis. All explanatory variables were kept in each model, regardless of statistical significance. Thus, slope estimates for each explanatory variable control for all other variables in the model. All analyses were performed using the SAS System for Windows, version 9.00 (SAS Institute, Cary, North Carolina).

RESULTS

Of the 93,676 total WHI observational study participants, 93,025 responded to questions on abuse at baseline, and 11.1% reported exposure to some form of physical or verbal abuse (Table 1). Of the 10,389 women exposed to abuse, 225 (2.2% of those abused) reported being exposed to physical abuse only, 9,239 (88.9% of those abused) reported being exposed to verbal abuse only, and 925 (8.9% of those abused) reported being both physically and verbally abused in the year before the baseline interview. At baseline, the mean RAND 36 MCS score was 53.0.

When examining the association of abuse with each of our outcome variables at baseline, we found a greater number of depressive symptoms in abused women; the mean number of symptoms was greater than the recommended cutoff for major depression disorders in those exposed to both forms abuse. Similarly, social support and optimism scores were lower for abused women, and social strain was greater. Overall the MCS mental health scores were lower in association with abuse, with an 8-point lower score for exposure to both physical and verbal abuse. These findings represent a large and clinically significant association of abuse with more depressive symptoms and higher social strain, lower optimism, and lower MCS scores

Table 1. Characteristics of Baseline Sample by Baseline Psychosocial Scores

Variable	N (%)	Depressive Symptomatology[a] Mean (SD)	MCS Score[b] Mean (SD)	Social Support Construct[c] Mean (SD)	Social Strain Construct[d] Mean (SD)	Optimism Construct[e] Mean (SD)
All	93,676 (100)	2.4 (2.6)	53.0 (8.5)	35.9 (7.9)	6.5 (2.5)	23.3 (3.5)
Abuse						
No abuse	82,636 (88.2)	2.2 (2.4)	53.7 (8.0)	36.5 (7.6)	6.3 (2.4)	23.4 (3.4)
Physical abuse only	225 (0.2)	3.8 (3.4)	49.1 (11.0)	33.2 (8.6)	7.5 (3.0)	21.8 (3.8)
Verbal abuse only	9,239 (9.9)	3.8 (3.3)	48.3 (10.3)	31.9 (8.4)	8.2 (2.8)	22.2 (3.8)
Physical and verbal abuse	925 (1.0)	5.2 (4.0)	45.6 (11.5)	29.6 (9.4)	8.9 (3.4)	21.4 (3.9)
Age, y						
≤58	26,284 (28.1)	2.6 (2.9)	51.5 (9.1)	36.2 (7.7)	7.0 (2.7)	23.3 (3.7)
59-64	23,771 (25.4)	2.3 (2.5)	53.2 (8.3)	36.3 (7.7)	6.6 (2.5)	23.3 (3.5)
65-69	20,847 (22.3)	2.2 (2.4)	53.8 (8.0)	35.9 (7.8)	6.3 (2.4)	23.3 (3.4)
70-74	15,655 (16.7)	2.3 (2.4)	54.0 (8.1)	35.3 (8.1)	6.1 (2.3)	23.2 (3.3)
>74	7,119 (7.6)	2.3 (2.3)	54.2 (8.2)	34.7 (8.4)	5.9 (2.3)	23.0 (3.3)
Ethnicity						
American Indian/ Alaskan Native	422 (0.5)	3.4 (3.5)	51.3 (9.9)	33.1 (9.4)	7.2 (3.1)	22.3 (3.6)
Asian/Pacific Islander	2,671 (2.9)	1.8 (2.2)	54.0 (7.6)	35.6 (7.7)	6.3 (2.6)	22.1 (3.1)
Black/African American	7,639 (8.2)	2.6 (2.9)	52.1 (9.3)	34.5 (8.4)	7.4 (3.1)	23.1 (3.5)
Hispanic/Latino	3,623 (3.9)	3.5 (3.4)	50.6 (10.0)	33.3 (9.3)	7.4 (3.1)	22.1 (3.6)
White	78,013 (83.3)	2.3 (2.5)	53.2 (8.3)	36.2 (7.7)	6.4 (2.4)	23.4 (3.5)
Unknown	1,308 (1.4)	2.6 (2.8)	52.4 (9.0)	34.3 (8.6)	6.9 (2.7)	22.5 (3.6)
Education						
0-8 y	1,560 (1.7)	3.7 (3.4)	49.3 (10.0)	32.3 (9.7)	7.6 (3.3)	20.9 (3.4)
Some high school, high school diploma/GED	18,409 (19.8)	2.7 (2.8)	52.3 (9.0)	35.7 (8.2)	6.6 (2.7)	22.3 (3.4)
School after high school	33,933 (36.5)	2.5 (2.6)	53.0 (8.7)	35.6 (8.0)	6.6 (2.6)	23.2 (3.4)
College graduate or higher	39,002 (42.0)	2.1 (2.4)	53.6 (7.9)	36.4 (7.4)	6.3 (2.4)	23.9 (3.4)
Family income						
<$20,000	14,016 (16.2)	3.1 (3.1)	51.2 (9.9)	32.4 (9.0)	7.0 (2.9)	22.1 (3.6)
$20,000-$34,999	20,226 (23.3)	2.5 (2.6)	52.9 (8.7)	34.9 (8.0)	6.5 (2.6)	22.9 (3.5)
$35,000-$49,999	17,429 (20.1)	2.3 (2.5)	53.3 (8.3)	36.1 (7.5)	6.4 (2.4)	23.4 (3.4)
$50,000-$74,999	17,486 (20.2)	2.1 (2.4)	53.5 (8.0)	37.2 (7.1)	6.4 (2.4)	23.7 (3.4)
≥$75,000	17,608 (20.3)	2.0 (2.2)	53.9 (7.5)	38.4 (6.5)	6.3 (2.3)	24.2 (3.3)
Marital status						
Never married	4,390 (4.7)	2.4 (2.6)	52.8 (8.7)	32.9 (8.2)	6.6 (2.6)	22.9 (3.6)
Divorced/ separated	14,727 (15.8)	2.8 (2.9)	51.6 (9.6)	32.4 (8.4)	6.8 (2.7)	23.1 (3.8)
Widowed	16,290 (17.5)	2.6 (2.7)	52.9 (8.7)	33.0 (8.3)	6.3 (2.5)	22.9 (3.5)
Presently married	57,805 (62.0)	2.2 (2.4)	53.5 (8.1)	37.9 (6.9)	6.5 (2.5)	23.4 (3.4)
Smoking						
Never smoked	47,023 (50.9)	2.3 (2.5)	53.3 (8.3)	36.2 (7.8)	6.4 (2.5)	23.3 (3.5)
Past smoker	39,514 (42.8)	2.4 (2.5)	53.1 (8.4)	35.9 (7.8)	6.5 (2.5)	23.3 (3.5)
Current smoker	5,791 (6.3)	2.9 (3.0)	50.7 (9.9)	34.1 (8.6)	7.1 (2.9)	22.6 (3.7)
Alcohol intake						
Nondrinker	10,477 (11.3)	2.4 (2.7)	53.3 (8.6)	35.6 (8.4)	6.5 (2.7)	22.8 (3.5)
Past drinker	17,555 (18.9)	2.7 (2.8)	52.2 (9.2)	34.8 (8.4)	6.9 (2.8)	22.8 (3.6)
<1 Drink per week	29,461 (31.7)	2.4 (2.6)	52.9 (8.5)	35.7 (7.8)	6.5 (2.5)	23.2 (3.4)
≤7 Drinks per week	23,842 (25.6)	2.2 (2.4)	53.4 (8.1)	36.7 (7.3)	6.3 (2.4)	23.6 (3.4)
>7 Drinks per week	11,709 (12.6)	2.2 (2.3)	53.8 (7.8)	37.0 (7.3)	6.2 (2.3)	23.8 (3.4)
Living alone						
No	68,307 (73.5)	2.3 (2.5)	53.2 (8.3)	37.2 (7.3)	6.5 (2.5)	23.3 (3.4)
Yes	24,603 (26.5)	2.6 (2.8)	52.5 (9.0)	32.3 (8.3)	6.4 (2.5)	23.1 (3.6)

GED = general equivalency diploma; MCS = mental component summary of the RAND 36-Item Health Survey 1.0.

[a] Scores range from 0 to 18, with higher scores indicating greater depressive symptomatology.

[b] Scores range from 0 to 100 with higher scores indicating better mental health.

[c] Scores range from 9 to 45, with higher scores indicating greater social support.

[d] Scores range from 4 to 20, with higher scores indicating greater social strain.

[e] Scores range from 6 to 30, with higher scores indicating greater optimism about the future.

(trend, $P < .001$ on all measures). As expected, age, education, and income were associated with moderately more favorable psychosocial scores, but the magnitude of these associations are less than the effects of exposure to both physical and verbal abuse.

Table 2 shows the change from baseline depressive symptoms and MCS scores at the 3-year follow-up, excluding women who had reported abuse exposure at baseline. Women in all categories of abuse showed worse mental health compared with women reporting no abuse. New exposure to physical abuse resulted in an increase in depressive symptoms and a decline in MCS scores; however, only the decline in MCS scores reached statistical significance. This limited statistical significance may be due to a lack of power to detect a difference given the smaller subset of women reporting incident (new) exposure to physical abuse only. Women newly exposed to verbal abuse or to both physical and verbal abuse had an increase in depressive symptoms and a decline in MCS scores. The proportion of women newly reporting various categories of abuse showed small, statistically significant effects of verbal or combined verbal and physical abuse on the change in MCS and depression scores.

Table 3 displays the changes in MCS scores at the 3-year follow-up by category of abuse, controlling for our baseline psychosocial measures, age, race/ethnicity, education level, household income, occupation, marital status, smoking history, alcohol use, and living arrangement at baseline. Exposure to abuse was associated with worse scores at the 3-year follow-up on all our mental health outcomes. In this multivariate analysis, incident abuse and baseline measures of social support and optimism each remain independent, statistically significant predictors of changes in depressive symptoms and overall mental health at 3-year follow-up. Interestingly, changes in scores by category of abuse were not consistent across all psychosocial measures. Decline in the overall MCS scores for women exposed to abuse was greater than the changes associated with many of our other predictor variables (age, race/ethnicity, education, martial status, alcohol use, religious comfort, and living alone).

Table 2. Associations of Changes in Mental Health with New Reports of Physical and Verbal Abuse at Year 3

	Depressive Symptomatology[a]		MCS Score[a]	
Abuse	**Mean (SD)**	***P* Value[b]**	**Mean (SD)**	***P* Value[b]**
No abuse (n = 75,376)	0.09 (2.6)	–	0.51 (8.35)	–
Physical abuse only (n = 136)	0.43 (3.3)	.14	–1.34 (11.2)	.016
Verbal abuse only (n = 6,133)	0.65 (3.3)	<.001	–1.26 (10.4)	<.001
Physical and verbal abuse (n = 483)	0.77 (3.9)	<.001	–1.82 (11.7)	<.001

MCS = mental component summary, from the RAND 36-Item Health Survey 1.0.

Note: The cohort for this analysis is women who reported no abuse exposure at baseline.

[a] The values for depressive symptomatology and the MCS score represent a change in score from baseline. Negative values represent a decline in score.

[b] *P* values from simple linear regression models with 3 indicators for categories of abuse; reference level is no abuse.

DISCUSSION

In this cohort of postmenopausal women, we found a relationship between exposure to abuse and poorer psychological health. At baseline, abused postmenopausal women had lower scores (45.6 vs 53.7) on the RAND 36 MCS scale, greater depressive symptomatology, greater social strain and lower optimism compared with nonabused postmenopausal women. At follow-up 3 years later, postmenopausal women who did not report abuse at baseline but subsequently experienced abuse showed greater depressive symptoms and poorer MCS scores, even after controlling for baseline mental health. Also, our findings support previous research showing averse mental health outcomes in older women exposed to abuse,[16] similar to what has been found for abused women in younger age-groups.

Interestingly, exposure to verbal abuse, even without physical abuse, had a strong effect on psychological health. This finding highlights the detrimental effects of verbal abuse on mental health, which is often unrecognized. In children, exposure to verbal abuse is associated with more disruptive behavior, greater psychological distress, and poorer social relationships.[28] Sowell et al showed that verbal abuse had a significant negative correlation with self-confidence and self-esteem.[29] In younger Pakistani women, verbal abuse was associated with an increased prevalence of anxiety and depression.[30] In a review of psychological abuse, O'Leary shows that verbal abuse in spousal and long-term relationships can have as great a psychological effect as physical abuse.[31] Ours is the first report of the adverse mental health effects from verbal abuse in older women and suggest that greater attention needs to be paid to these effects.

The effect of verbal abuse on mental health may represent the effect of new strains in social relationships. Aging may affect social relationships by increasing disease burden, caregiving responsibilities, or fears of impeding dependency. Furthermore, verbal abuse typically represents a lower threat level than physical

abuse and may encourage older women to remain in an abusive relationship longer.

These results also confirm earlier work showing diminished mental health associated with overall abuse in postmenopausal women. We previously found that 12.1% of women (aged 50 to 79 years) surveyed disclosed having experienced physical abuse, 28% had been threatened with violence at some point in

Table 3. Multivariate Analysis of Variance Showing the Association of Change in Mental Health at Year 3 and Incident Abuse, Controlling for Baseline Psychosocial Characteristics

Characteristic	Change in No. of Depressive Symptoms at 3-Year Follow-up Parameter Estimate (95% CI)	Change in MCS Score at 3-Year Follow-up Parameter Estimate (95% CI)	Overall *P* Value
Abuse			
Incident abuse (vs no abuse)			
Physical abuse only (n = 136)	0.20 (−0.21 to 0.60)	−1.12 (−2.45 to 0.21)	.006
Verbal abuse only (n = 6,133)	0.18 (0.11 to 0.24)	−0.55 (−0.75 to −0.34)	<.001
Physical and verbal abuse (n = 483)	0.15 (−0.05 to 0.36)	−0.44 (−1.11 to −0.22)	<.001
Baseline psychosocial characteristics			
Depressive symptoms		−0.20 (−0.23 to −0.16)	<.001
MCS score	0.06 (0.05 to 0.06)		<.001
Social support	−0.01 (−0.01 to −0.01)	0.05 (0.04 to 0.06)	<.001
Social strain	0.07 (0.06 to 0.08)	−0.24 (−0.27 to −0.22)	<.001
Optimism	−0.04 (−0.05 to −0.04)	0.16 (0.14 to 0.18)	<.001
Demographic characteristics			
Age, years (vs 50-58 years)			
59-64	−0.08 (−0.13 to −0.03)	0.59 (0.44 to 0.74)	<.001
65-69	−0.07 (−0.12 to −0.02)	0.61 (0.45 to 0.77)	<.001
70-79	0.01 (−0.05 to 0.06)	0.41 (0.23 to 0.60)	<.001
Race (vs non-Hispanic Whites)			
American Indian	−0.05 (−0.13 to 0.03)	0.10 (−0.16 to 0.36)	<.001
Asian/Pacific Islander	0.22 (0.11 to 0.33)	−0.24 (−0.61 to 0.13)	<.001
African American	0.19 (−0.11 to 0.49)	−0.29 (−1.29 to 0.71)	.005
Hispanic American	−0.36 (−0.46 to −0.25)	−0.08 (−0.42 to 0.27)	<.001
Unknown	0.24 (0.08 to 0.40)	−0.44 (−0.96 to 0.09)	<.001
Education (vs college graduate)			
High school diploma or less	0.06 (0.01 to 0.12)	0.27 (0.08 to 0.46)	<.001
Some college/technical school	0.08 (0.04 to 0.13)	0.07 (−0.08 to 0.22)	<.001
Income (vs $75,000+)			
<$20,000	0.22 (0.14 to 0.29)	−0.67 (−0.92 to −0.42)	<.001
$20,000-$34,999	0.13 (0.07 to 0.19)	−0.52 (−0.72 to −0.32)	<.001
$35,000-$49,999	0.07 (0.01 to 0.13)	−0.16 (−0.35 to 0.03)	<.001
$50,000-$74,999	0.03 (−0.02 to 0.09)	−0.12 (−0.30 to 0.06)	<.001
Marital status (vs presently married)			
Never married	−0.11 (−0.20 to −0.01)	0.32 (0.00 to 0.64)	<.001
Divorced	−0.06 (−0.13 to 0.01)	0.13 (−0.10 to 0.37)	<.001
Widowed	−0.22 (−0.29 to −0.15)	0.99 (0.75 to 1.22)	<.001
Smoking status (vs never smoked)			
Past smoker	0.06 (0.02 to 0.10)	−0.05 (−0.17 to 0.08)	<.001
Current smoker	0.22 (0.14 to 0.30)	–1.06 (−1.32 to −0.80)	<.001
Alcohol use (vs past or never drank)			
<1 Drink per week	-0.04 (–0.90 to 0.01)	0.07 (−0.08 to 0.23)	<.001
≥1 Drink per week	–0.04 (−0.09 to 0.00)	0.04 (−0.12 to 0.19)	<.001
How much does your religion comfort you (vs little/none)			
A great deal	−0.03 (−0.07 to 0.01)	0.12 (−0.01 to 0.25)	<.001
Living alone (vs no)			
Yes	−0.06 (−0.12 to 0.00)	0.25 (0.04 to 0.46)	.005

CI = confidence interval; MCS = mental component summary, from the RAND 36-Item Health Survey 1.0.

their life, and 4.3% were currently in a relationship in which they had been threatened.[32] In the current study, women who experienced threats of abuse had average MCS scores of 49.7 compared with 53.6 for those who had not experienced threats of abuse (P value = .002). This 3.9 difference in scores is similar to the difference in MCS scores for patients with a new onset of neuropathic pain.[33] For depressive symptoms at baseline, women who experienced physical and verbal abuse had 5.2 symptoms compared with 2.2 for women who were not abused. A cutoff score of 5 has a sensitivity of 80% and specificity of 84% for clinical depression.[34] Our findings show that negative mental health effects persist despite controlling for optimism and social support.

Our study has some limitations, however. First, the women in our sample were volunteers for the WHI clinical trial and had higher education and higher incomes than the postmenopausal population generally. Second, categorization of physical abuse, verbal abuse, and the combined group relies on self-reports of victimization. Women may have been reluctant to admit being abused, resulting in an underestimate of exposure. Finally, data on optimism, social strain, and social support were not collected at follow-up. Thus, we are unable to examine the change in these constructs in women who have an incident exposure to abuse.

Despite these limitations, our findings that postmenopausal women exposed to abuse have poorer psychological health across a range of measures have important implications. Late-life domestic violence in older relationships adversely affects important psychological dimensions that contribute to a good quality of life. Even in this cohort of well-functioning postmenopausal women, physical and verbal abuse exposure have greater adverse effects on psychological well-being than sociodemographic factors. Furthermore, verbal abuse only had greater effects than physical abuse only. These results suggest that detecting and alleviating abusive situations may have important beneficial effects on the mental health and overall quality of life of older women. Our findings also suggest the need to educate the public, particularly older adults, about the adverse effects of verbal abuse. Clinicians should consider providing counseling and support services for these older victims to mitigate the adverse mental health effects of abuse.

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Charles P. Mouton: study concept and design, acquisition of participants or data, analysis and interpretation of results, drafting of manuscript, critical revision of the manuscript for important intellectual content.

Rebecca J. Rodabough: study concept and design, acquisition of participants or data, analysis and interpretation of results, drafting of manuscript, critical revision of the manuscript for important intellectual content.

Susan L. D. Rovi: study concept and design, analysis and interpretation of results, drafting of manuscript, critical revision of the manuscript for important intellectual content.

Robert G. Brzyski: acquisition of participants or data, critical revision of the manuscript for important intellectual content.

David A. Katerndahl: analysis and interpretation of results, drafting of manuscript, critical revision of the manuscript for important intellectual content

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