

# The Impact of Severity of VMS on Health Status, Resource Use and Productivity

Jennifer Whiteley<sup>1</sup>; Jan-Samuel Wagner<sup>2</sup>; Andrew Bushmakin<sup>1</sup>; Lewis Kopenhafer<sup>2</sup>; Jill Racketta<sup>1</sup>

<sup>1</sup>Pfizer Inc, New York, NY; <sup>2</sup>Kantar Health, New York, NY

## Abstract

**Objectives:** The current study characterizes health-related quality of life (HRQoL), work productivity, and resource use among post-menopausal women by severity of vasomotor (VMS) symptoms.

**Methods:** Participants were selected from the 2010 US National Health and Wellness Survey, which is a cross-sectional, internet-based survey representative of the adult US population. Women age 40-75 years, who did not report a history of menstrual bleeding or spotting for one year, were considered post-menopausal and eligible for analysis (N=3,267). Cohorts of women with no (n=1740), mild (n=931), moderate (n=462), and severe (n=134) vasomotor symptoms (VMS) were compared, controlling for demographic and health characteristics. Outcomes measures included health status (EQ-5D), work productivity (WPAI) within the past 7-days, and healthcare resource use within the past 6-months and were assessed using linear models.

**Results:** The mean age (SD) for women experiencing severe VMS was 57.92 years (7.84), 58.76 (7.64) for moderate VMS, 60.47 (7.35) for mild VMS, and 64.46 (7.12) for women not experiencing VMS. After controlling for demographic and health characteristics, women experiencing severe and moderate VMS reported significantly lower mean health status scores compared to women with no symptoms (severe=0.77, moderate=0.82, mild=0.85, none=0.86;  $P<.0001$ ). In addition, the mean number of menopause symptom-related physician visits was significantly greater among women with severe, moderate or mild symptoms compared to women with no symptoms (severe=2.73, moderate=2.37, mild=1.63, none=0.724;  $P<.0001$ ). Among employed women experiencing VMS, women with severe and moderate symptoms had adjusted presenteeism (percent impairment while working due to a problem) of 24.28% and 14.3% compared to 4.33% in women with mild symptoms ( $P<.001$ ), and activities of daily living impairment of 31.66% and 17.06% compared to 6.16% for women with mild symptoms ( $P<.0001$ ).

**Conclusions:** Among post-menopausal women, those reporting greater severity of VMS symptoms was significantly associated with lower levels of health status and work productivity, and greater healthcare resource utilization.

## Introduction

- Menopause is associated with anxiety, depression, decreased libido, vaginal dryness, insomnia, difficulty concentrating, and vasomotor symptoms (VMS)<sup>1</sup>
- VMS, including hot flushes and night sweats, constitute the most common menopausal complaint and are generally the main reason women seek treatment<sup>2,3</sup>
- No study has examined the impact of the severity of VMS across a wide range of health outcomes among a large US sample of postmenopausal women
- The objective of the current study was to examine the impact of the severity of VMS among postmenopausal women on
  - Health status
  - Work productivity loss
  - Healthcare resource use (HCRU)

## Methods

### Data Set

- A sample of women, aged 40 to 75 years, was selected from the 2010 US National Health and Wellness Survey (NHWS) for a brief follow-up survey
- Women who did not report experiencing menstrual bleeding or spotting for at least 1 year were considered postmenopausal and eligible for analysis

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- The severity of hot flushes was defined using the first item of the Menopausal Rating Scale (MRS) (“hot flashes, sweating, [episodes of sweating]”; 0=None, 1=Mild, 2=Moderate, 3=Severe, 4=Extremely)
- Postmenopausal women who reported experiencing hot flushes were stratified by the severity of this symptom
- Demographic and health characteristic variables were collected for all patient groups
- Menopause-related symptoms/conditions: diagnosis of osteoporosis, depression severity (using the Patient Health Questionnaire [PHQ-9]), urogenital and psychological symptom severity (using MRS) were also assessed

### Study Outcomes

- Health status: the EQ-5D questionnaire was used as a measure of health status
  - The EQ-5D is a standardized instrument for use as a preference-based measure of health<sup>4</sup>
  - The EQ-5D provides a single index value for health status (health state utilities). Higher scores indicate greater health (range:-0.59 to 1.00, where negative values indicate a state worse than death and 1 indicates perfect health)
- Healthcare resource use (past 6 months): The number of physician visits specific to a menopause symptom
- Work productivity (past 7 days): assessed using the Work Productivity and Activity Impairment (WPAI) questionnaire, which was made specific to hot flushes/night sweats<sup>5</sup>
  - Percent work time missed (Absenteeism)
  - Percent impairment while working (Presenteeism)
  - Percent overall work impairment
  - Percent of daily living activities impairment

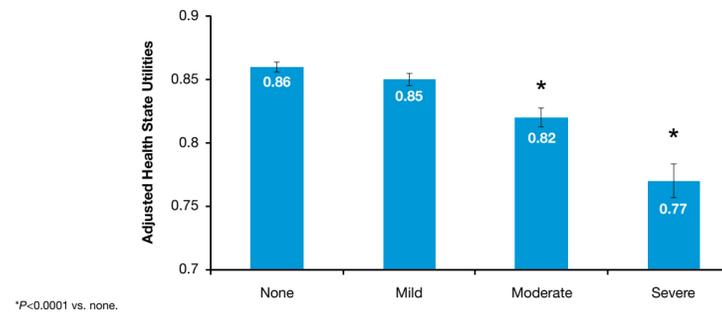
### Statistical Analyses

- Postmenopausal women with mild hot flushes were compared with those with moderate and severe hot flushes
  - Compared health status, work productivity, and HCRU using regression modeling
- All regressions were controlled for age, education, household income, insurance, BMI, and the Charlson comorbidity index
- Analyses were tested at the 2-tailed 5% significance level ( $\alpha = 0.05$ )

## Results

- A total of 3,267 postmenopausal women were stratified by VMS severity: none (n=1740); mild (n=931); moderate (n=462); severe (n=134)
- Association between severity and demographics and health history
  - Compared with women with mild hot flushes, women with moderate and severe hot flushes were significantly ( $P<0.05$ ) more likely
    - To be younger than 60 years of age
    - Be employed
    - Have a comorbidity index greater than zero
    - Have been diagnosed with osteoporosis
    - Have had a hysterectomy
    - Report symptoms consistent with depression
    - Report urogenital symptoms
    - Report psychological symptoms
- After controlling for demographic and health characteristics, women experiencing moderate and severe VMS reported significantly lower mean health status scores compared with women not experiencing VMS (both  $P<0.0001$ ) (Figure 1)

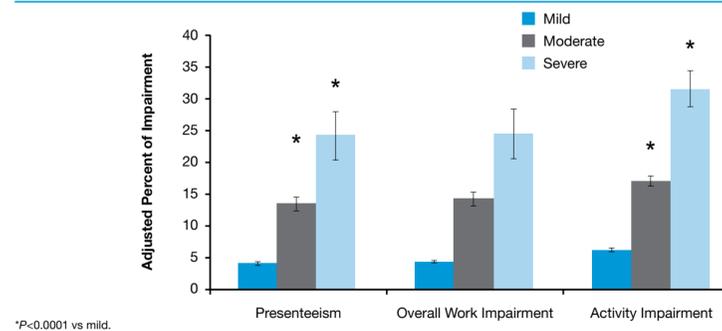
Figure 1. Adjusted Differences Among Hot Flush Severity Groups on EQ-5D Health State Utilities



\* $P<0.0001$  vs. none.

- Among employed women experiencing VMS, women with moderate and severe symptoms had significantly worse adjusted presenteeism ( $P<0.001$ ) and activity impairment ( $P<0.0001$ ) compared to women with mild symptoms (Figure 2)
  - Absenteeism followed a similar trend but adjusted percentages for all groups were less than 1% (data not shown)

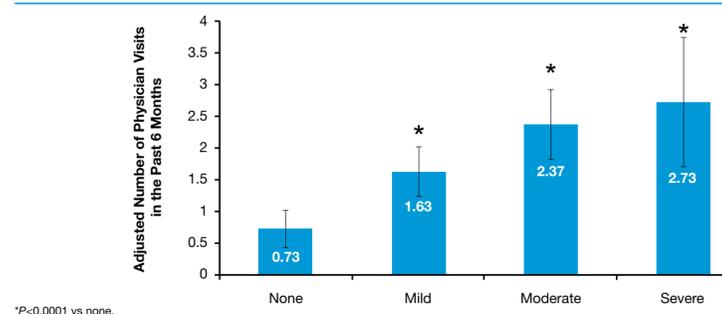
Figure 2. Adjusted Differences Among Hot Flush Severity Groups on Work Productivity and Activity Impairment Due to Hot Flushes or Night Sweats



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- After controlling for demographic and health characteristics, the mean number of menopause symptom-related physician visits was significantly greater among women with mild, moderate, or severe VMS compared with women not experiencing VMS (all  $P<0.0001$ ) (Figure 3)

Figure 3. Adjusted Differences Among Hot Flush Severity Groups on Menopause Symptom-Related Physician Visits in the Past 6 Months



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## Limitations

- All data came from a self-reported, cross-sectional survey
- Regression models controlled for potential confounding variables but other unmeasured or not included variables may explain part of the relationship between the severity of hot flashes and health outcomes
- Although the sample source (NHWS) is broadly representative of the US population the findings may not be able to be generalize beyond the subsample of women used in the study.

## Conclusion

- This was the first study of its kind to stratify the effect of VMS severity across a wide range of health outcomes in a large, nationally-representative group of postmenopausal women in the US. A parallel study conducted in Europe demonstrated similar findings<sup>6</sup>
- As the severity of VMS experienced by postmenopausal women increased, an increase in menopause symptom-related physician visits and productivity loss was observed. Health status decreased with increasing symptom severity
- The prevalence of VMS among postmenopausal women, along with its impact on a range of health outcomes, suggests a substantial societal burden for this symptom
- Improved management of VMS, particularly for those who are severely affected, may have a profound effect on improvement in quality of life and indirect/direct societal costs

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## References

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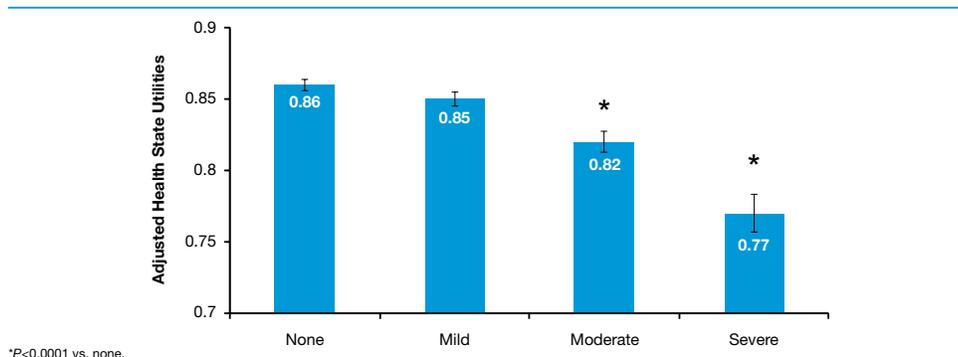
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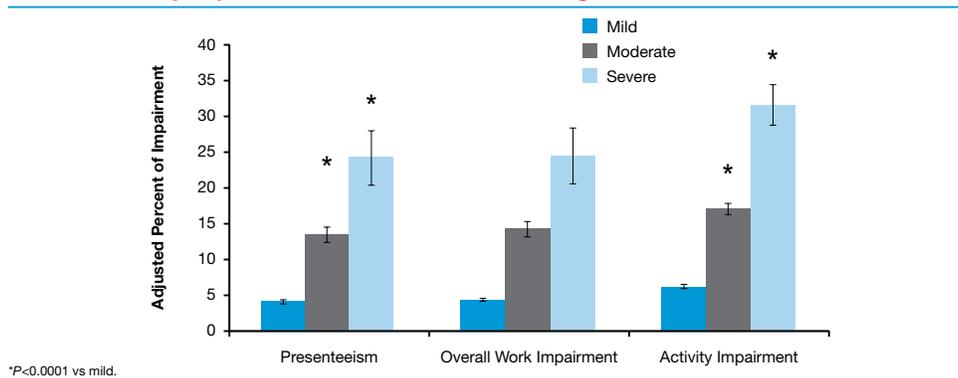
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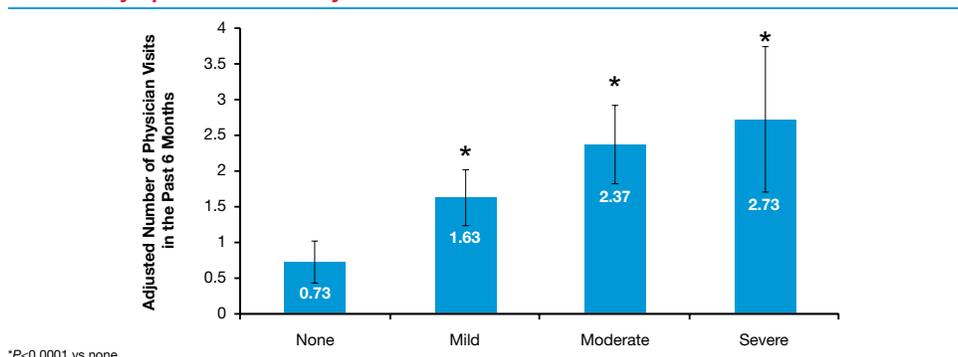
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