



UNIVERSIDAD DE GRANADA

Departamento de Obstetricia y Ginecología

Programa de Doctorado: Medicina Clínica y Salud Pública

Título: Impacto de la violencia sexual y/o de género en la salud sexual y reproductiva de las mujeres. Estudio HIMEM (Hormonal Impacto Mujeres Españolas Maltratadas)

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Impacto de la violencia sexual y/o de género en la salud sexual y reproductiva de las mujeres. Estudio HIMEM (Hormonal Impacto Mujeres Españolas Maltratadas)

I.INTRODUCCIÓN

Según datos de la Fiscalía General del Estado, en España se denuncia una violación cada 5 horas y más de un millón de mujeres lo han hecho por malos tratos en la última década. Ya durante el año 2022 las denuncias y las víctimas de la violencia contra las mujeres (VCM) aumentaron en nuestro país por encima del 10% y las cifras del 2023 prometen ser igualmente alarmantes. Pero no solo preocupa que se hayan superado las mil mujeres asesinadas por sus parejas o ex parejas desde que tenemos registros, sino también el dato alarmante sobre la estimación de las que sufren algún grado de discapacidad por todo ello, que en el mejor de los escenarios superan las 400.000 por mujer asesinada (Karakurt et al 2013, Consejo General del Poder Judicial 2023).

Dentro de esas discapacidades, se han observado deterioros de la función endocrina en mujeres que han sufrido VCM. Los déficits hormonales provocados por estas situaciones pueden ser temporales o permanentes, pero sus consecuencias, en todo caso, son las mismas que las del hipoestrogenismo que quienes padecen insuficiencia ovárica prematura o menopausia precoz (Mendoza et al 2015). Dado el deterioro de la función neuroendocrina observado en las mujeres que han sufrido maltrato, es interesante examinar si esta violencia puede causar efectos duraderos incluso años después de que se haya producido (Kapoor et al 2020).

La VCM se ha asociado con mayores riesgos para la salud a largo plazo, que abarcan una variedad de problemas, desde el dolor crónico en diferentes áreas del cuerpo hasta trastornos sexuales y psicológicos graves (Kapoor et al 2021, Chans et al 2021). También se han descrito mayores riesgos de padecer infecciones de transmisión sexual y del tracto urinario, sangrado vaginal, dolor pélvico y cáncer de cuello uterino (Bonomi et al 2006, Modesitt et al 2006). Por lo tanto, es necesario determinar cómo la VCM influye en la salud de la mujer a lo largo de vida reproductiva y post-reproductiva, incluyendo las repercusiones sexuales y reproductivas, así como las consecuencias a largo plazo (cardiometabólicas, óseas, cognitivas, psicosexuales), con especial atención a su impacto en otras condiciones, como la aparición temprana de la menopausia y la exacerbación de los síntomas que, a su vez, determinan la calidad de vida (CdV) (Thurston et al 2005).

Por si fuera poco, el necesario y estricto confinamiento decretado en la pandemia por el COVID-19 ha repercutido en la salud general de las mujeres, la sexual y reproductiva en particular, cuya atención no garantiza de ninguna manera las exigencias que previamente habían sido reclamadas por las sociedades científicas que las atienden (European Society of Contraception and Reproductive Health 2019, World Health Organization 2018).

Por otra parte, aun siendo escasa, existe alguna literatura que observa déficits hormonales en mujeres que han sufrido abuso, violación o maltrato, en general cualquier tipo de VCM, con una conexión neuroendocrina entre aquellos déficits y estas causas claramente plausibles , como ha ocurrido con las señales inequívocas de la VCM, que siempre han estado ahí y hemos tardado en escucharlas y atenderlas como merecen, esta justificación endocrina también se ha ignorado en las consultas y procesos de la Ginecología (Bonomi et al 2006, Cannell et al 2015, Kapoor et al 2021, Chans et al 2021).

II. JUSTIFICACIÓN

Dentro y fuera de nuestras fronteras, muchas voces abogamos por contemplar la salud de las mujeres como objetivo transversal dentro de los objetivos de desarrollo sostenible (ODS) que planea la Organización Mundial de la salud para el horizonte 2030. Ese propósito es prioritario para algunas instituciones comprometidas, como nuestra Universidad, desde donde reclamamos una mejora sustancial en los derechos sexuales y reproductivos de las mujeres en todo el mundo, incluidos los países de nuestro entorno europeo, en los que seguimos alejados de los índices óptimos de atención legal, social y sanitaria a la mujer.

Dentro de estos derechos, y a pesar del creciente alcance de la VCM, en cualquiera de sus formas, como sobre la salud general de la mujer, faltan estudios que investiguen adecuadamente sus efectos a largo plazo, específicamente sobre los problemas derivados del cese de la función endocrina en ellas. Por eso proponemos un proyecto que haga visible la VCM en las consultas de salud de las mujeres en general y en la ginecología endocrina en particular.

III. OBJETIVOS

El Objetivo principal de esta Tesis Doctoral será valorar el impacto de la VCM sobre la salud de las mujeres.

Como objetivos particulares:

1. Establecer una línea de investigación a la que puedan unirse cualquier profesional en la que se mida la repercusión de la VCM, en cualquiera de sus formas y sobre cualquiera de los aspectos de la Salud de la Mujer.
2. Ofrecer una revisión sistemática que responda a la pregunta: ¿Cómo influye haber sufrido VCM en la salud de las mujeres durante la menopausia?
3. Analizar si haber estado expuesta a cualquier tipo de VCM empeora los síntomas de la menopausia, disminuye la CdV y adelanta la edad de la menopausia en un grupo de mujeres de nuestro entorno que la hayan padecido.

IV. METODOLOGÍA

IV.1. METODOLOGIA DEL ESTUDIO HIMEM

Esta Tesis Doctoral se engloba dentro de un proyecto más amplio que pretende analizar los efectos de la VCM en cualquier proceso relacionado con la Salud de la Mujer y que intentará incluir a varios grupos de investigación, el estudio HIMEM (*Hormonal Impacto Mujeres Españolas Maltratadas*). Comoquiera que ha sido desde aquí desde donde se le ha dado forma y se ha solicitado la primera certificación de un Comité de Ética, describiremos a continuación su metodología.

1.1. Diseño del estudio

Estudio analítico observacional de casos y controles utilizando entrevistas presenciales.

1.2. Población de estudio

La población de estudio está formada por mujeres que han sufrido algún acto de VCM en algún momento de su vida.

Se define *violencia contra la mujer* como todo acto de violencia basado en la pertenencia al sexo femenino que tenga o pueda tener como resultado un daño o sufrimiento físico, sexual o psicológico para la mujer, así como las amenazas de tales actos, la coacción o privación arbitraria de libertad tanto si se produce en la vida pública como privada.

1.3. Criterios de inclusión y exclusión

Criterios de inclusión:

Mujeres mayores de 18 años que hayan sufrido VCM y hayan solicitado ayuda o lo hayan denunciado. Esto se establecerá a juicio del investigador/a que realiza la entrevista teniendo en cuenta la definición de VCM.

Criterios de Exclusión:

Se descartarán mujeres con enfermedades endocrinas o ginecológicas previas al episodio de VCM.

1.4. Tamaño de la muestra y procedimiento de muestreo

El tamaño de muestra mínimo necesario para realizar el estudio de casos y controles emparejados por edad es de 121 casos y 242 controles. Potencia 1-B del 80%, nivel de confianza 95% y una precisión del 5%. El tamaño muestral ajustado por pérdidas del 5% es de 128 casos y 256 controles.

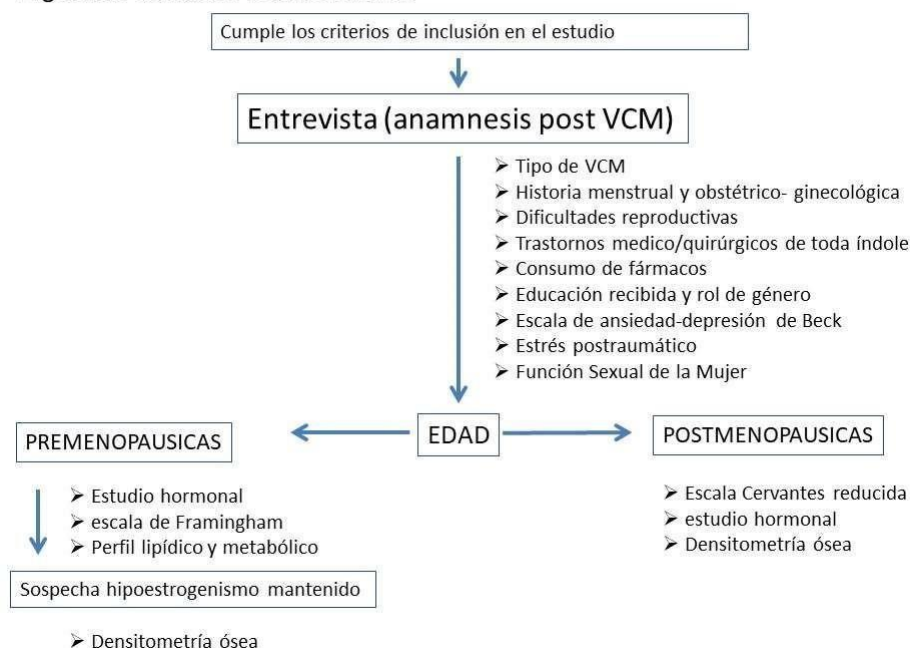
1.5. Variables (Dependientes e Independientes)

- Variables directamente relacionadas con el tipo de VCM sufrida: maltrato en la pareja, fuera de la pareja (especificando el tipo en ambos casos: económica, psicológica o física), en la pareja o fuera (el tipo de VCM se establecerá a criterio de la persona que entrevista a la mujer basándose en su conocimiento sobre la VCM y su definición). Denuncias previas, fase de cambio y valoración del riesgo.

- Variables sociodemográficas (edad, nivel educativo, profesión, renta, convivientes, número de hijos y personas mayores dependientes a su cargo y estado civil)
 - Variables clínicas: datos de la anamnesis dirigida (menstrual y obstétrica), historia ginecológica e historia general, prestando especial atención a cualquier trastorno de cualquier tipo o consumo de drogas relacionado con antecedentes de VCM.
 - Variables de esteroidogénesis: estradiol, testosterona, cortisol, DHEA, 17OH progesterona, delta4 androstendiona.
 - Variables endocrinas no esteroides: TSH, PRL, FSH, LH, SHBG.
 - Variables cardiometabólicas: puntuaciones de la escala de REGICOR, perfil lipídico, HOMA-IR, Tensión arterial, IMC, circunferencia de cadera y cintura.
 - Variables óseas: densidad mineral ósea en cadera, columna e historia de fractura.
 - Variables cognitivas: Educación recibida y rol de género. No se requiere ningún cuestionario. Las variables que se medirán serán educación restrictiva/educación permisiva; educación sexista/educación en igualdad.
 - Variables psicológicas y psicosexuales: Escala de calidad de vida reducida de Cervantes, escala GAD-7 de Ansiedad y la escala PHQ-9 de depresión.
- Para la función sexual se utilizará el índice de función sexual femenina (FSFI).

El algoritmo de actuación ante una posible candidata a participar en el estudio será el siguiente:

Algoritmo actuación estudio HIMEM



1.6. Extracciones

Las extracciones sanguíneas y las determinaciones analíticas de las participantes que cumplan criterios de inclusión se llevarán a cabo en cada centro participante. No se tiene previsto la conservación de muestras.

1.7. Pruebas de Imagen

Las pruebas de imagen (densitometría ósea) se realizarán en cada centro participante sin que se necesite el mismo aparataje porque lo importante será el diagnóstico final y el valor de las T y Z score.

1.8. Instrumentos diagnósticos y de cribado de la violencia

Utilizaremos la escala WAST (*Woman Abuse Screening Tool*) validada en español, en su versión larga (8 preguntas), que refleja la tensión en la pareja actual, y además también si hay violencia física, sexual y/o emocional). Estos instrumentos son suficientes para el *screening* de VCM que se sufre en el momento actual de la realización de la entrevista, pero la única forma de saber si se ha sufrido algún tipo de VCM en el pasado es mediante pregunta directa.

1.9. Métodos estadísticos

En primer lugar, se realizará un análisis descriptivo de las principales variables estudiadas. Para las variables cuantitativas se calculará la media y desviación típica, o mediana y percentiles en caso de no normalidad. Las variables cualitativas se expresarán mediante frecuencias absolutas y relativas. Los datos se representarán mediante tablas de frecuencias y gráficos.

Tras el análisis descriptivo, se realizará el test de Kolmogorov-Smirnov para comprobar si los datos se ajustan a una distribución normal, con el fin de utilizar test paramétricos o no paramétricos. Para contrastar la hipótesis de igualdad de medias en cuanto a las principales variables medidas, se utilizará el test de la t de Student para muestras independientes o Mann-Whitney, según corresponda; e igual tratamiento para el resto de variables cuantitativas. En el caso comparación de variables cualitativas, se empleará el test de la chi-cuadrado de Pearson o Fisher cuando sea necesario.

En las situaciones que se permita cuantificar el efecto de la VCM sobre el riesgo de insuficiencia hormonal se calculará mediante regresión logística la *odds ratio* (OR) de cada categoría considerada.

Las estrategias para controlar el sesgo de confusión serán la estratificación del tipo de VCM analizada, el emparejamiento de los datos con un grupo de control y el análisis de regresión multivariante.

Para todos los contrastes se considerará un nivel de significación de 0.05. El software estadístico utilizado será el paquete estadístico R 3.3.

1.10. Consideraciones éticas

1.10.1. Confidencialidad

Todos los datos personales obtenidos en este estudio son confidenciales y se almacenan y procesan siguiendo el Reglamento UE 2016/679 del Parlamento Europeo.

1.10.2. Consentimiento informado

Las mujeres que participen en este estudio podrán ejercer los derechos de acceso, rectificación, supresión, limitación del tratamiento, portabilidad de los datos y oposición establecidos en la normativa antes mencionada.

1.10.3. Comité ético de investigación clínica

Este estudio fue aprobado por el comité ético de FIBAO (número de expediente 6hWMS752PFIRMAVHc6wPtZT2+f1x4Y) y de Jaén.

JUNTA DE ANDALUCÍA **CONSEJERÍA DE SALUD Y FAMILIAS**

DICTAMEN ÚNICO EN LA COMUNIDAD AUTÓNOMA DE ANDALUCÍA

D.D^a Francisco Manuel Lapeña Martínez, como secretario/a del C.O.M.U.C. Provincial de Granada

CERTIFICA

Que este Comité ha evaluado la propuesta del promotor/investigador UNIVERSIDAD DE GRANADA para realizar el estudio de investigación titulado:

TÍTULO DEL ESTUDIO: Impacto de la violencia sexual y/o de género en la salud sexual y reproductiva de las mujeres. Estudio **IPREM** (Influencia Impacto Mujeres Experiencias Multidimensionales) (IPREM)

Protocolo, Versión: 1

IPR, Versión: 1

GA, Versión: 1

Y que considera que:

Se cumplen los requisitos necesarios de idoneidad del protocolo en relación con los objetivos del estudio y se ajusta a los principios éticos aplicables a este tipo de estudio.

La capacidad del/de la investigador/a y los medios disponibles son apropiados para llevar a cabo el estudio.

Están justificadas las riesgos y molestias por sí mismos para los participantes.

Que los aspectos económicos involucrados en el proyecto, no interfieren con respecto a los principios éticos.

Y que este Comité considera, que dicho estudio puede ser realizado en los Centros de la Comunidad Autónoma de Andalucía que se relacionan, para lo cual corresponde a la Dirección del Centro correspondiente determinar si la capacidad y los medios disponibles son apropiados para llevar a cabo el estudio.

Lugar firmas en Granada a 07/12/2020

D.D^a Francisco Manuel Lapeña Martínez, como Secretario/a del C.O.M.U.C. Provincial de Granada

CERTIFICA

Que este Comité ha evaluado y en su sesión celebrada el 06/11/2020 y acogida en acta 1026 la propuesta del/de la Promotor/a UNIVERSIDAD DE GRANADA, para realizar el estudio de investigación titulado:

TÍTULO DEL ESTUDIO: Impacto de la violencia sexual y/o de género en la salud sexual y reproductiva de las mujeres. Estudio **IPREM** (Influencia Impacto Mujeres Experiencias Multidimensionales) (IPREM)

Protocolo, Versión: 1

IPR, Versión: 1

GA, Versión: 1

Que a dicha sesión asistieron los siguientes integrantes del Comité:

Presidente/a
D.D^a AURORA BUENO GARCÍA

Vicepresidente/a
D.D^a Patricia Muñoz de Bustos

Secretario/a
D.D^a Francisco Manuel Lapeña Martínez

Vocales
D.D^a José Meléndez Tapia
D.D^a Juan Ramos Delgado Páez
D.D^a Reyes Delgado Sánchez
D.D^a José María Sánchez López
D.D^a Sonia Delgado Sánchez
D.D^a Juan Manuel Muñoz
D.D^a José Ignacio Fernández
D.D^a MARIA ESPERANZA DEL POZO GARCÍA
D.D^a Felipe Espigado García
D.D^a ANTONIO MORALES ROMERO
D.D^a Francisco Martínez García
D.D^a FRANCISCO LUIS MANZANO MANZANO
D.D^a MERCEDES LÓPEZ CRADALUPPI
D.D^a JUAN BERNARDO JIMÉNEZ
D.D^a MANUEL MARTÍN GARCÍA
D.D^a LUIS MIGUEL JORDA SANCHEZ
D.D^a Luis José Martínez González
D.D^a JESUS CARDONA CONTRERAS
D.D^a Pina Gálvez Campa
D.D^a MARIA DOLores GARCIA CALVO
D.D^a ESTHER MELERA RIVAS
D.D^a ANTONIO JUAN PEREZ FERNANDEZ
D.D^a MARINA LATINA FERNANDEZ CARRERA
D.D^a JESSICA MARQUEZ GALAN

Que dicho Comité, así considerado y según decurso con la normativa vigente y los dictámenes de la Conferencia Internacional de Buenas Prácticas Clínicas

Lugar firmas en Granada a 07/12/2020

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1.10.4. Financiación

El proyecto cuenta con una ayuda económica de 2.000€ del Vicerrectorado de Igualdad de la Universidad de Granada.

IV. 2 METODOLOGIA DE LA REVISIÓN SISTEMÁTICA Y EL METAANÁLISIS

El estudio se registró en PROSPERO.org

2.1 Estrategia de búsqueda

Se realizaron búsquedas en la Scientific Information Web of Knowledge (bases de datos MEDLINE, Pubmed, Scopus y Cochrane) de todos los artículos (en cualquier idioma) publicados en revistas revisadas por pares hasta marzo de 2021 utilizando la estrategia de búsqueda:

(((((sexual abuse AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (sexual violence children AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (sexual violence women AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (intimate partner violence AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (gender violence AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (violence against women AND (clinicaltrial[Filter] OR observationalstudy[Filter])) AND (clinicaltrial[Filter] OR observationalstudy[Filter])) AND (((female sexual dysfunction AND (clinicaltrial[Filter] OR observationalstudy[Filter])) OR (sexual health AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (vaginal symptoms AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (vasomotor symptoms AND (clinicaltrial[Filter] OR observationalstudy[Filter]))) OR (menopause AND (clinicaltrial[Filter] OR observationalstudy[Filter])) AND (clinicaltrial[Filter] OR observationalstudy[Filter]))

Los criterios de búsqueda se aplicaron a cada base de datos y se combinaron con los filtros disponibles específicos de la base de datos. Se identificaron otras publicaciones mediante búsqueda manual en la lista de referencias de los artículos destacados por la búsqueda y las revisiones críticas. También se tuvieron en cuenta los informes de prensa publicados en revistas revisadas por pares y los informes disponibles en línea antes de su publicación.

2.2 Criterios de elegibilidad

Los criterios PICOS (*Population, Intervention exposure, Comparators, Outcomes, and Study Designs*) se establecieron a priori para guiar el alcance de la revisión, junto con los procedimientos, la selección y la síntesis de la búsqueda bibliográfica. Los criterios de selección fueron los siguientes (Población) mujeres perimenopáusicas o posmenopáusicas afectadas por cualquier tipo de VCM (Exposición); (Comparadores) mujeres no expuestas a violencia; (Resultado) resultados primarios: calidad de vida, síntomas menopáusicos, síntomas sexuales, disfunción sexual, complicaciones crónicas (enfermedad cardiovascular, osteoporosis, deterioro cognitivo; (Diseño del estudio) estudios clínicos.

Se revisó detalladamente cualquier artículo completo que cumpliera los criterios de inclusión. Otras publicaciones relacionadas son sólo para fines de referencia.

2.3 Extracción de datos

Se sintetizó la evidencia según las directrices PRISMA (Moher et al 2009). En los artículos seleccionados se extrajeron datos relacionados con el diseño del estudio, el tamaño de la muestra, la edad de las mujeres, el tipo de violencia sufrida y los síntomas vasculares, vaginales, sexuales o psicológicos experimentados. Los autores crearon el formulario de extracción de acuerdo con el marco PICOS.

2.4 Evaluación del riesgo de sesgo

El riesgo de sesgo se evaluó según el tipo de estudio considerado. Se restringió la inclusión de revisiones sistemáticas a las que evaluaban el riesgo de sesgo de sus medidas incluidas y a las que informaban de juicios explícitos. La evaluación del riesgo de sesgo y los análisis agrupados se realizaron mediante las pruebas de Begg y Egger incluidas en el paquete estadístico Epidat 3.1.

2.5 Análisis agrupados

Los análisis agrupados se realizaron mediante el método de Mantel-Haenszel y el modelo de efectos aleatorios utilizando el paquete estadístico Epidat 3.1.

La heterogeneidad se calculó mediante el procedimiento de DerSimonian y Laird y se representó gráficamente mediante el gráfico de Galbraith. Se adoptó un valor de $p = 0,05$ como umbral de significación estadística.

Se realizó un análisis de sensibilidad con un modelo de efectos aleatorios para determinar la fiabilidad y solidez del resultado global obtenido. Se realizaron las pruebas de Begg y Egger para garantizar la ausencia de sesgo de publicación al seleccionar los artículos incluidos en el metaanálisis.

IV.3 METODOLOGÍA DEL IMPACTO DE LA VIOLENCIA EN LA MENOPAUSIA

Este estudio transversal forma parte del proyecto HIMEM, dirigido específicamente a mujeres postmenopáusicas que han sufrido VCM a lo largo de su vida.

En este estudio observacional, reclutamos a mujeres posmenopáusicas que habían sufrido VCM en algún momento de su vida y que habían denunciado VCM o buscado consejo médico por problemas relacionados con la menopausia.

Se excluyeron las mujeres con enfermedades endocrinas o ginecológicas preexistentes antes de sufrir la VCM. Un grupo de control estaba formado por mujeres postmenopáusicas que acudieron a la misma clínica en la misma fecha y que no habían sufrido VCM, según un autoinforme.

3.1 Medidas

Los datos clínicos se recogieron durante las entrevistas médicas, prestando especial atención a los síntomas menopáusicos y a cualquier trastorno asociado. Además, se registró el uso de medicamentos o sustancias tóxicas relacionadas con la historia de VAW. Los síntomas menopáusicos y la CdV se evaluaron mediante la escala de Cervantes en todos los casos. Se recogió información sobre variables independientes directamente relacionadas con el tipo de VCM sufrida (económica, psicológica, sexual o física) y variables dependientes.

También se documentaron otras variables que podrían influir potencialmente en la historia de VCM, como los factores sociodemográficos (edad, edad a la menopausia, nivel educativo, situación laboral, estado civil y tamaño de la localidad), así como variables de control relacionadas con el estilo de vida (índice de masa corporal y consumo de tabaco o alcohol).

3.2 Análisis de los datos

Se realizaron análisis de distribución, normalidad y homocedasticidad de los datos para determinar las pruebas estadísticas apropiadas. Para las comparaciones entre grupos se utilizó la prueba t de Student para muestras independientes, mientras que para las variables categóricas se utilizó la prueba chi-cuadrado de Pearson. Se utilizaron análisis de covarianza (ANCOVA) para controlar las covariables. Se emplearon análisis de regresión multivariante para explorar los predictores de la CdV relacionada con la menopausia. En los casos en que fue posible cuantificar el efecto de la CVM sobre el riesgo de síntomas menopáusicos o peor calidad de vida, se calculó la odds ratio (OR) para cada categoría mediante regresión logística.

3.3 Consideraciones éticas.

Como parte del proyecto HIMEM, este estudio fue aprobado por los comités éticos de Granada y Jaén (FIBAO, número de expediente 6hWMS752PFIRMAVHc6wPtZT2+f1x4Y).

Todos los datos personales obtenidos en este estudio fueron confidenciales y se almacenaron y procesaron siguiendo el Reglamento UE 2016/679 del Parlamento Europeo. Las personas que participaron en este estudio pudieron ejercer los derechos de acceso, rectificación, supresión, limitación del tratamiento, portabilidad de datos y oposición establecidos en el citado reglamento.

Todas las mujeres que participaron en el estudio dieron su consentimiento informado por escrito.

V. RESULTADOS

V.1. Proyecto HIMEM. Estudio Piloto

El proyecto HIMEM empezó su andadura en el año 2021 y sus bases se publicaron en la Red de investigación de la Asociación para el Estudio de la Menopausia (AEEM) para que cualquier grupo de investigación o persona interesada pueda unirse en la recogida de casos y visibilidad de los datos de la VCM en nuestro país (www.aeem.es). Igualmente, su traducción al inglés y adaptación a la revista Clinical and Experimental Obstetrics & Gynecology (CEOG) han permitido difundirlo para que cualquier otro grupo internacional pueda incorporarse en él (Mendoza-Huertas 2022). Este es el primer artículo de esta Tesis Doctoral.

Por razones relacionadas con la pandemia COVID, a las mujeres contactadas que han padecido VCM no se las ha atendido hasta febrero de 2022. Aparte de este impedimento, la principal dificultad encontrada al inicio del proyecto ha sido la escasa colaboración por parte de las afectadas, no tanto por la incomodidad del proyecto en si cuanto por la vergüenza y miedo esgrimidas por la mayoría de ellas.

Con todo, se ha podido contactar con la mayoría de las mujeres actualmente en seguimiento en una de las unidades de Violencia de género más representativa de nuestra área de estudio. Por tratarse del primer centro y por incluir a casi la totalidad de las mujeres que allí se atienden, informaremos de las características y penalidades de 23 supervivientes a la VCM. Esta fue su experiencia: todas han sufrido VCM en el ámbito familiar, todas por sus parejas o exparejas.

Aparte de coincidir de manera unánime en sentirse avergonzadas y temerosas por la VCM sufrida, todas han excluido la sexualidad de sus vidas. Por decirlo con otras palabras que no incluya el “todas”:ninguna ha recuperado plenamente su sexualidad. Como parte del estudio se dispone de la respuesta a un test de función sexual (FSM). En él, a todas se las retrata con “grave disfunción sexual”. Aunque se trata de un hallazgo esperado para una disciplina como la nuestra, no por ello deja de ser un hecho remarcable y trascendente.

Además de la disfunción sexual generalizada, todas las mujeres atendidas refirieron haber sufrido irregularidad menstrual (incluso se presentaron dos casos de insuficiencia ovárica prematura) desde el episodio de VCM. Aunque la mayoría tiene hijos e hijas (ahora a su cargo) la mitad ha reconocido sufrir algún tipo de dificultad reproductiva mientras convivía con su agresor.

La mitad de las mujeres atendidas se encontraba en edad menopáusica o han alcanzado el estado menopáusico tras la VCM: todas ellas refirieron una sintomatología propia de este periodo mucho más intensa de lo normal. Más del 80% tomaba algún fármaco psicotrópico. Los niveles hormonales ofrecieron datos de hipoestrogenismo y descenso de la DHEA en el 80% de las mujeres atendidas. Al 40% se ha diagnosticado osteoporosis mediante densitometría ósea.

Desde el punto de vista demográfico, casi la totalidad de las mujeres afectadas reconoció tener los ingresos mínimos señalados en esta encuesta. Son los posteriores a la denuncia de la VCM, porque si nos fijamos en los que tenían previo a ella, no nos señala a ningún sector especialmente desprotegido de la población. Tampoco hay diferencias entre el medio rural o el urbano. Análogamente al nivel económico y social, tampoco el nivel cultural o el tipo de educación recibida se libran de la VCM.

Original Research

Impact of Violence against Women on Sexual and Reproductive Health: Research Protocol and Results from a Pilot Study

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Abstract

Objectives: Violence against women (VAW) is associated with a deterioration of endocrine function with consequences similar to those of premature ovarian failure in women. The main objective of this study is to evaluate the hormonal repercussions of VAW and, secondly, to analyse the cardio-metabolic, bone, cognitive, psychological, and psychosexual consequences of hypoestrogenism secondary to VAW. **Materials and Methods:** A cross-sectional study will be conducted on women of any age who have suffered VAW at some point in their lifespan, whether psychological, sexual, or physical. Clinical, hormonal, cardio-metabolic, bone, psychological, and psychosexual parameters will be analysed. **Results:** The pilot study from the first 23 women show that all of them are suffering from severe sexual dysfunction. In addition, all women reported menstrual irregularity and hypoestrogenism (including two cases of premature ovarian failure) since the VAW episode. **Conclusions:** VAW is a pandemic that affects all women equally, regardless of their age, status, social background, or education. Despite the claims made by certain groups, VAW does not depend on women, but rather it affects women and is clearly harmful to their sexual, reproductive, and general health.

Keywords: violence against women; sexual assault; intimate violence; abuse; mistreatment

1. Introduction

Violence against women (VAW) includes all psychological abuse, coercion, threats and violent acts of any kind (sexual or physical) [1]. Increasing evidence suggests that it is a global pandemic [2,3].

The scale of the problem is reflected in the fact that more than one million women of all ages in the West have experienced VAW in recent years. In addition to those killed by VAW, the high number of women who are severely disabled by VAW is also of concern [4,5].

Hormonal disturbances after VAW have also been described, so it is important to determine whether these are prolonged, and whether their consequences are like those of hypoestrogenism [6,7].

In addition, VAW at any time in life has been found to worsen menopausal symptomatology and physical and sexual health conditions in later life [8,9].

Given these observations, we propose the Hormonal Impact Maltreated European Mujer (HIMEM) study, which aims to make VAW visible in women's health consultations in general and in endocrine gynaecology in particular. Furthermore, we suggest that active screening for VAW should be considered in any situation, particularly in women with symptoms of hypoestrogenism or impaired sexual function. In addition to the direct consequences of VAW, these women are at increased risk for other disabilities, which are sufficiently disturbing to warrant concern.

2. Methods

2.1 Study Design

This study will employ an analytical observational case-control design using face-to-face interviews.

2.2 Study Population

The study population consists of women who have suffered any act of VAW at some point in their lives. VAW is defined as any act of violence against an individual belonging to the female gender that results in physical, sexual, or psychological harm or suffering for the woman, as well as threats of such acts, coercion, or arbitrary deprivation of liberty, whether this occurs in public or private life.

2.3 Inclusion and Exclusion Criteria

Inclusion criteria: Women over 18 years of age who have suffered VAW and have requested help or have reported such violence. This will be established at the discretion of the researcher conducting the interview, based on the definition of gender-based violence.

Exclusion criteria: Women with endocrine or gynaecological diseases before the episode of VAW will be excluded.

2.4 Sample Size and Sampling Procedure

The minimum sample size needed to conduct the age-matched case-control study is 121 cases and 121 controls. This calculation is based on a power (1-B) of 80%, 95%

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confidence level, and a precision of 5%. Therefore, with a loss-adjustment of 5%, the sample size is 128 cases and 128 controls.

2.5 Variables (Dependent and Independent)

- Variables directly related to the type of VAW suffered: in-partner, out-of-partner abuse (specifying the type in both cases: economic, psychological, or physical), in-partner or out-of-partner sexual violence (the type of VAW will be established at the discretion of the person interviewing the woman based on knowledge of gender-based violence and its definition).

- Sociodemographic variables (age, educational level, profession, co-habitants, marital status, and other data that may influence the VAW received).

- Clinical variables: data from the directed anamnesis (menstrual and obstetric-gynaecological history) and general history, paying special attention to any disorders of any kind or consumption of drugs related to VAW history.

- Steroidogenesis variables: oestradiol, testosterone, cortisol, DHEA, DHEAS, 17OH progesterone, delta4, androstenedione.

- Non-steroidal endocrine variables: TSH, PRL, FSH, LH, SHBG.

- Cardio-metabolic variables: Framingham scale scores, lipid profile, HOMA-IR, blood pressure, BMI, hip and waist circumference.

- Bone variables: bone mineral density in the hip, spine, and history of fracture.

- Cognitive variables: education received and gender role. No questionnaire is required. The variables to be measured will be restrictive/permissive education; sexist/equality education (these cognitive variables will be established at the discretion of the person interviewing the woman).

- Psychological and psychosexual variables: Cervantes reduced quality of life scale, Beck anxiety-depression scale, and the TQ scale of post-traumatic stress. For sexual function, the Female Sexual Function Index (FSFI) will be used.

2.6 Data Analysis

First, a descriptive analysis of the main study variables will be presented. Then, the means and standard deviations (or median and percentiles in case of non-normality) will be calculated for quantitative variables. Finally, both absolute and relative frequencies will be used to express qualitative variables, and the data will be presented in frequency tables and graphs.

The Kolmogorov-Smirnov test will be used to check whether the data conform to a normal distribution. As appropriate, the student's *t*-test for independent samples or the Mann-Whitney test will be used for equality hypothesis testing. In the case of qualitative variables, Pearson's or Fisher's chi-square test will be used.

In situations where it is possible to quantify the effect of VAW on the risk of hormonal failure, the odds ratio (OR) of each category considered will be calculated using logistic regression.

Strategies to control for confounding bias will be stratification of the type of VAW analyzed, matching the data to a control group and multivariate regression analysis.

For all contrasts, a significance level of 0.05 will be adopted. The statistical software used will be the R 3.3 statistical package (www.r-project.org).

2.7 Ethical Considerations

2.7.1 Confidentiality

All personal data obtained in this study are confidential and stored and processed following the EU Regulation 2016/679 of the European Parliament. Individuals participating in this study may exercise the rights of access, rectification, deletion, limitation of processing, data portability, and opposition established in the regulation mentioned above.

2.7.2 Informed Consent

Subjects have given their informed written consent and that the study protocol was approved by an appropriate ethics committee.

3. Result from a Pilot Study

The HIMEM project began in 2021, but for reasons related to the COVID pandemic, the women contacted who have suffered from VAW were not attended to until February 2022. Apart from this impediment, the main difficulty encountered at the beginning of the project was the lack of collaboration from the affected women, not so much because of the discomfort of the project itself but because of the shame and fear felt by most of the participants.

Nonetheless, it has been possible to contact most women currently being monitored in one of the most representative gender violence units in our study area. As this is the first centre of its type and because it includes almost all the women being treated for gender violence in that region, we will report on the characteristics and challenges faced by 23 survivors of VAW. This was their experience.

All of them have suffered VAW in the family environment, by their partners or ex-partners. Apart from unanimously agreeing that they are ashamed and fearful of the VAW they have suffered, they have all excluded sexuality from their lives. Put simply, none of them have fully recovered their sexuality. Part of the study involves analysing the participant's responses to a FSFI. This test revealed that all participants have "severe sexual dysfunction". And while this is an expected finding for a discipline such as ours, it is still a remarkable and significant observation.

In addition to generalised sexual dysfunction, all the women observed reported menstrual irregularity (including two cases of premature ovarian failure) since the VAW

episode. Although most of them have children (now in their care), half of them have acknowledged reproductive difficulties while living with their aggressor.

Half of the women who attended were of menopausal age or had reached menopausal status after VAW, and all reported much more intense symptoms than normal. More than 80% reported taking psychotropic drugs.

Recorded hormonal levels indicate hypoestrogenism and a decline in DHEA in 80% of the women observed. In addition, osteoporosis has been diagnosed by bone densitometry in 40% of the sample.

From a demographic standpoint, almost all the women affected admitted to having the minimum income indicated in this survey (less than €1000 per month). These figures were reported after the VAW episode because if we look at their income pre-VAW, it does not point to any particularly unprotected sector of the population. In addition, no differences were found between women from rural and urban areas.

Similarly, women of higher economic, social, cultural, and education level are not protected against VAW.

4. Discussion

Despite the growing importance of VAW for overall health, few studies have focused on its gynaecological measures, particularly regarding the health problems resulting from the cessation of endocrine function in women. Therefore, this project aims to determine what percentage of women who have experienced VAW show hormonal alterations (mainly hypoestrogenism) and the associated consequences.

Apart from the physical or psychological consequences of VAW, women are also at greater risk of other injuries and disabilities [10,11].

The great strength of this project lies in the analysis between VAW and any ovarian cycle disorders that could be responsible for endocrine or reproductive problems of various types, including symptoms of hypoestrogenism, anovulation, reproductive difficulty, menstrual alterations, and late consequences of hypoestrogenism such as osteoporosis, cognitive deterioration, or cardiovascular disease. In addition, some conditions already seem to be recognized as being caused by VAW, such as sexually transmitted infections, vaginal bleeding, pelvic pain, and urinary tract infections, together with an increased risk of cervical cancer [12,13].

This project was initially designed for Spanish women who have suffered abuse and has already been approved by two different ethical committees. However, our goal is to develop a project of supranational scope, with the possibility of extending our sample and collaborating with other Spanish or European clinical research groups on women's health.

5. Conclusions

VAW is a pandemic that affects all women equally, regardless of their age, status, social background, or education. Despite the claims made by certain groups, VAW does not depend on women, but rather it affects women and is clearly harmful to their sexual, reproductive, and general health.

Data Availability Statement

All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author.

Authors Contributions

LMH, NM—conception and design of the idea, data interpretation, statement and approved the final version of the manuscript.

Ethics Approval and Consent to Participate

This study protocol was reviewed and approved by the Ethics and Research Committees of the provinces of Granada (code number: 6hWMS752PFIRMAVHc6wPtZT2+f1x4Y) and Jaen (23.Feb 21.CEI). Written informed consent was obtained from participants to participate in the study.

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Conflict of Interest

The authors declare no conflict of interest. NM is serving as one of the Guest editors of this journal. We declare that NM had no involvement in the peer review of this article and has no access to information regarding its peer review. Full responsibility for the editorial process for this article was delegated to MHD.

References

- [1] Meyer SR, Lasater ME, Lee L, Garcia-Moreno C. Measurement of violence against women and disability: protocol for a scoping review. *British Medical Journal Open*. 2020; 10: e040104.
- [2] Cannell MB, Weitlauf JC, Garcia L, Andresen EM, Margolis KL, Manini TM. Cross-sectional and longitudinal risk of physical impairment in a cohort of postmenopausal women who experience physical and verbal abuse. *BMC Women's Health*. 2015; 15: 98.
- [3] Wang Y, Fu Y, Ghazi P, Gao Q, Tian T, Kong F, *et al.* Prevalence of intimate partner violence against infertile women in low-income and middle-income countries: a systematic review

- and meta-analysis. *The Lancet Global Health*. 2022; 10: e820–e830.
- [4] World Health Organization. WHO multi-country study on women's health and domestic violence against women. ISBN: 9241593512. 2012. Available at: <https://apps.who.int/iris/handle/10665/43310> (Accessed: 16 June 2012).
 - [5] Torazzi E, Merelli V, Barbara G, Kustermann A, Marasciuolo L, Collini F, *et al.* Similarity and Differences in Sexual Violence against Adolescents and Adult Women: the need to Focus on Adolescent Victims. *Journal of Pediatric and Adolescent Gynecology*. 2021; 34: 302–310.
 - [6] Mendoza N, Juliá MD, Galliano D, Coronado P, Díaz B, Fontes J, *et al.* Spanish consensus on premature menopause. *Maturitas*. 2015; 80: 220–225.
 - [7] Escura S, Anglès-Acedo S, Ribera-Torres L, Castelo-Branco C. Sexual and gynecological health in women with a history of sexual violence: the role of the gynecologist. *Clinical and Experimental Obstetrics and Gynecology*. 2022; 49: 64.
 - [8] Mendoza-Huertas L, García-Jabalera I, Mendoza N. Effects of violence against women on health during menopause: a systematic review and metanalysis. *Clinical and Experimental Obstetrics and Gynecology*. 2021; 48: 1292–1299.
 - [9] Kapoor E, Okuno M, Miller VM, Rocca LG, Rocca WA, Kling JM, *et al.* Association of adverse childhood experiences with menopausal symptoms: Results from the Data Registry on Experiences of Aging, Menopause and Sexuality (DREAMS). *Maturitas*. 2021; 143: 209–215.
 - [10] Stubbs A, Szoek C. The Effect of Intimate Partner Violence on the Physical Health and Health-Related Behaviors of Women: A Systematic Review of the Literature. *Trauma Violence Abuse*. 2021. (in press)
 - [11] Loxton D, Schofield M, Hussain R, Mishra G. History of Domestic Violence and Physical Health in Midlife. *Violence against Women*. 2006; 12: 715–731.
 - [12] Argente A, Martin C, Robin G, Cateau-Jonard S. Violences verbales, physiques et sexuelles faites aux femmes. Étude en consultation de gynécologie dans la région des Hauts-de-France. *Sexologies*. 2021; 30: 206–219.
 - [13] Reingle Gonzalez JM, Jetelina KK, Olague S, Wondrack JG. Violence against women increases cancer diagnoses: Results from a meta-analytic review. *Preventive Medicine*. 2018; 114: 168–179.

V.2 Efectos de la violencia sexual o de género en la salud de las mujeres durante la menopausia: una revisión sistemática y metaanálisis

La estrategia de búsqueda bibliográfica identificó 194 artículos, de los cuales 117 fueron excluidos en diversas fases de la búsqueda, lo que finalmente produjo una selección final de 19 artículos (Figura 1), cinco de los cuales estaban relacionados con síntomas menopáusicos (Thurston et al 2008, Moraes et al 2012, Vegunta et al 2016, Carson et al 2019, Gibson et al 2019), dos con síntomas genitourinarios (Gibson et al 2019, Boyd et al 2020), cinco estudios sobre salud psicológica o afecciones físicas (Loxton et al 2006, Mouton et al 2010, Cannell et al 2015, Mitchell et al 2017, Makaroun et al 2020), tres sobre salud sexual (Dombek et al 2016, Kelley et al 2019, Howard et al 2006) y cuatro sobre problemas cardiovasculares o metabólicos (Matthews et al 2014, Midei et al 2013, Fernandez-Botrán et al 2011, Thurston et al 2014).

Nueve estudios eran transversales (Vegunta et al 2016, Carson et al 2019, Gibson et al 2019, Gibson et al 2019, Boyd et al 2020, Loxton et al 2006, Cannell et al 2015, Dombek et al 2016, Kelley et al 2019) y diez eran estudios de cohortes (Thurston et al 2008, Moraes et al 2012, Mouton et al 2010, Mitchell et al 2017, Makaroun et al 2020, Howard et al 2006, Matthews et al 2014, Midei et al 2013, Fernandez-Botran et al 2011, Thurston et al 2014); dos brasileñas (Moraes et al 2012, Dombek et al 2022), dos australianas (Loxton et al 2006, Howard et al 2006) y el resto de EE.UU. Para el análisis, todas las formas de maltrato o abuso psicológico, físico o sexual se combinaron en una única categoría de VCM. El conjunto de datos analizados incluía 16.436 mujeres que declararon haber sufrido violencia y 259.150 que no.

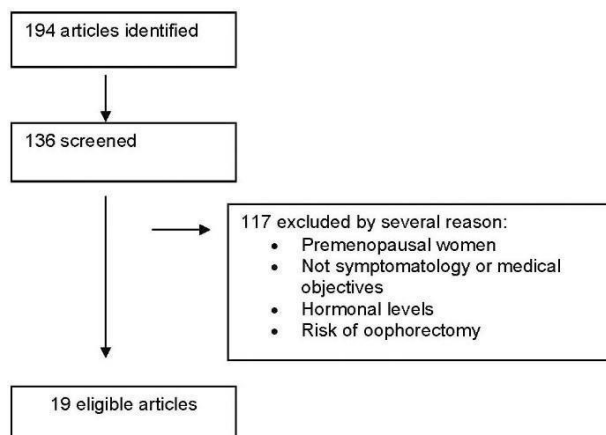


Figura 1. Diagrama de flujo.

La tabla 1 muestra un resumen de las características principales de los estudios seleccionados (diseño del estudio, población, intervención, objetivo y resultados principales). En todos los artículos se informó de la edad media o el intervalo de edad de los participantes, pero no del tiempo transcurrido desde el episodio de violencia, que sólo se describió en un estudio (Moraes et al 2012).

Los datos combinados sobre el efecto de la VAW en los síntomas menopáusicos fueron de 1,51 (intervalo de confianza [IC] del 95%: 1,23-1,86; Figura 2), mientras que, para los síntomas vaginales o la salud sexual, el riesgo fue de 1,49 (IC del 95%: 1,21-1,83; Figura 3). La falta de datos no permitió realizar un análisis combinado de otros signos o síntomas.

Además, no hubo pruebas estadísticas de sesgo de publicación (como confirmaron las pruebas de Begg y Egger), y los resultados globales no se vieron influidos por la eliminación de ningún estudio del metanálisis (análisis de sensibilidad, Figura 4).

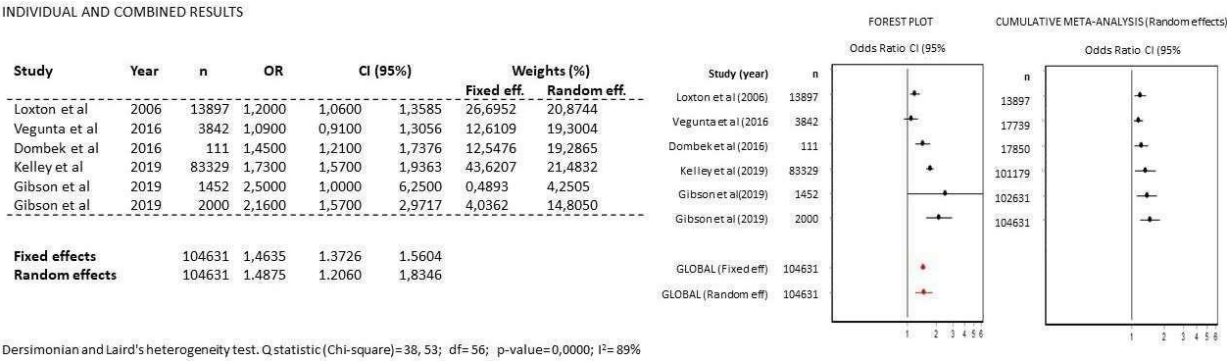


Figura 2. Síntomas de la menopausia.

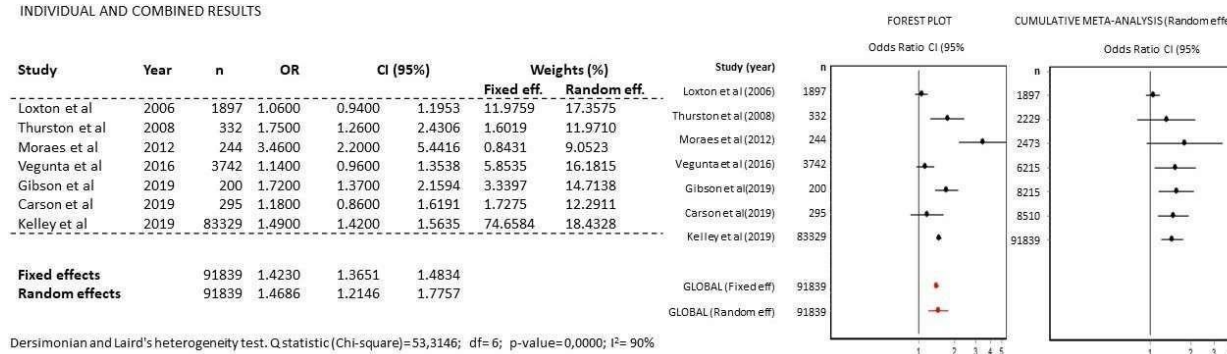


Figura 3. Salud sexual y síntomas vaginales.

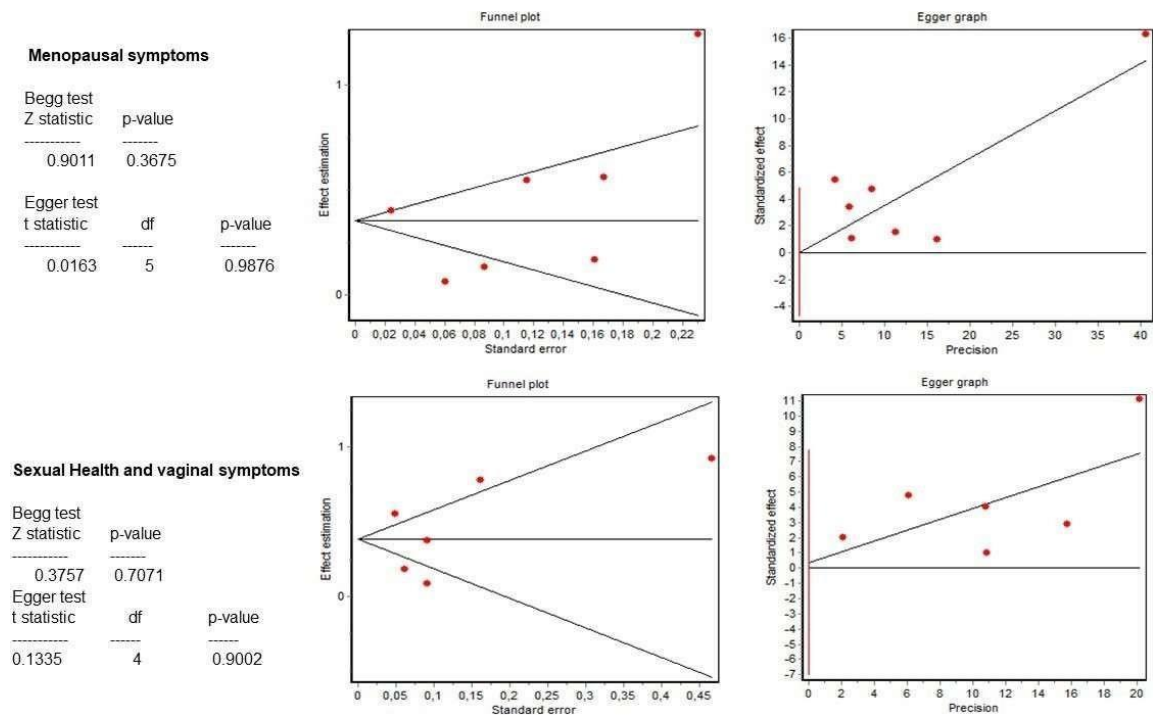


Figura. 4. Sesgo de publicación.

Tabla 1. Resumen de los resultados

Autores	Diseño del estudio	Población	Violencia	Objetivo	Principales resultados
Síntomas de la menopausia					
Thurston <i>et al.</i> 2008 [10]	Estudio de cohortes	116 mujeres con historial de violencia Edad: 42-52 216 controles	SV	Cualquier/sin síntomas menopáusicos (calor flashes y sudores nocturnos)	SV aumento de los sofocos y los sudores nocturnos
Moraes <i>et al.</i> 2012 [11]	Estudio de cohortes	124 mujeres con historial de violencia Edad: 40-65 años 120 control	IPV/SV	síntomas menopáusicos (Kupperman Menopausal Índice)	La VPI/VS aumentó los síntomas menopáusicos
Vegunta <i>et al.</i> 2016 [12]	Estudio transversal	253 mujeres con historial de violencia Edad >40 años 3489 controles	SV	Síntomas de la menopausia (Menopausia Cuestionario de salud)	SV aumento de los síntomas menopáusicos
Carson <i>et al.</i> 2019 [13]	Estudio transversal	130 mujeres con historial de violencia Edad: 40-60 años 165 controles	SV	Cualquier/sin síntomas menopáusicos (vaso-síntomas motores: sofocos, sudores nocturnos)	SV aumento de los síntomas vasomotores del sueño
Gibson <i>et al.</i> 2019 [14]	Estudio transversal	423 mujeres con historial de violencia Edad: 40-80 años 1593 controles	IPV/SV	síntomas menopáusicos (dificultad para dormir, calor destellos, dulce noche)	IPV/SV aumento de la dificultad para dormir, sudores nocturnos y síntomas vaginales
Síntomas genitourinarios					
Gybson <i>et al.</i> 2019 [15]	Estudio transversal	428 mujeres con antecedentes de violencia Edad: 57-85 años 1123 controles	SV	Síntomas genitourinarios	SV aumento de los síntomas vaginales e incontinencia urinaria
Boyd <i>et al.</i> 2019 [16]	Estudio transversal	400 mujeres con historial de violencia Edad: 40-80 años 1500 controles	IPV/SV	Síntomas genitourinarios	La VPI aumentó la incontinencia semanal, la incontinencia de esfuerzo, incontinencia de urgencia y nicturia El SV no aumentó la incontinencia ni la nicturia
Salud psicológica/salud	condiciones				
	Estudio transversal	2165 mujeres con historial de violencia		Primaria: Condiciones físicas	

Tabla 1. Continuación.

Autores	Diseño del estudio	Población	Violencia	Objetivo	Principales resultados
Mitchell & Woods 2017 [20]	Estudio de cohortes	80 mujeres con historial de violencia Edad: 41,5 (4,3) 153 controles	SV	Estado de ánimo depresivo	SV aumento del estado de ánimo depresivo
Makaroun <i>et al.</i> 2020 [21]	Estudio de cohortes	334 mujeres con historial de violencia Edad: >45 años 2603 controles	IPV/SV	Condiciones de salud	La VPI/VS aumenta la morbilidad y la utilización de servicios sanitarios
Salud sexual					
Dombek <i>et al.</i> 2016 [22]	Estudio transversal	50 mujeres con historial de violencia Edad: 45-65 años Controles 95 y 77	SV/IPV	Salud sexual	SV aumento de las disfunciones sexuales
Kelley <i>et al.</i> 2019 [23]	Estudio transversal	9410 mujeres con historial de violencia Edad: 50-79 años 73919 controles	SV	Salud sexual	SV aumento de la insatisfacción sexual
Howard <i>et al.</i> 2006 [24]	Estudio de cohortes	108 mujeres con historial de violencia Edad: 40-80 años 366 controles	SV	Salud sexual	SV disminución de la satisfacción
Problemas cardiovasculares o metabólicos					
Matthews <i>et al.</i> 2014 [25]	Estudio de cohortes	116 mujeres con historial de violencia Edad: 42-52 216 controles	SV.	Primario: obesidad. Secundario: niveles de	La VS estaba relacionada con el cambio de la PCR, pero no con los cambios del IMC.
Midei <i>et al.</i> 2014 [26]	Estudio de cohortes	116 mujeres con historial de violencia Edad: 42-52 216 controles	SV	PCR. Síndrome metabólico	Sin relación
Fernandez <i>et al.</i> 2011 [27]	Estudio de cohortes	46 mujeres con historial de violencia Edad: 45-60 21 controles 643 mujeres con antecedentes	IPV	Marcadores proinflamatorios	Sin relación
Thurston <i>et al.</i> 2014 [28]	Estudio de cohortes	de violencia Edad mediana: 59.55 (SD 22.7) 759 controles	IPV/SV	Riesgo de ECV (GIM carotídeo)	Sólo la VS en la infancia aumentó el GIM carotídeo

Effects of violence against women on health during menopause: a systematic review and metanalysis

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Objective(s): This review aimed to respond to the question of how a history of violence against women (VAW) influences their health during menopause. **Mechanism:** We searched all articles (published in peer-reviewed journals up to March 2021) related to menopausal symptoms, sexual dysfunction, and chronic complications in post-menopausal women affected by VAW. **Findings in brief:** The literature search strategy identified 194 articles, of which 19 were selected for analysis. All articles described cross-sectional or cohort studies concerning menopausal or genitourinary symptoms, psychological health, physical conditions, sexual health, and cardiovascular or metabolic problems. The analyzed data set included 16436 women who reported experiencing violence in the USA, Brazil, and Australia. The combined data on the effect of VAW on menopausal symptoms suggest that the risk of suffering from such effects is 1.51 (95% CI: 1.23–1.86), while for sexual health, the risk was 1.4875 (95% CI: 1.2060–1.8346). **Conclusions:** A history of VAW increases the symptoms of menopause and worsens the physical conditions and sexual and psychological health after the age of 40. Thus, it is essential to investigate these antecedents in routine clinical practice when treating menopausal women with additional symptoms and to warn of the long-term general health risks for any woman who has experienced an episode of violence.

Keywords

Violence against women; Sexual violence; Intimate partner violence; Gender-based violence; Sexual violence; Menopause

1. Introduction

Violence against women (VAW) includes all acts of physical and psychological violence, including intimate or gender-based violence, sexual assaults, abuse, threats, coercion, or arbitrary deprivation of liberty [1]. Although accurate data are not available on the percentage of women who have been victims of VAW, the latter is a common worldwide problem, and it is estimated that at least one in four women who reach menopause has suffered from such violence [2].

In Spain, the scale of the problem of VAW can be illustrated by the fact that, a rape is reported every five hours, and more than a million women have suffered violence in the

ex-partners, and further cause for concern comes from the estimated number of those women who have suffered some degree of severe disability due to violence, which, in the best-case scenario, exceeds 400,000 [3].

Given the deterioration in endocrine function observed in women who have suffered VAW, it is crucial to determine if VAW can generate prolonged endocrine effects years after the violence has occurred. In this regard, the hormonal deficits caused by these situations may be temporary or permanent, but their consequences are, in any case, the same as those of hypoestrogenism suffered by women with persistent central amenorrhea or early menopause [4]. In addition, it has been suggested that a history of VAW can advance the onset of perimenopausal disorders or reduce hormonal levels, suggesting a link between neuroendocrine disorders and hypoestrogenism [5].

It is thus necessary to determine how VAW influences health during perimenopause or post-menopause, including the symptoms experienced during this period (e.g., vasomotor symptoms, psychological effects, and insomnia) and the long-term consequences (cardiometabolic, bone, cognitive, psychological, and psychosexual effects). Women who have suffered violence, particularly of a sexual nature, present more urinary symptoms, as well as a deterioration of their physical condition and psychological health [6].

Other conditions appear to be exacerbated by VAW, including sexually transmitted infections, the risk of which doubles in women who have suffered from violence [7], while VAW is also associated with an increased risk of preinvasive and invasive cervical cancer (2.6-fold increase in the likelihood of a late-stage diagnosis) [8].

This work aimed to provide a systematic review to respond to the following question: “How does the history of violence against women influence health during menopause?”

2. Methods

The study was registered at PROSPERO.org¹.

last decade. Moreover, since records first began, more than a thousand women have been murdered by their partners or

¹ CRD42021225167

2.1 Search strategy

We searched the Scientific Information Web of Knowledge (MEDLINE, Pubmed, Scopus, and Cochrane databases) for all articles (in any language) published in peer-reviewed journals up to March 2021 using the search strategy described in Appendix A. The search criteria were applied to each database and combined with the available database-specific filters. Other publications were identified by manually searching through a reference list of papers highlighted by the search and critical reviews. Press reports published in peer-reviewed journals and reports available online before publication were also considered.

2.2 Eligibility criteria

The PICOS (Population, Intervention exposure, Comparators, Outcomes, and Study Designs) criteria were established *a priori* to guide the scope of the review, along with the procedures, selection, and synthesis of the literature search. The selection criteria were as follows: (Population) perimenopausal or postmenopausal women affected by any type of VAW (Exposure); (Comparators) women not exposed to violence; (Outcome) primary outcomes: quality of life, menopausal symptoms, sexual symptoms, sexual dysfunction, chronic complications (cardiovascular disease, osteoporosis, cognitive impairment; (Study Design) clinical studies.

Any complete article that met the inclusion criteria was reviewed in detail. Other related publications are for reference purposes only.

2.3 Data extraction

We synthesized the evidence according to PRISMA guidelines [9]. In the selected articles, data related to the study design, the sample size, the age of the women, the type of violence suffered, and the vascular, vaginal, sexual, or psychological symptoms experienced were extracted. The authors created the extraction form according to the PICOS framework.

2.4 Risk of bias assessment

The risk of bias was assessed according to the type of study considered. We restricted the inclusion of systematic reviews to those assessing the risk of bias of their included measures and those reporting explicit judgments. Risk of Bias assessment and pooled analyses were conducted using the Begg and Egger tests included within the Epidat 3.1 software statistical package (SERGAS, Xunta de Galicia, Spain).

2.5 Pooled analyses

Pooled analyses were conducted using the Mantel-Haenszel method and the random-effects model using the Epidat 3.1 software statistical package.

Heterogeneity was calculated using the DerSimonian and Laird procedure and was represented graphically using the Galbraith graph. A value of $p = 0.05$ was adopted as the threshold for statistical significance.

A sensitivity analysis with a random-effects model was conducted to determine the reliability and robustness of the overall result obtained. Begg and Egger's tests were conducted to ensure the absence of publication bias when selecting the articles included in the meta-analysis.

3. Results

The literature search strategy identified 194 articles, of which 117 were excluded at various stages of the search, eventually producing a final selection of 19 articles (Fig. 1), five of which were related to menopausal symptoms [10–14], two related to genitourinary symptoms [15, 16], five studies on psychological health or physical conditions [17–21] three on sexual health [22–24], and four on cardiovascular or metabolic problems [25–28]. Nine studies were cross-sectional studies [12–17, 19, 22, 23] and ten were cohort studies [10, 11, 18, 20, 21, 24–28]; two Brazilian [11, 22], two Australian [17, 24] and the rest from USA. For the analysis, all forms of psychological, physical, or sexual mistreatment or abuse were combined into a single category of VAW. The analyzed data set included 16,436 women who reported experiencing violence and 259,150 who did not.

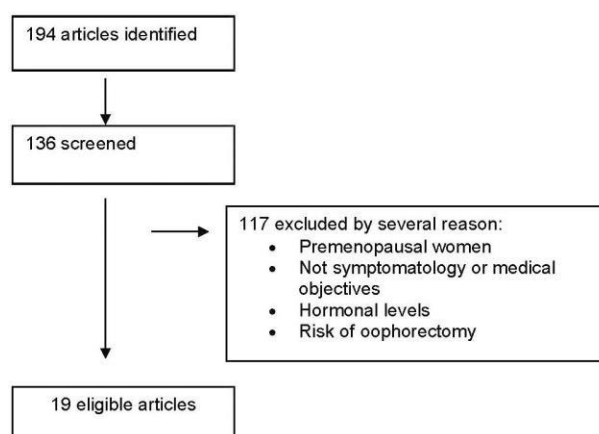


Fig. 1. Flow chart.

Table 1 (Ref. [10–28]) displays a summary of the main characteristics of the selected studies (study design, population, intervention, objective, and main results). The participants' mean age or age range was reported in all articles, but not the time since the violence episode, which was described in only one study [11].

The combined data on the effect of VAW on menopausal symptoms was 1.51 (95% confidence interval (CI): 1.23–1.86; Fig. 2), while for vaginal symptoms or sexual health, the risk was 1.49 (95% CI: 1.21–1.83; Fig. 3). The lack of data did not allow a combined analysis of other signs or symptom.

Moreover, there was no statistical evidence of publication bias (as confirmed by Begg and Egger tests), and the overall findings were not influenced by the removal of any study from the meta-analysis (sensitivity analysis, Fig. 4).

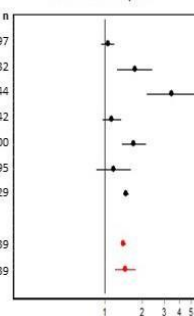
INDIVIDUAL AND COMBINED RESULTS

Study	Year	n	OR	CI (95%)	Weights (%)	
					Fixed eff.	Random eff.
Loxton et al	2006	1897	1.0600	0.9400 1.1953	11.9759	17.3575
Thurston et al	2008	332	1.7500	1.2600 2.4306	1.6019	11.9710
Moraes et al	2012	244	3.4600	2.2000 5.4416	0.8431	9.0523
Vegunta et al	2016	3742	1.1400	0.9600 1.3538	5.8535	16.1815
Gibson et al	2019	200	1.7200	1.3700 2.1594	3.3397	14.7138
Carson et al	2019	295	1.1800	0.8600 1.6191	1.7275	12.2911
Kelley et al	2019	83329	1.4900	1.4200 1.5635	74.6584	18.4328
Fixed effects		91839	1.4230	1.3651 1.4834		
Random effects		91839	1.4686	1.2146 1.7757		

Dersimonian and Laird's heterogeneity test. Q statistic (Chi-square)=53,3146; df=6; p-value=0,0000; I²= 90%

FOREST PLOT

Odds Ratio CI (95%)



CUMULATIVE META-ANALYSIS (Random effects)

Odds Ratio CI (95%)

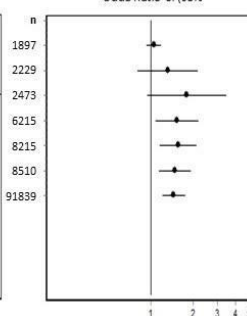


Fig. 2. Menopausal symptoms.

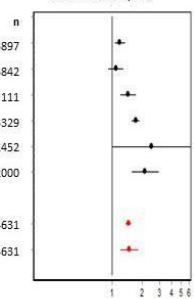
INDIVIDUAL AND COMBINED RESULTS

Study	Year	n	OR	CI (95%)	Weights (%)	
					Fixed eff.	Random eff.
Loxton et al	2006	13897	1,2000	1,0600 1,3585	26,6952	20,8744
Vegunta et al	2016	3842	1,0900	0,9100 1,3056	12,6109	19,3004
Dombek et al	2016	111	1,4500	1,2100 1,7376	12,5476	19,2865
Kelley et al	2019	83329	1,7300	1,5700 1,9363	43,6207	21,4832
Gibson et al	2019	1452	2,5000	1,0000 6,2500	0,4893	4,2505
Gibson et al	2019	2000	2,1600	1,5700 2,9717	4,0362	14,8050
Fixed effects		104631	1,4635	1,3726 1,5604		
Random effects		104631	1,4875	1,2060 1,8346		

Dersimonian and Laird's heterogeneity test. Q statistic (Chi-square)=38, 53; df= 56; p-value=0,0000; I²= 89%

FOREST PLOT

Odds Ratio CI (95%)



CUMULATIVE META-ANALYSIS (Random effects)

Odds Ratio CI (95%)

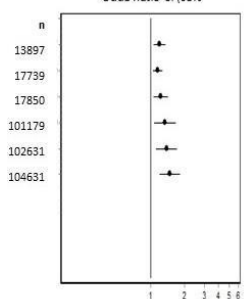
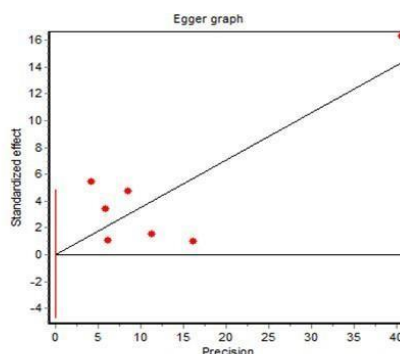
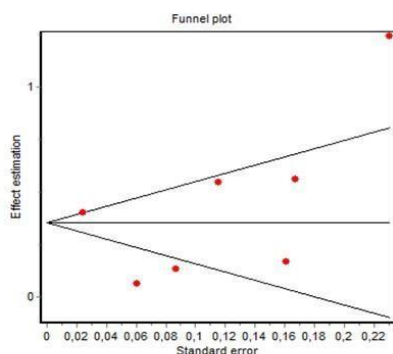


Fig. 3. Sexual health and vaginal symptoms.

Menopausal symptoms

Begg test	
Z statistic	p-value
0.9011	0.3675

Egger test		
t statistic	df	p-value
0.0163	5	0.9876



Sexual Health and vaginal symptoms

Begg test	
Z statistic	p-value
0.3757	0.7071

Egger test		
t statistic	df	p-value
0.1335	4	0.9002

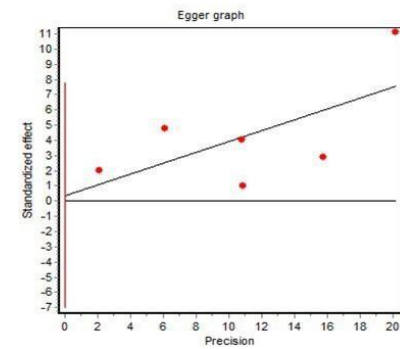
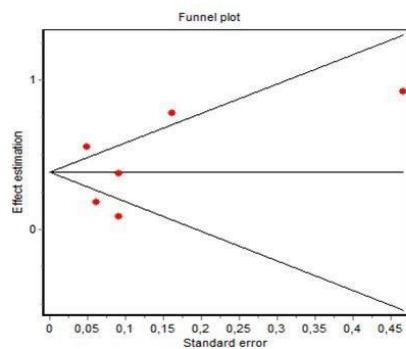


Fig. 4. Publication Bias.

Table 1. Summary of findings.

Authors	Study design	Population	Violence	Objective	Main results
Menopausal symptoms					
Thurston <i>et al.</i> 2008 [10]	Cohort study	116 women with violence history Age: 42–52 216 controls	SV	Any/no menopausal symptoms (hot flashes and night sweats)	SV increased hot flashes and night sweats
Moraes <i>et al.</i> 2012 [11]	Cohort study	124 women with violence history Age: 40–65 120 control	IPV/SV	menopausal symptoms (Kupperman Index)	IPV/SV increased menopausal symptoms
Vegunta <i>et al.</i> 2016 [12]	Cross-sectional study	253 women with violence history Age >40 3489 controls	SV	menopausal symptoms (Menopause Health Questionnaire)	SV increased menopausal symptoms
Carson <i>et al.</i> 2019 [13]	Cross-sectional study	130 women with violence history Age: 40–60 165 controls	SV	Any/no menopausal symptoms (vasomotor symptoms: hot flashes, night sweats)	SV increased sleep vasomotor symptoms
Gibson <i>et al.</i> 2019 [14]	Cross-sectional study	423 women with violence history Age: 40–80 1593 controls	IPV/SV	menopausal symptoms (difficulty sleeping, hot flashes, night sweat)	IPV/SV increased difficulty sleeping, night sweats and vaginal symptoms
Genitourinary symptoms					
Gybson <i>et al.</i> 2019 [15]	Cross-sectional study	428 women with violence history Age: 57–85 1123 controls	SV	Genitourinary symptoms	SV increased vaginal symptoms and urinary incontinence
Boyd <i>et al.</i> 2019 [16]	Cross-sectional study	400 women with violence history Age: 40–80 1500 controls	IPV/SV	Genitourinary symptoms	IPV increased weekly incontinence, stress-type incontinence, urgency-type incontinence and nocturia SV did not increase incontinence or nocturia
Psychological Health/health conditions					
Loxton <i>et al.</i> 2006 [17]	Cross-sectional study	2165 women with violence history Age: 40–50 11813 controls	IPV	Primary: Physical conditions Secondary: vasomotor symptoms	IPV caused a worsening of physical conditions
Mouton <i>et al.</i> 2010 [18]	Cohort study	10389 women with violence history Age: 50–79 82636 controls	IPV/SV	Psychological health	SV have poorer psychological health
Cannell <i>et al.</i> 2015 [19]	Cross-sectional Study	1569 women with violence history Age: 50–79 153.333 controls	IPV/SV	Physical functioning	IPV/SV diminished physical functioning

Table 1. Continued.

Authors	Study design	Population	Violence	Objective	Main results
Mitchell & Woods 2017 [20]	Cohort study	80 women with violence history Age: 41.5 (4.3) 153 controls	SV	Depressed mood	SV increased depressed mood
Makaroun <i>et al.</i> 2020 [21]	Cohort study	334 women with violence history Age: >45 2603 controls	IPV/SV	Health Conditions	IPV/SV increase morbidity and health service utilization
Sexual Health					
Dombek <i>et al.</i> 2016 [22]	Cross-sectional study	50 women with violence history Age: 45–65 95 and 77 controls	SV/IPV	Sexual Health	SV increased sexual dysfunctions
Kelley <i>et al.</i> 2019 [23]	Cross-sectional study	9410 women with violence history Age: 50–79 73919 controls	SV	Sexual Health	SV increased sexual dissatisfactions
Howard <i>et al.</i> 2006 [24]	Cohort study	108 women with violence history Age: 40–80 366 controls	SV	Sexual Health	SV decreased satisfaction
Cardiovascular or metabolic issues					
Matthews <i>et al.</i> 2014 [25]	Cohort study	116 women with violence history Age: 42–52 216 controls	SV.	Primary: obesity. Secondary: CRP levels	SV was related to CRP change but not BMI changes.
Midei <i>et al.</i> 2014 [26]	Cohort study	116 women with violence history Age: 42–52 216 controls	SV	Metabolic syndrome	No relation
Fernandez <i>et al.</i> 2011 [27]	Cohort study	46 women with violence history Age: 45–60 21 controls	IPV	Pro-inflammatory markers	No relation
Thurston <i>et al.</i> 2014 [28]	Cohort study	643 women with violence history Age median: 59.55 (SD 22) 759 controls	IPV/SV	CVD risk (carotid IMT)	Only childhood SV increased carotid IMT

Abbreviations, BMI, Body mass index; CRP, C reactive protein; CVD, cardiovascular disease; IPV, intimate partner violence; SV, sexual violence; IMT, carotid intima media thickness; SD, standard deviation.

4. Discussion

This article presents the first systematic review and meta-analysis to evaluate the effects of VAW (experienced at any time before menopause) on women's health during menopause. Overall, our findings indicate that VAW has a significant impact on menopausal symptoms and sexual health. In addition, women who have suffered violence, particularly sexual nature, presented more urinary symptoms and a worsening of their physical condition and psychological health.

As previously noted, for analytical purposes, we have considered all possible forms of VAW. These include verbal, emotional, physical, or sexual abuse, which can occur within or outside of a partner relationship since we consider that the link between neuroendocrine function and the appearance of menopausal symptoms and health problems in this period is the same for all types of abuse.

Despite the growing awareness of the importance of VAW (in any of its forms) for women's general health, relatively few studies have adequately investigated the long-term effects of this type of violence, particularly on health problems during middle age and later life, that is, the post-menopausal period.

Further cause for concern comes from the estimated number of those women who have suffered some degree of severe disability due to VAW. This figure rises considerably if we consider other less severe or "silent" disabilities, many of which have a clinical presentation similar to the symptoms of menopause [3].

However, although the literature is scarce, some studies have observed the consequences of VAW on long-term gynecological health, which are broadly similar to the symptoms that occur after hypoestrogenism [5]. The neuroendocrine connection between VAW and hypoestrogenism is the same as that observed in high-stress situations that cause central amenorrhea, in addition to the psychological or sexual consequences, which are similar to those caused by posttraumatic stress disorders [29–31].

In another sense, questions about VAW are generally not raised by women [32], or not asked by doctors [33]. Although these are two different issues, both highlight the need for health care providers to add VAW issues to the list of actions for promoting gender-transformative approaches in the sustainable development goals to improve health [34].

Moreover, the necessary and strict confinements imposed by authorities in response to the COVID-19 pandemic have impacted the general health of women, whose care has not met the standards that had previously been set by scientific societies [35, 36].

Our review is the first to systematically address the research conducted on the influence of VAW in any of its forms on women's health during menopause, although other narrative reviews have provided updates on this topic [37, 38].

This systematic review has gathered the available evidence on the effects of VAW on women's health during menopause.

This review was not limited to sexual or gender-based violence but instead was expanded to include the registry of publications on other forms of abuse to provide a broader perspective of the influence of abuse on the health of menopausal women.

Our search identified 19 studies that included data on the impact of VAW on menopausal symptoms or other health problems commonly experienced during this period, such as genitourinary, psychological, sexual, and physical conditions. According to the data reported by Vegunta *et al.* [12], associations have been observed between VAW and adiposity, metabolic syndrome, and subclinical cardiovascular disease in middle age. Some of the studies included in this review [12] found that women who admitted having suffered abuse presented more menopausal symptoms when adjusting the data for possible confounding and demographic factors, reinforcing the idea that VAW affects women regardless of age, ethnic origin, or socioeconomic status.

Of particular interest are the data that indicate an increase in nocturnal vasomotor symptoms shown by women who have suffered violence [10, 13, 14]. Sleep disturbances may be due to problems other than the night sweats experienced by many women during menopause, which can be explained by heart rate variability or disturbances of the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis. Relatively little is still known about the neurobiology of hot flashes and their nocturnal manifestations, but what is fascinating is the possibility that childhood trauma or VAW could determine a women's physiology from infancy to the post-menopausal stage of life.

Thus, it appears that violence suffered in the early stages of a woman's life (as early as infancy) could impact reproductive health in the medium term, such as the pregnancy/perinatal period [39]. VAW has been associated with increased long-term health risks, including chronic pelvic pain, migraines, low back pain, irritable bowel syndrome, anxiety, depression, drug and alcohol use, somatization, and poor sexual function. Certain health-related behaviors have also been linked to VAW in childhood, such as eating disorders, obesity, or smoking [40].

In addition — and although not included in this review — other studies have shown that a history of VAW can advance the onset of perimenopausal disorders, lower the age of menopause onset, or reduce hormonal levels. These observations support the notion of a link between neuroendocrine disorders and hypoestrogenism. Another key study found that a history of VAW was associated with an increased risk of undergoing a bilateral oophorectomy and, consequently, presenting symptoms associated with hypoestrogenism [41, 42]. The experience of VAW is common among American women, and its association with late diagnosis of advanced stage female cancers (breast, ovary, endometrium) has been reported [8].

5. Limitations

The main limitation of this review stems from the low quality of the selected studies. These are cross-sectional studies, some of which are classified as cohorts by their authors, with considerable clinical heterogeneity in their designs. Furthermore, the most recognized limitations in the studies include the small sample size, the use of retrospective self-reports of the symptoms suffered, and the lack of data on the intensity of the menopausal symptoms, particularly vasomotor symptoms.

However, despite obtaining a high score on the test of heterogeneity, we could consider this result to be informative since it indicates the high degree of dispersion in the effects reported in the studies reviewed here.

6. Conclusions and future research

This review contributes to the literature on VAW and suggests that we should consider implementing an ongoing screening program for VAW, even after reproductive age and before the onset of menopausal symptoms or deterioration of sexual function. This review provides further evidence that women who have suffered VAW and have reached menopause are at greater risk of experiencing deterioration in their health. Moreover, aside from the direct physical or psychological consequences of VAW, most of these women are also at greater risk of suffering from other less severe disabilities (injury, chronic pain, depression, and posttraumatic stress disorder), which are, nonetheless, sufficiently disturbing to warrant consideration as part of their clinical care.

In conclusion, a history of VAW increases the symptoms of menopause and worsens the physical conditions and the sexual and psychological health of these women when they reach middle age. Therefore, it is essential to consider these antecedents as part of our routine clinical practice when treating menopausal women with excessive symptoms and warn of the general long-term health risks faced by all women who have suffered an episode of VAW in their lifetime.

Author contributions

LMH, IGJ, NM: conception and design of the idea. LMH, NM Selection of studies, Data extraction and preparation of manuscript. IGJ: Data extraction and pooled analyses. All authors participated in data interpretation, statement and approved the final version of the manuscript.

Ethics approval and consent to participate

Not applicable.

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Conflict of interest

The authors declare no conflict of interest.

References

- [1] Meyer SR, Lasater ME, Lee L, Garcia-Moreno C. Measurement of violence against women and disability: protocol for a scoping review. *BMJ Open*. 2020; 10: e040104.
- [2] Cannell MB, Weitlauf JC, Garcia L, Andresen EM, Margolis KL, Manini TM. Cross-sectional and longitudinal risk of physical impairment in a cohort of postmenopausal women who experience physical and verbal abuse. *BMC Women's Health*. 2015; 15: 98.
- [3] World Health Organization. WHO multi-country study on women's health and domestic violence against women. ISBN: 92 4 159351 2. 2005. Available at: https://www.who.int/reproductivehealth/topics/violence/mc_study/en/#:~:text=The%20WHO%20Multi-country%20study%20on%20Women%27s%20Health%20and,carried%20out%20in%2015%20sites%20in%2010%20countries%3A (Accessed: 6 April 2005).
- [4] Mendoza N, Juliá MD, Galliano D, Coronado P, Díaz B, Fontes J, *et al*. Spanish consensus on premature menopause. *Maturitas*. 2015; 80: 220–225.
- [5] Thurston RC, Bromberger J, Chang Y, Goldbacher E, Brown C, Cyranowski JM, *et al*. Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women. *Menopause*. 2008; 15: 16–22.
- [6] Campbell JC. Health consequences of intimate partner violence. *Lancet*. 2002; 359: 1331–1336.
- [7] Bauer HM, Gibson P, Hernandez M, Kent C, Klausner J, Bolan G. Intimate partner violence and high-risk sexual behaviors among female patients with sexually transmitted diseases. *Sexually Transmitted Diseases*. 2002; 29: 411–416.
- [8] Modesitt SC, Gambrell AC, Cottrill HM, Hays LR, Walker R, Shelton BJ, *et al*. Adverse impact of a history of violence for women with breast, cervical, endometrial, or ovarian cancer. *Obstetrics and Gynecology*. 2006; 107: 1330–1336.
- [9] Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine*. 2009; 6: e1000097.
- [10] Thurston RC, Bromberger J, Chang Y, Goldbacher E, Brown C, Cyranowski JM, *et al*. Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women. *Menopause*. 2008; 15: 16–22.
- [11] Moraes SDTDA, da Fonseca AM, Soares JM, Bagnoli VR, Souza MA, Arië WMY, *et al*. Construction and validation of an instrument that breaks the silence: the impact of domestic and/or sexual violence on women's health, as shown during climacterium. *Menopause*. 2012; 19: 16–22.
- [12] Vegunta S, Kuhle C, Kling JM, Files JA, Kapoor E, David PS, *et al*. The association between recent abuse and menopausal symptom bother: results from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS). *Menopause*. 2016; 23: 494–498.
- [13] Carson MY, Thurston RC. Childhood abuse and vasomotor symptoms among midlife women. *Menopause*. 2019; 26: 1093–1099.
- [14] Gibson CJ, Huang AJ, McCaw B, Subak LL, Thom DH, Van Den Eeden SK. Associations of Intimate Partner Violence, Sexual Assault, and Posttraumatic Stress Disorder with Menopause Symptoms among Midlife and Older Women. *JAMA Internal Medicine*. 2019; 179: 80–87.
- [15] Gibson CJ, Lisha NE, Walter LC, Huang AJ. Interpersonal trauma and aging-related genitourinary dysfunction in a national sample of older women. *American Journal of Obstetrics and Gynecology*. 2019; 220: 94.e1–94.e7.
- [16] Boyd BAJ, Gibson CJ, Van Den Eeden SK, McCaw B, Subak LL, Thom D, *et al*. Interpersonal Trauma as a Marker of Risk for Urinary Tract Dysfunction in Midlife and Older Women. *Obstetrics & Gynecology*. 2020; 135: 106–112.

- [17] Loxton D, Schofield M, Hussain R, Mishra G. History of domestic violence and physical health in midlife. *Violence against Women*. 2006; 12: 715–731.
- [18] Mouton CP, Rodabough RJ, Rovi SLD, Brzyski RG, Katerndahl DA. Psychosocial effects of physical and verbal abuse in postmenopausal women. *Annals of Family Medicine*. 2010; 8: 206–213.
- [19] Cannell MB, Weitlauf JC, Garcia L, Andresen EM, Margolis KL, Manini TM. Cross-sectional and longitudinal risk of physical impairment in a cohort of postmenopausal women who experience physical and verbal abuse. *BMC Women's Health*. 2015; 15: 98.
- [20] Mitchell ES, Woods NF. Depressed mood during the menopausal transition: is it reproductive aging or is it life? *Women's Midlife Health*. 2017; 3: 11.
- [21] Makaroun LK, Brignone E, Rosland A, Dichter ME. Association of Health Conditions and Health Service Utilization with Intimate Partner Violence Identified via Routine Screening among Middle-Aged and Older Women. *JAMA Network Open*. 2020; 3: e203138.
- [22] Dombek K, Capistrano EJM, Costa ACC, Marinheiro LPF. Risk factors associated with sexual dysfunction in Brazilian postmenopausal women. *International Journal of Impotence Research*. 2016; 28: 62–67.
- [23] Kelley EL, Cannell MB, Gass M, Sealy-Jefferson S, Woods NF, Bird CE, *et al.* Is Interpersonal Abuse Associated with Sexual (Dis)satisfaction among Postmenopausal Women? *Women's Health Issues*. 2019; 29: 299–307.
- [24] Howard JR, O'Neill S, Travers C. Factors affecting sexuality in older Australian women: sexual interest, sexual arousal, relationships and sexual distress in older Australian women. *Climacteric*. 2006; 9: 355–367.
- [25] Matthews KA, Chang Y, Thurston RC, Bromberger JT. Child abuse is related to inflammation in mid-life women: role of obesity. *Brain, Behavior, and Immunity*. 2014; 36: 29–34.
- [26] Midei AJ, Matthews KA, Chang Y, Bromberger JT. Childhood physical abuse is associated with incident metabolic syndrome in mid-life women. *Health Psychology*. 2013; 32: 121–127.
- [27] Fernandez-Botran R, Miller JJ, Burns VE, Newton TL. Correlations among inflammatory markers in plasma, saliva and oral mucosal transudate in post-menopausal women with past intimate partner violence. *Brain, Behavior, and Immunity*. 2011; 25: 314–321.
- [28] Thurston RC, Chang Y, Derby CA, Bromberger JT, Harlow SD, Janssen I, *et al.* Abuse and subclinical cardiovascular disease among midlife women: the study of women's health across the nation. *Stroke*. 2014; 45: 2246–2251.
- [29] Assari S, Caldwell CH, Abelson JL, Zimmerman M. Violence Victimization Predicts Body Mass Index one Decade Later among an Urban Sample of African American Young Adults: Sex as a Moderator and Dehydroepiandrosterone as a Mediator. *Journal of Urban Health*. 2019; 96: 632–643.
- [30] Kellner M, Muhtz C, Weinås Å, Ćurić S, Yassouridis A, Wiedemann K. Impact of physical or sexual childhood abuse on plasma DHEA, DHEA-S and cortisol in a low-dose dexamethasone suppression test and on cardiovascular risk parameters in adult patients with major depression or anxiety disorders. *Psychiatry Research*. 2018; 270: 744–748.
- [31] Bremner D, Vermetten E, Kelley ME. Cortisol, dehydroepiandrosterone, and estradiol measured over 24 hours in women with childhood sexual abuse-related posttraumatic stress disorder. *Journal of Nervous and Mental Disease*. 2007; 195: 919–927.
- [32] Moraes SDTDA, da Fonseca AM, Soares JM, Bagnoli VR, Souza MA, Arië WMY, *et al.* Construction and validation of an instrument that breaks the silence: the impact of domestic and/or sexual violence on women's health, as shown during climacterium. *Menopause*. 2012; 19: 16–22.
- [33] Rodriguez M, Bauer H, McLoughlin E, *et al.* Primary care physicians miss opportunities to screen patients for intimate partner abuse. *Journal of the American Medical Association*. 1999; 282: 468–474.
- [34] Manandhar M, Hawkes S, Buse K, Nosrati E, Magar V. Gender, health and the 2030 agenda for sustainable development. *Bulletin of the World Health Organization*. 2018; 96: 644–653.
- [35] Position Paper on Sexual and Reproductive Health and Rights 2019. Ternat: European Society of Contraception and Reproductive Health, 2019. Licence: CC BY-NC-SA 3.0 IGO. 2019. Available at: <https://esrh.eu/wp-content/uploads/2019/08/ESC-Position-Paper.pdf> (Accessed: 21 May 2010).
- [36] World Health Organization. Violence against women Prevalence Estimates, 2018. Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women. WHO: Geneva, 2021. CC BY-NC-SA 3.0 IGO. Available at: <https://www.who.int/news-room/fact-sheets/detail/violence-against-women> (Accessed: 9 March 2021).
- [37] Ali P, McGarry J. Intimate partner violence, post-traumatic disorders and menopausal symptoms. *Evidence-Based Nursing*. 2019; 22: 90.
- [38] Tracy EE. Intimate partner violence and the climacteric. *Menopause*. 2016; 23: 479–480.
- [39] Brunton R, Dryer R. Child Sexual Abuse and Pregnancy: a Systematic Review of the Literature. *Child Abuse & Neglect*. 2021; 111: 104802.
- [40] Pinkerton JV, Dougherty P, Modesitt SC. The effects of abuse on health problems in menopausal women. *Menopause*. 2008; 15: 1–4.
- [41] Gazzuola Rocca L, Smith CY, Grossardt BR, Faubion SS, Shuster LT, Stewart EA, *et al.* Adverse childhood or adult experiences and risk of bilateral oophorectomy: a population-based case-control study. *BMJ Open*. 2017; 7: e016045.
- [42] Ryan GL, Mengeling MA, Summers KM, Booth BM, Torner JC, Syrop CH, *et al.* Hysterectomy risk in premenopausal-aged military veterans: associations with sexual assault and gynecologic symptoms. *American Journal of Obstetrics and Gynecology*. 2016; 214: 352.e1–352.e13.

V.3. Impacto de la VCM en la menopausia

No se detectaron datos que faltaran, excepto un valor que faltaba para el nivel educativo. Los análisis preliminares realizados con las puntuaciones totales y parciales de CdV para comprobar la exactitud y distribución de los datos revelaron una asimetría y curtosis aceptables. Aunque la prueba de normalidad de Shapiro-Wilk fue significativa para la mayoría de las variables, la prueba de Levene de homogeneidad de varianzas (VCM frente a controles) no fue significativa para todas las variables (Tabla 1). Por lo tanto, decidimos utilizar pruebas paramétricas.

Un total de 118 mujeres posmenopáusicas de entre 40 y 68 años cumplieron los criterios de elegibilidad y completaron todas las encuestas (edad media $\pm$ desviación estándar= 52,5 $\pm$ 5,7). De la muestra, 29 mujeres (24,6%) habían sufrido VCM en algún momento de su vida. Concretamente, 24 de ellas habían declarado haber sufrido VCM antes de su inclusión en el estudio, mientras que cinco admitieron haber sufrido VCM durante la primera entrevista. Veintiocho de las participantes (96,5%) declararon haber sufrido violencia dentro de la pareja, mientras que una mujer declaró haber sido víctima de violencia sexual por parte de un hombre que no era su pareja. Entre las mujeres que habían sufrido violencia dentro de la pareja, todas ellas informaron de casos de violencia psicológica y económica, el 75% de incidentes de violencia física, el 57,1% de casos de violencia sexual dentro de la pareja y el 39,3% de todos los tipos de violencia.

En cuanto a las características sociodemográficas, no se encontraron diferencias entre las mujeres con o sin experiencia de VCM en términos de edad, estado civil, localidad, consumo de alcohol, osteoporosis u otras comorbilidades, así como en el uso de tratamientos para los síntomas menopáusicos. Sin embargo, se encontraron diferencias en el nivel educativo, la situación laboral, el tratamiento para la ansiedad o la depresión, el índice de masa corporal (IMC) y el tabaquismo (Tabla 2).

3.1. Asociación entre violencia y edad en la menopausia

La edad media a la menopausia fue de 46,83 ($\pm$ 4,34) años para las mujeres que habían sufrido VCM, mientras que para las mujeres del grupo de control no expuestas a la VCM fue de 48,52 ($\pm$ 2,69) ($t=-1,979$, $p<0,05$; IC 95%: -3,029 - -0,350).

El 20,7% de las mujeres que habían sufrido VCM también padecían insuficiencia ovárica prematura (IOP), en comparación con el 2,2% de las mujeres del grupo de control ($\chi^2=11,771$; $p<0,001$).

3.2. Asociación entre violencia y síntomas menopáusicos

Las mujeres que han sido víctimas de VCM obtuvieron puntuaciones significativamente más altas en la escala Cervantes (es decir, mayor impacto negativo de la menopausia en la calidad de vida percibida) en comparación con las mujeres del grupo de control. De media, las puntuaciones entre las víctimas de la VCM eran dos veces más altas, y tres veces más altas en el ámbito de las relaciones íntimas (Tabla 3). También examinamos si había diferencias en función del tipo de violencia sufrida.

Dado que observamos que todas las víctimas de maltrato psicológico también habían sufrido violencia económica, restringimos nuestros análisis a las formas física, psicológica/económica y sexual de VCM. La CdV relacionada con la menopausia fue significativamente inferior en las mujeres que sufrieron violencia psicológica/económica, física y sexual (Tabla 4).

Cuando se analizaron los síntomas menopáusicos, se observó que las víctimas de la VCM declararon una mayor frecuencia e intensidad de estos síntomas (cuando se midieron) en comparación con las no víctimas (véase la Tabla 5).

TABLA 1. Descriptive analyses.

DOMAIN	MENOPAUSE- HEALTH	PSYCHOLOGICAL	SEXUAL	COUPLE	QoL TOTAL score
N	Valid	118	118	118	118
	Lost	0	0	0	0
Skewness	.270	.361	.175	.598	.605
Standard error of skewness	.223	.223	.223	.223	.223
Kurtosis	-.474	-.791	-1.100	-1.167	-.639
Standard error of kurtosis	.442	.442	.442	.442	.442
Mean (SD)	39.6 (19.2)	44.2 (28.5)	50.5 (31.9)	40.6 (37.4)	43.8 (22.8)
Standard error	1.768	2.624	2.933	3.441	2.095
Range (min-max)	3.01-91.68	0-100	0-100	0-100	6.67- 97.93
Shapiro-Wilk's test	.983	.949*	.930*	.833*	.937*
Levene's test (subgroups)	.425	.000	.384	1.273	.860

* p<.001

TABLE 2. Socio-demographic characteristics of study participants

	VAW Group (n=29)	Control Group (n=89)	p
Place of residence (number of inhabitants) (%)			0.083
— Less than 30000	44.8	25.8	
— 30-100000	31	29.2	
— More than 100000	2.4	45	
Education level (%)			<.001
— Basic studies	79.3	16.9	
— College degree	6.9	24.8	
— Graduate degree	13.8	57.3	
Employment status (%)			<.001
— Housewife	6.2	11.2	
— Active	37.9	76.4	
— Unemployed	0	7.9	
— Disabled/retired	0	4.5	
Relationship status (%)			0.222
— No partner	24.1	11.2	
— Casual	24.1	25.9	
— Stable	51.2	62.9	
Tobacco use (%)			0.020
— No	65.6	76.4	
— Ex-smoker	17.2	9	
— Occasional	17.2	3.4	
— Daily	0	11.2	
Alcohol consumption (%)			0.172
— No	75.9	59.6	
— Occasional	17.2	19.1	
— Daily	6.9	21.3	
Use of psychotropic drugs for depression or anxiety (SSRI, SNRIs, antipsychotics) (%)	75.9	19.1	<0.001
Osteoporosis (%)	7.9	13.5	0.341
Other medical conditions (%)			0.086
— Type 2 diabetes	6.9	4.5	
— Breast cancer	10.3	4.5	
— Hypothyroidism	6.9	3.4	
Medication for menopausal symptoms (%)			0.379
— Menopausal hormonal therapy	3.4	4.5	
— Phytoestrogens	6.9	1.1	
BMI (mean, SD)	26.4 (5.3)	24.1 (4.7)	<0.05
Age (mean, SD)	53.1 (7.0)	52.3 (5.2)	0.582

BMI= body mass index; SD= standard deviation; SNRIs= selective serotonin reuptake inhibitor; SSRI= selective serotonin reuptake inhibitor; VAW= violence against women

TABLE 3. Quality of life scale scores and violence

DOMAIN	VAW Group M (SD)	Control Group M (SD)	t 95% CI (low – high)	P value
Menopause & health	51.5 (16.4)	35.8 (18.5)	4.071 (8.063 – 23.346)	<0.001
Psychological	69.0 (23.7)	36.1 (25.2)	6.194 (22.360 – 43.379)	<0.001
Sexual	83.1 (23.8)	39.9 (26.6)	7.798 (32.240 – 54.192)	<0.001
Couple	84.8 (33.1)	26.2 (25.6)	9.947 (46.974 – 70.331)	<0.001
Total QoL score	72.2 (18.1)	34.6 (15.2)	11.013 (30.856 – 44.388)	<0.001

QoL= quality of life; VAW= violence against women

TABLE 4. Quality of life scale scores and type of VAW

DOMAIN	PSYCHOLOGICAL/ECONOMIC VAW			SEXUAL VAW			PHYSICAL VAW		
	VAW (n=28) M (SD)	Control (n=90) M (SD)	t 95% CI (low – high)	VAW (n=16) M (SD)	Control (n=102) M (SD)	t 95% CI (low – high)	VAW (n=21) M (SD)	Control (n=97) M (SD)	t 95% CI (low – high)
MENOPAUSE -HEALTH	51.08 (16.54)	36.08 (18.65)	-3.812* (-22.794 – - 7.207)	55.60 (14.05)	37.13 (18.74)	-3.772* (-28.159 – -8.767)	53.18 (16.11)	36.71 (18.62)	-3.759* (-25.158 – -7.795)
PSYCHOLOGI CAL	68.36 (23.84)	36.68 (25.59)	-5.809* (-42.473 – - 20.875)	74.19 (21.07)	39.49 (26.65)	-4.963* (-48.547 – -20.853)	67.64 (25.33)	39.12 (26.65)	-4.483* (-41.118 – - 15.920)
SEXUAL	84.29 (23.32)	40.00 (26.44)	-7.949* (-55.320 – - 33.252)	91.25 (15.00)	44.12 (28.95)	-9.985* (-56.707 – -37.558)	80.95 (25.48)	43.92 (29.25)	-5.374* (-50.684 – - 23.386)
COUPLE	87.86 (29.35)	25.89 (25.57)	-10.809* (-73.329 – - 50.617)	93.75 (25.00)	32.26 (31.74)	-8.790* (-75.955 – -47.033)	85.24 (33.10)	30.93 (30.72)	-7.246* (-69.164 – - 39.470)
QoL TOTAL score	73.00 (17.88)	34.75 (15.25)	-11.117* (-45.064 – - 31.435)	78.39 (11.06)	38.41 (19.04)	-11.946* (-46.805 – -33.157)	71.90 (19.81)	37.75 (18.43)	-7.598* (-43.046 – - 25.244)

*p<0.001

VAW= violence against women; QoL= quality of life. Note. Bonferroni's correction when homoscedasticity was not confirmed

TABLE 5. Menopausal symptoms

	VAW Group	Control Group	P value
Insomnia (%)			<.001
— No	3	45	
— Yes	26	44	
Hot flashes/day (%)			0.011
— No	7	48	
— 1-4	22	34	
— 5-9	0	3	
— 10-20	0	2	
— >20	0	2	
Sweating crises (%)			<.001
— No	6	59	
— Yes	23	30	
Irritability (%)			0.979
— No	18	55	
— Yes	11	34	
Dysthymia (%)			<.001
— No	3	60	
— Yes	26	29	
Vaginal dryness (%)			<.001
— No	5	38	
— Mild	24	20	
— Moderate	0	18	
— Severe	0	13	
Dyspareunia (%)			<.001
— No	2	59	
— Yes	27	30	
Reduced sexual desire (%)			0.001
— No	25	47	
— Yes	4	42	

VAW= violence against women

3.3. Análisis de covariación y regresión

Se realizaron análisis de correlación para explorar las relaciones entre las puntuaciones en la escala de CdV y las variables sociodemográficas, clínicas y de estilo de vida, y para seleccionar posibles factores de confusión de la VCM. Además, los análisis de regresión multivariante que controlaban los factores de confusión indicaron que la VAW es un factor único de empeoramiento de la CdV en general en todos los dominios; además, algunas covariables también fueron predictores significativos (p. ej., nivel educativo, ingesta de alcohol).

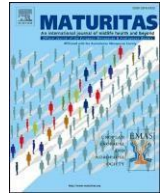
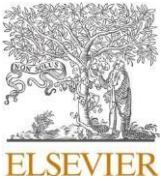
Un ANCOVA inicial rechazó la edad, la edad en la menopausia, el IMC, la PDI y el tabaquismo como covariables de las puntuaciones de CdV. Los ANCOVA realizados controlando el estado civil, el nivel educativo, la ingesta de alcohol y la terapia psiquiátrica (factores fijos) revelaron diferencias significativas entre los grupos para todas las puntuaciones excepto en el dominio Menopausia y salud (Tabla 6). En todos los dominios, excepto en el de Menopausia y Salud, la experiencia de cualquier tipo de violencia se asoció con un deterioro de la CdV relacionada con la menopausia tras tener en cuenta los factores de confusión. La varianza explicada osciló entre el 4% y el 17%, y los mayores efectos se observaron en los ámbitos de Sexualidad y Relaciones íntimas. En general, la VCM explicó el 21% de la CdV global relacionada con la menopausia.

Por último, realizamos análisis de regresión logística para calcular las OR de disminución de la CdV a causa de la VCM. Las mujeres se clasificaron en dos grupos basándose en datos normativos [5]: las que tenían una alta calidad de vida (< media normal) o una baja calidad de vida (>= media normal). La tabla 5 presenta los resultados de la puntuación global en la escala de calidad de vida tras excluir las variables de confusión no significativas. En particular, las mujeres que residían en localidades pequeñas, con niveles más bajos de dolor osteoarticular autodeclarado y síntomas psicológicos, pero con un mayor consumo de alcohol, tenían menos probabilidades de informar de una disminución de la CdV. Además, las mujeres sin antecedentes de VCM tenían un 97% menos de riesgo de disminución de la calidad de vida que las mujeres con antecedentes de VCM.

TABLE 6. Risk for decreased QoL due to VAW.

	B	Standard Error	Wald	gl	Sig.	Exp(B)
Place of residence	-.981	0.331	8.753	1	0.003	0.375
Alcohol consumption	1.168	0.352	10.990	1	<.001	3.217
Psychotropic drugs use	-1.666	0.759	4.826	1	0.028	0.189
Osteoarticular pain	-1.755	0.598	8.625	1	0.003	0.173
VAW	-3.405	1.005	11.487	1	<.001	0.033
Constant	2.397	0.966	6.194	1	0.013	10.992

QoL= quality of life; VAW= violence against women



Original article

Impact of violence against women on quality of life and menopause-related disorders

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ABSTRACT

Violence against women is a pressing global issue that poses a number of significant health risks. The influence of violence on women's health during the menopause has been underestimated, especially its impact on the early onset of menopause and on the exacerbation of symptoms that determine quality of life.

The objectives of our study were to analyse whether experiencing any type of violence increases the risk of early menopause, worsens menopausal symptoms, and results in a lower quality of life.

This cross-sectional observational study recruited 29 postmenopausal women who had experienced violence from a partner in their lifetimes. Additionally, 89 postmenopausal who had not suffered from violence were included as a control group. All the women who had experienced violence from a partner reported psychological and economic violence, 75 % reported physical violence, 57.1 % reported sexual violence, and 39.3 % reported all types of violence.

Violence was found to be associated with menopausal symptoms and poorer quality of life. These associations persisted after adjustment for multiple factors, and women who had experienced any form of violence reported a worse quality of life during menopause. Moreover, violence-exposed women reached menopause approximately 20 months earlier ($p < 0.05$), and 20.7 % of these women developed premature ovarian insufficiency ($p < 0.001$).

1. Introduction

Violence against women (VAW) is a pressing global issue that poses a number of significant health risks. Although we currently lack precise data on the number of women who have been victims of VAW, it is a pervasive social problem, with at least one in four women reaching menopause estimated to have experienced VAW [1].

Given the impaired neuroendocrine function observed in women who have experienced VAW, it is of interest to examine whether VAW can cause long-lasting effects even years after it has occurred [2]. A recent systematic review and meta-analysis found that a lifetime history of VAW is associated with increased menopausal symptoms and worse physical, sexual, and psychological health in both perimenopausal and postmenopausal women [3].

Therefore, it is necessary to investigate the influence of VAW on women's health during menopause, with a particular focus on its impact on other conditions, such as early onset of menopause and the exacerbation of symptoms that, in turn, determine quality of life (QoL).

The objectives of our study were to analyse whether experiencing any type of VAW increases the risk of early menopause, worsens menopausal symptoms, and results in a lower QoL.

2. Methods

This cross-sectional study is part of a larger project that specifically targets postmenopausal women who have experienced VAW during their lives. As described in the corresponding research paper, VAW is defined as "any act of violence against an individual belonging to the female gender that results in physical, sexual, or psychological harm or suffering for the woman, as well as threats of such acts, coercion, or arbitrary deprivation of liberty, whether this occurs in public or private life" [4]. In addition, economic violence was defined as the control of a woman's ability to obtain economic resources that limits her self-sufficiency.

In this observational study, we recruited postmenopausal women who had experienced VAW at some point in their lives and who had

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either reported VAW or sought medical advice for menopause-related issues.

Women with pre-existing endocrine or gynaecological diseases before experiencing VAW were excluded. A control group consisted of postmenopausal women who attended the same clinic on the same date and who had not suffered from VAW, according to a self-report.

2.1. Measures

Clinical data were gathered during the medical interviews, paying special attention to menopausal symptoms and any associated disorders. Additionally, the use of medications or toxic substances related to the history of VAW was recorded. Menopausal symptoms and QoL were evaluated by the Cervantes Scale in all cases. The Cervantes Scale is a Spanish validated questionnaire to measure health-related quality of life in perimenopausal and menopausal women. Information was gathered on independent variables directly related to the type of VAW suffered (economic, psychological, sexual, or physical) and dependent variables [5].

Other variables that could potentially influence the history of VAW were also documented, such as socio-demographic factors (age, age at menopause, educational level, employment status, marital status, and size of locality), as well as lifestyle-related control variables (body mass index -BMI-, and tobacco or alcohol consumption). Age at menopause was defined as age at the last menstrual period.

2.2. Data analysis

Analysis of data distribution, normality, and homoscedasticity were conducted to determine the appropriate statistical tests. Student's *t*-test for independent samples was used for between-group comparisons, while Pearson's chi-square test was used for categorical variables. Analyses of covariance (ANCOVAs) were used to control for covariates. Multivariate regression analyses were employed to explore the predictors of menopause-related QoL. In cases where it was possible to quantify the effect of VCM on the risk of menopausal symptoms or poorer quality of life, the odds ratio (OR) was calculated for each category using logistic regression.

2.3. Ethical considerations

This study was approved by the FIBAO ethics committee (file number 6hWMS752PFIRMAVHc6wPlZT2+f1x4Y). All personal data obtained in this study were confidential and stored and processed following the EU Regulation 2016/679 of the European Parliament. Individuals participating in this study were able to exercise the rights of access, rectification, deletion, limitation of processing, data portability, and opposition established in the regulation mentioned above. All women involved in the study gave their informed written consent.

3. Results

No missing data was detected, except a missing value for education level. Preliminary analyses conducted with total and partial QoL scores to check data accuracy and distribution revealed acceptable skewness and kurtosis. Although Shapiro-Wilk's test of normality was significant for most of the variables, Levene's test for homogeneity of variances (VAW vs. controls) was non-significant for all variables (Supp. File). Therefore, we decided to use parametric tests.

A total of 118 postmenopausal women aged 40 to 68 years met the eligibility criteria and completed all the surveys (mean age $\pm$ standard deviation 52.5 ± 5.7). Of the sample, 29 women (24.6 %) had experienced VAW at some point in their lives. Specifically, 24 of them had reported experiencing VAW prior to their inclusion in the study, while

five admitted to having experienced VAW during the first interview. Twenty-eight of the participants (96.5 %) reported a history of intra-partner violence, while one woman reported sexual violence by a man other than her partner. Among the women who had experienced intra-partner violence, all of them reported instances of psychological and economic violence, 75 % reported incidents of physical violence, 57.1 % reported occurrences of intra-partner sexual violence, and 39.3 % reported experiencing all types of violence.

Regarding socio-demographic characteristics, no differences were found between women with or without VAW experience in terms of age, marital status, locality, alcohol consumption, osteoporosis or other comorbidities (breast cancer, type 2 diabetes or hypothyroidism), as well as use of treatments for menopausal symptoms. However, differences were found in educational level, employment status, treatment for anxiety or depression, body mass index (BMI), and smoking (Table 1).

3.1. Association between violence and age at menopause

The mean age at menopause was $46.83 (\pm 4.34)$ years for women who experienced VAW, while for control women without VAW, it was $48.52 (\pm 2.69)$ ($t = -1.979$, $p < 0.05$; 95 % CI: $3.029 - 0.350$). A total of 20.7 % of women who had experienced VAW also suffered from premature ovarian insufficiency (POI), compared to 2.2 % of

Table 1
Socio-demographic characteristics of study participants.

	VAW Group	Control Group	p
	(n = 29)	(n = 89)	
Place of residence (number of inhabitants) (%)			0.083
— <30,000	44.8	25.8	
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Education level (%)			<0.001
— Basic studies	79.3	16.9	
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Employment status (%)			<0.001
— Housewife	6.2	11.2	
— Active	37.9	76.4	
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Relationship status (%)			0.222
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Alcohol consumption (%)			0.172
— No	75.9	59.6	
— Occasional	17.2	19.1	
— Daily	6.9	21.3	
Use of psychotropic drugs for depression or anxiety (SSRI, SNRIs, antipsychotics) (%)	75.9	19.1	<0.001
Osteoporosis (%)	7.9	13.5	0.341
Other medical conditions (%)			0.086
— Type 2 diabetes	6.9	4.5	
— Breast cancer	10.3	4.5	
— Hypothyroidism	6.9	3.4	
Medication for menopausal symptoms (%)			0.379
— Menopausal hormonal therapy	3.4	4.5	
— Phytoestrogens	6.9	1.1	
BMI (mean, SD)	26.4 (5.3)	24.1 (4.7)	<0.05
Age (mean, SD)	53.1 (7.0)	52.3 (5.2)	0.582

BMI = body mass index; SD = standard deviation; SNRIs = selective serotonin reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor; VAW = violence against women.

women in the control group ($X_2 = 11.771$, $p < 0.001$).

3.2. Association between violence and menopausal symptoms

Women who have been victims of VAW scored significantly higher on the Cervantes Scale (i.e., greater negative impact of menopause on perceived QoL) compared to control women. On average, scores among VAW victims were two-fold higher, and three-fold higher in the Intimate relationships' domain (Table 2). We also examined whether there were differences based on the type of VAW experienced. Since we observed that all victims of psychological abuse had also experienced economic VAW, we restricted our analyses to physical, psychological/economic, and sexual forms of VAW. Menopause-related QoL was significantly lower for women experiencing psychological/economic, physical, and sexual violence (Table 3).

When menopausal symptoms were analysed, it was observed that VAW victims reported a higher frequency and intensity of these symptoms (when measured) compared to non-victims (see Table 4).

3.3. Covariation and regression analyses

Correlation analyses were conducted to explore the relationships between scores on the QoL scale and sociodemographic, clinical, and lifestyle variables and to select possible confounders of VAW. Moreover, multivariate regression analyses controlling for confounders indicated that VAW is a unique of worsened QoL in general in all domains; in addition, a few covariates were also significant predictors (e.g., education level, alcohol intake).

An initial ANCOVA rejected age, age at menopause, BMI, POI, and smoking as covariates of QoL scores. ANCOVAs conducted controlling for marital status, education level, alcohol intake, and psychiatric therapy (fixed factors) revealed significant between-group differences for all scores except the Menopause and Health domain [5]. In all domains, except for the Menopause and Health domain, the experience of any type of violence was associated with impaired menopause-related QoL after accounting for confounding factors. The explained variance ranged from 4 to 17 %, with the largest effects being observed for the Sexuality and Intimate relationships domains. Overall, VAW explained 21 % of global menopause-related QoL.

Finally, we conducted logistic regression analyses to calculate the ORs for decreased QoL because of VAW. Women were categorised into two groups based on normative data [5]: those with high QoL ($< \text{norms average}$) or low QoL ($\geq \text{norms average}$). Table 5 presents the findings for the global score on the QoL scale after excluding non-significant confounding variables. Notably, women residing in small localities, with lower levels of self-reported osteoarticular pain and psychological symptoms, but having higher alcohol intake, were less likely to report decreased QoL. Furthermore, women with no history of VAW had a 97 % lower risk of decreased QoL compared to those with a history of VAW.

Table 2
Quality of life scale scores and violence.

Domain	VAW group M (SD)	Control group M (SD)	t	95 % CI (low - high)	P value
Menopause & health	51.5 (16.4)	35.8 (18.5)	4.071	(8.063-23.346)	<0.001
Psychological	69.0 (23.7)	36.1 (25.2)	6.194	(22.360-43.379)	<0.001
Sexual	83.1 (23.8)	39.9 (26.6)	7.798	(32.240-54.192)	<0.001
Couple	84.8 (33.1)	26.2 (25.6)	9.947	70.331)	<0.001
		Total QoL score		72.2	

4. Discussion

Despite the growing recognition of VAW as a critical issue for women's overall health, there remains a lack of studies that adequately investigate its long-term impact, particularly concerning the health problems that may develop during mid-life and the postmenopausal stage. It is estimated that, for every woman who loses her life due to VAW, >400 suffer varying degrees of severe disability. This number rises dramatically when considering other less severe or "silent" disabilities, many of which share clinical similarities with menopausal symptoms [6,7]. VAW has been associated with increased long-term health risks, spanning a range of issues from chronic pain in different areas of the body to severe sexual and psychological disorders [2,8]. In addition, women who have suffered VAW at any point in their lives also tend to experience worse menopausal symptoms [3,9].

In the current study, we have found that experiencing any form of VAW at any point in a woman's life was associated with a poorer postmenopausal QoL. These findings contribute to the limited body of literature on the impact of all types of VAW —both recent and past— on menopausal symptoms [2,3,10]. Notably, a history of VAW was associated with more severe menopausal symptoms across all domains, including somatic, psychological, and sexual symptoms [11,12]. In our study, we observed a robust association in all domains, with the most pronounced impact being evident in the psychological, sexual, and couple-related domains. Although less pronounced, significant associations were also observed in the menopause and health domain.

Multivariate analysis revealed the significant impact of VAW on lower QoL scores, suggesting that there is a component of VAW associated with menopausal symptoms that is not explained by other variables included in this study such as age, partner status, education level, employment status, or use of menopausal therapies. Overall, VAW explained 21 % of global menopause-related QoL and women who had not experienced VAW had a 97 % lower risk of decreased QoL when compared to women with a history of VAW.

The strengths of the current study include the comprehensive assessment of the types of VAW suffered and their impact on global QoL and specific domains, including menopausal symptomatology. The use of a robust and validated instrument, the Cervantes Scale, tailored to Spanish postmenopausal women, as well as the adjustment for multiple potentially influential factors on these symptoms, all contribute to the reliability of the findings.

The limitations of the study primarily concern the sample size. As already noted in the parent research report [4], this reflects the challenges faced by these women in attending health centres. These difficulties arise both due to personal obstacles faced by the women themselves and because of the administrative barriers imposed by political parties opposed to the concepts related to VAW and to the integral attention of women who are victims of VAW.

Neurobiological and epigenetic mechanisms have been proposed to explain the relationship between VAW and increased severity of menopausal symptoms [13,14]. Such mechanisms are also thought to be involved in the earlier age of menopause and its long-term effects. While some explanations point directly to hypoestrogenism, others suggest

alterations in the sympathetic nervous system, the hypothalamic-pituitary-adrenal axis, or the serotonergic pathways following VAW [15,16]. In addition, the increased prevalence of psychiatric problems

among women who have experienced VAW may influence their perception of menopausal symptoms, which could result in altered pain

thresholds and the perceptions of symptoms such as hot flashes or insomnia [17]. It is highly likely that there are other undiscovered brain pathways linking VAW and menopausal symptomatology, opening up interesting avenues for future research. In this regard, it is worth noting

that VAW suffered in childhood or at a young age has been linked to

34.6	(46.974-	(15.2)	11.013	<0.001
	(18.1)		(30.856-44.388)	

QoL = quality of life; VAW = violence against women.

alterations in the perception of certain symptoms and adulthood, potentially even increasing the risk of cognitive impairment [18].

Table 3
Quality of life scale scores and type of VAW.

Domain	Psychological/economic VAW			Sexual VAW			Physical VAW		
	VAW (n = 28) M (SD)	Control (n = 90) M (SD)	t 95 % CI (low - high)	VAW (n = 16) M (SD)	Control (n = 102) M (SD)	t 95 % CI (low - high)	VAW (n = 21) M (SD)	Control (n = 97) M (SD)	t 95 % CI (low - high)
Menopause- health	51.08	36.08	−3.812* (− 22.794 to	55.60	37.13 (18.74)	−3.772* (− 28.159 to	53.18	36.71	−3.759* (− 25.158 to
Psychological	68.36 (23.84)	36.68 (25.59)	−7.207) −5.809* (−42.473 to	74.19 (21.07)	39.49 (26.65)	−8.767) −4.963* (−48.547 to	67.64 (25.33)	39.12 (26.65)	−7.795) −4.483* (−41.118 to
Sexual	84.29 (23.32)	40.00 (26.44)	−20.875) −7.949* (−	91.25 (15.00)	44.12 (28.95)	−20.853) −9.985* (−56.707 to	80.95 (25.48)	43.92 (29.25)	−15.920) −5.374* (−
Couple	87.86 (29.35)	25.89 (25.57)	−33.252) −10.809* (−73.329 to	93.75 (25.00)	32.26 (31.74)	−37.558) −8.790* (−75.955 to	85.24 (33.10)	30.93 (30.72)	−23.386) −7.246* (−
QoL total score	73.00	34.75	−50.617) −11.117* (−31.435)	78.39	38.41 (19.04)	−47.033) −11.946* (−33.157)	71.90	37.75	−39.470) −7.598* (−43.046 to

VAW = violence against women; QoL = quality of life. Note. Bonferroni's correction when homoscedasticity was not confirmed.
* p < 0.001.

Table 4
Menopausal symptoms.

	VAW group	Control group	P value
Insomnia (%)			<0.001
— No	3	45	
— Yes	26	44	
Hot flashes/day (%)			0.011
— No	7	48	
— 1–4	22	34	
— 5–9	0	3	
— 10–20	0	2	
— >20	0	2	
Sweating crises (%)			<0.001
— No	6	59	
— Yes	23	30	
Irritability (%)			0.979
— No	18	55	
— Yes	11	34	
Dysthymia (%)			<0.001
— No	3	60	
— Yes	26	29	
Vaginal dryness (%)			<0.001
— No	5	38	
— Mild	24	20	
— Moderate	0	18	
— Severe	0	13	
Dyspareunia (%)			<0.001
— No	2	59	
— Yes	27	30	
Reduced sexual desire (%)			0.001
— No	25	47	
— Yes	4	42	

VAW = violence against women.

4.1. Age at menopause, POI, and history of VAW

The data on earlier age of menopause and the risk of developing POI are particularly intriguing. Women who had experienced VAW reached menopause approximately 20 months earlier compared to their non-exposed counterparts, one in five experiencing menopause under the age of 40. While the far-reaching consequences of VAW, especially in terms of mental and cardiovascular health, are well-documented and associated with increased premature mortality from causes other than physical aggression [2,3,10–12], there is limited evidence on the association between VAW and earlier menopause or increased risk of POI. To our knowledge, this is the first published account detailing the risk of accelerated menopause due to VAW.

Table 5
Risk for decreased QoL due to VAW.

	B	Standard error	Wald	gl	Sig.	Exp(B)
Place of residence	−0.981	0.331	8.753	1	0.003	0.375
Alcohol consumption	1.168	0.352	10.990	1	<0.001	3.217
Psychotropic drugs use	−1.666	0.759	4.826	1	0.028	0.189
Osteoarticular pain	−1.755	0.598	8.625	1	0.003	0.173
VAW	−3.405	1.005	11.487	1	<0.001	0.033
Constant	2.397	0.966	6.194	1	0.013	10.992

QoL = quality of life; VAW = violence against women.

Although the precise reasons for this finding remain unclear, it could potentially be attributed to the greater propensity of these women to engage in behaviours such as the use of psychotropic drugs and harmful habits such as smoking, which are more frequently observed in this group. All forms of VAW predispose women to lifestyle-related risk factors, increasing the risk of more severe menopausal symptoms and earlier onset of menopause. For instance, smoking has been associated with a one-year reduction in age at natural menopause and could potentially explain the relationship between VAW and early menopause [19]. However, according to our multifactorial analysis, this advancement was not dependent on these factors, suggesting that VAW itself may itself contribute to the earlier onset of menopause.

Another plausible explanation revolves around the increased risk of gynaecological interventions in women exposed to VAW, potentially due to the increased risk of diseases that necessitate such procedures (infections, tumours) [20]. However, in our study, only one patient underwent hysterectomy and double adnexectomy, but it was not the cause of POI. Nevertheless, we should be cautious about this association between VAW and POI due to the small sample size, which will require further studies.

5. Conclusion

In this cross-sectional study, VAW was found to be associated with menopausal symptomatology and poor QoL. These associations persisted after adjustment for multiple factors, and women who had experienced any form of VAW showed a worse QoL during menopause. Moreover, VAW-exposed women reached menopause approximately 20

months earlier, 20.7 % of whom developed POI.

Experiencing any form of VAW at any point in a woman's life can have a detrimental impact on her overall health, particularly during mid-life and postmenopausal stages.

Contributors

Loreto Mendoza-Huertas contributed to conception and design of the study, acquisition, analysis and interpretation of data, and drafting and revising the article critically for important intellectual content.

Nicolás Mendoza conception and design of the study, analysis and interpretation of data, and drafting and revising the article critically for important intellectual content.

Débara Godoy-Izquierdo contributed to conception of the manuscript and analysis and interpretation of data, and drafting and revising the article critically for important intellectual content.

All authors have seen and approved the final version of the manuscript, and warrant that the article is the authors' original work, has not been published previously, is not under consideration for publication elsewhere, and will not be published elsewhere in any format.

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Ethical approval

This study was approved by the FIBAO ethics committee (file number 6hWMS752PFIRMAVHc6wPtZT2 4x4Y). All personal data obtained in this study were confidential and stored and processed following the EU Regulation 2016/679 of the European Parliament. Individuals participating in this study were able to exercise the rights of access, rectification, deletion, limitation of processing, data portability, and opposition established in the regulation mentioned above. All women involved in the study gave their informed written consent.

Provenance and peer review

This article was not commissioned and was externally peer reviewed.

Research data (data sharing and collaboration)

There are no linked research data sets for this paper. Data will be made available on request.

Declaration of competing interest

The authors declare that they have no competing interest.

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Appendix A. Supplementary data

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References

- [1] S.R. Meyer, M.E. Lasater, L. Lee, C. Garcia-Moreno, Measurement of violence against women and disability: protocol for a scoping review, *BMJ Open* 10 (12) (2020), e040104, <https://doi.org/10.1136/bmjopen-2020-040104>.
- [2] E. Kapoor, M. Okuno, V.M. Miller, L.G. Rocca, W.A. Rocca, J.M. Kling, C.L. Kuhle, K.C. Mara, F.T. Enders, S.S. Faubion, Association of adverse childhood experiences with menopausal symptoms: results from the Data Registry on Experiences of Aging, Menopause and Sexuality (DREAMS), *Maturitas* 143 (2021) 209–215, <https://doi.org/10.1016/j.maturitas.2020.10.006>.
- [3] L. Mendoza-Huertas, I. Garcia Jabalera, N. Mendoza, Effects of violence against women on health during menopause: a systematic review and meta-analysis, *Clin. Exp. Obstet. Gynecol.* 48 (6) (2021) 1292–1299, <https://doi.org/10.31083/j.ceog4806205>.
- [4] L. Mendoza-Huertas, N. Mendoza, Impact of violence against women on sexual and reproductive health: research protocol and results from a pilot study, *Clin. Exp. Obstet. Gynecol.* 49 (7) (2022) 145, <https://doi.org/10.31083/j.ceog4907145>.
- [5] P.J. Coronado, M. Monroy, M. Faserio, R. Sánchez-Borrego, S. Palacios, J. Rejas, M. A. Ruiz, AEEM collaborative group for the study of psychometric validation of the Cervantes short-form. Population-based norms for the Cervantes-SF short-form questionnaire assessing health-related quality of life in menopause, *Maturitas* 146 (2021) 34–41, <https://doi.org/10.1016/j.maturitas.2021.01.004>.
- [6] World Health Organization, WHO Multi-Country Study on Women's Health and Domestic Violence Against Women, ISBN: 9241593512. 2012. Available at, <https://apps.who.int/iris/handle/10665/43310>.
- [7] A. Stubbs, C. Szoek, The effect of intimate partner violence on the physical health and health-related behaviors of women: a systematic review of the literature, *Trauma Violence Abuse* 23 (4) (2022) 1157–1172, <https://doi.org/10.1177/1524838020985541>.
- [8] J.C. Chang, E. Miller, R.C. Thurston, Addressing intimate partner violence with midlife women: awareness, support, empowerment, *Menopause* 28 (11) (2021) 1313–1315, <https://doi.org/10.1097/GME.0000000000001832>.
- [9] L.A. Goldstein, K.P. Jakubowski, A.J. Huang, K.H. Seal, S. Maguen, S.S. Inslicht, A. L. Byers, C.J. Gibson, Lifetime history of interpersonal partner violence is associated with insomnia among midlife women veterans, *Menopause* 30 (4) (2023) 370–375, <https://doi.org/10.1097/GME.0000000000002152>.
- [10] S. Vegunta, C. Kühle, J.M. Kling, J.A. Files, E. Kapoor, P.S. David, J. Rullo, R. Sood, J.M. Thielen, A. Jatoti, D.R. Schroeder, S.S. Faubion, The association between recent abuse and menopausal symptom bother: results from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS), *Menopause* 23 (5) (2016) 494–498, <https://doi.org/10.1097/GME.0000000000000578>.
- [11] R.C. Thurston, J. Bromberger, Y. Chang, E. Goldbacher, C. Brown, J. M. Cyranowski, K.A. Matthews, Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women, *Menopause* 15 (1) (2008) 16–22.
- [12] M.Y. Carson, R.C. Thurston, Childhood abuse and vasomotor symptoms among midlife women, *Menopause* 26 (10) (2019) 1093–1099, <https://doi.org/10.1097/GME.0000000000001366>.
- [13] E. McCrory, S.A. De Brito, E. Viding, Research review: the neurobiology and genetics of maltreatment and adversity, *J. Child Psychol. Psychiatry* 51 (10) (2010) 1079–1095, <https://doi.org/10.1111/j.1469-7610.2010.02271.x>.
- [14] Y. Hakamata, Y. Suzuki, H. Kobashikawa, H. Hori, Neurobiology of early life adversity: a systematic review of meta-analyses towards an integrative account of its neurobiological trajectories to mental disorders, *Front. Neuroendocrinol.* 65 (2022), 100994, <https://doi.org/10.1016/j.yfrne.2022.100994>.
- [15] S. Shanmugan, W. Cao, T.D. Satterthwaite, M.D. Sammel, A. Ashourvan, D. S. Bassett, K. Ruparel, R.C. Gur, C.N. Epperson, J. Loughhead, Impact of childhood adversity on network reconfiguration dynamics during working memory in hypogonadal women, *Psychoneuroendocrinology* 119 (2020), 104710, <https://doi.org/10.1016/j.psyneuen.2020.104710>.
- [16] S. Shanmugan, J. Loughhead, W. Cao, M.D. Sammel, T.D. Satterthwaite, K. Ruparel, R.C. Gur, C.N. Epperson, Impact of tryptophan depletion on executive system function during menopause is moderated by childhood adversity, *Neuropsychopharmacology* 42 (12) (2017) 2398–2406, <https://doi.org/10.1038/npp.2017.64>.
- [17] D.A. Schoenaker, C.A. Jackson, J.V. Rowlands, G.D. Mishra, Socioeconomic position, lifestyle factors and age at natural menopause: a systematic review and meta-analyses of studies across six continents, *Int. J. Epidemiol.* 43 (5) (2014) 1542–1562, <https://doi.org/10.1093/ije/dyu094>.
- [18] E. McCrory, S.A. De Brito, E. Viding, The link between child abuse and psychopathology: a review of neurobiological and genetic research, *J. R. Soc. Med.* 105 (4) (2012) 151–156, <https://doi.org/10.1258/jrsm.2011.110222>.
- [19] G.D. Mishra, H.F. Chung, Y.A. Gelaw, D. Loxton, The role of smoking in the relationship between intimate partner violence and age at natural menopause: a mediation analysis, *Womens Midlife Health* 4 (2018) 1, <https://doi.org/10.1186/s40695-017-0031-9>.
- [20] L. Gazzuola Rocca, C.Y. Smith, B.R. Grossardt, S.S. Faubion, L.T. Shuster, E. A. Stewart, W.A. Rocca, Adverse childhood or adult experiences and risk of bilateral oophorectomy: a population-based case-control study, *BMJ Open* 7 (5) (2017), e016045, <https://doi.org/10.1136/bmjopen-2017-016045>.

VI DISCUSION

VI. 1. Sobre el estudio piloto: reflexiones iniciales

La VCM es una pandemia que afecta a todas las mujeres por igual, da igual su edad, condición, procedencia social o educación recibida. Por mucho que algunos colectivos se empeñen, la VCM no depende de las mujeres, pero sí se ceba con ellas: en esta primera muestra, la VCM es un claro agente nocivo para su salud sexual, reproductiva y general.

VI. 2. Sobre la revisión sistemática y metaanálisis

Este artículo presenta la primera revisión sistemática y metaanálisis para evaluar los efectos de la VCM (experimentada en cualquier momento antes de la menopausia) sobre la salud de las mujeres durante la menopausia. En general, nuestros hallazgos indican que la VCM tiene un impacto significativo sobre los síntomas menopáusicos y la salud sexual. Además, las mujeres que han sufrido violencia, sobre todo de naturaleza sexual, presentaron más síntomas urinarios y un empeoramiento de su estado físico y salud psicológica.

Como se ha señalado anteriormente, a efectos analíticos, hemos considerado todas las formas posibles de VCM. Éstas incluyen el abuso verbal, emocional, físico o sexual, que puede ocurrir dentro o fuera de una relación de pareja, ya que consideramos que el vínculo entre la función neuroendocrina y la aparición de síntomas menopáusicos y problemas de salud en este periodo es el mismo para todos los tipos de abuso.

A pesar de la creciente concienciación sobre la importancia de la VCM en cualquiera de sus formas para la salud general de las mujeres, son relativamente pocos los estudios que han investigado adecuadamente los efectos a largo plazo de este tipo de violencia, en particular sobre los problemas de salud durante la mediana edad y la madurez, es decir, el periodo postmenopáusico.

Otro motivo de preocupación es el número estimado de mujeres que han sufrido algún grado de discapacidad grave debido a la VCM. Esta cifra aumenta considerablemente si tenemos en cuenta otras discapacidades menos graves o "silenciosas", muchas de las cuales tienen una presentación clínica similar a los síntomas de la menopausia (World Health Organization 2005)

Sin embargo, aunque la bibliografía es escasa, algunos estudios han observado las consecuencias de la VAW en la salud ginecológica a largo plazo, que son muy similares a los síntomas que se producen tras el hipoestrogenismo (Thurston et al 2018). La conexión neuroendocrina entre la VCM y el hipoestrogenismo es la misma que la observada en situaciones de mucho estrés que causan amenorrea central, además de las secuencias psicológicas o sexuales, que son similares a las causadas por los trastornos de estrés postraumático (Assari et al 2019, Bremner et al 2017).

En otro sentido, las mujeres no suelen plantear preguntas sobre la VCM (Moraes et al 2012), o los médicos no las formulan (Rodriguez et al 1999) Aunque se trata de dos cuestiones diferentes, ambas ponen de relieve la necesidad de que los profesionales sanitarios añadan las cuestiones relativas a la VCM a la lista de acciones para promover enfoques transformadores de género en los objetivos de desarrollo sostenible para mejorar la salud (Manandhar et al 2018).

Además, los necesarios y estrictos confinamientos impuestos por las autoridades en respuesta a la pandemia de COVID-19 han repercutido en la salud general de las mujeres, cuya atención no ha cumplido las normas que habían establecido previamente las sociedades científicas. Nuestra revisión es la primera que aborda sistemáticamente la búsqueda realizada sobre la influencia de la VCM en cualquiera de sus formas sobre la salud de la mujer durante la menopausia, aunque otras revisiones narrativas han proporcionado actualizaciones sobre este tema (Ali et al 2019, Tracy et al 2016).

Esta revisión sistemática ha reunido las pruebas disponibles sobre los efectos de la VCM en la salud de las mujeres durante la menopausia. Esta revisión no se limitó a la violencia sexual o de género, sino que se amplió para incluir el registro de publicaciones sobre otras formas de maltrato con el fin de ofrecer una perspectiva más amplia de la influencia del maltrato en la salud de las mujeres menopáusicas.

Nuestra búsqueda identificó 19 estudios que incluían datos sobre el impacto de la VCM en los síntomas menopáusicos u otros problemas de salud habituales durante este periodo, como afecciones genitourinarias, psicológicas, sexuales y físicas. Según los datos comunicados por Vegunta 2016, se han observado asociaciones entre la VCM y la adiposidad, el síndrome metabólico y la enfermedad cardiovascular subclínica en la mediana edad. Algunos de los estudios incluidos en esta revisión hallaron que las mujeres que admitían haber sufrido malos tratos presentaban más síntomas menopáusicos al ajustar los datos por posibles factores de confusión y demográficos, lo que refuerza la idea de que la VCM afecta a las mujeres independientemente de su edad, origen étnico o estatus socioeconómico (Vegunta et al 2016).

Son especialmente interesantes los datos que indican un aumento de los síntomas vasomotores nocturnos que presentan las mujeres que han sufrido violencia. Las alteraciones del sueño pueden deberse a problemas distintos de los sudores nocturnos que experimentan muchas mujeres durante la menopausia, que pueden explicarse por la variabilidad de la frecuencia cardíaca o las alteraciones del sistema nervioso simpático y del eje hipotalámico-hipofisario-adrenal. Todavía se sabe relativamente poco sobre la neurobiología de los sofocos y sus manifestaciones nocturnas, pero lo que resulta fascinante es la posibilidad de que los traumas infantiles o la VCM puedan determinar la fisiología de la mujer desde la infancia hasta la etapa posmenopáusica de la vida (Thurston et al 2008, Carson et al 2019, Gibson et al 2019).

Así pues, parece que la violencia sufrida en las primeras etapas de la vida de una mujer (ya en la infancia) podría repercutir en la salud reproductiva a medio plazo, como el periodo de embarazo/perinatal (Brunton et al 2021). La VCM se ha asociado a mayores riesgos para la salud a largo plazo, como dolor pélvico crónico, migrañas, lumbalgia, síndrome del intestino irritable, ansiedad, depresión, consumo de drogas y alcohol, somatización y mala función sexual. Ciertos comportamientos relacionados con la salud también se han relacionado con la VCM en la infancia, como los trastornos alimentarios, la obesidad o el tabaquismo (Pinkerton et al 2008).

Además, y aunque no se ha incluido en esta revisión otros estudios han demostrado que los antecedentes de VCM pueden favorecer la aparición de trastornos perimenopáusicos, reducir la edad de inicio de la menopausia o disminuir los niveles hormonales.

Estas observaciones apoyan la noción de una relación entre los trastornos neuroendocrinos y el hipoestrogenismo (Ryan et al 2016). Otro estudio clave descubrió que los antecedentes de VCM se asociaban con un mayor riesgo de someterse a una ooforectomía bilateral y, en consecuencia, de presentar síntomas asociados con el hipoestrogenismo (Gazzuola et al 2017). La experiencia de VAW es común entre las mujeres estadounidenses, y se ha informado de su asociación con el pronóstico tardío de cánceres femeninos en estadio avanzado (mama, ovario, endometrio) (Modesitt et al 2016).

Limitaciones

La principal limitación de esta revisión se deriva de la baja calidad de los estudios seleccionados. Se trata de estudios transversales, algunos de ellos clasificados como cohortes por sus autores, con una considerable heterogeneidad clínica en sus diseños. Además, las limitaciones más reconocidas en los estudios incluyen el pequeño tamaño de la muestra, el uso de autoinformes retrospectivos de los síntomas sufridos y la falta de datos sobre la intensidad de los síntomas menopáusicos, en particular los síntomas vasomotores.

Sin embargo, a pesar de obtener una puntuación alta en la prueba de heterogeneidad, podríamos considerar que este resultado es informativo, ya que indica el alto grado de dispersión de los efectos notificados en los estudios aquí revisados.

VI. 2. Sobre el Impacto de la violencia contra la mujer en la calidad de vida y los trastornos relacionados con la menopausia.

A pesar del creciente reconocimiento de la VCM como un problema crítico para la salud general de la mujer, siguen faltando estudios que investiguen adecuadamente su impacto a largo plazo, especialmente en lo que se refiere a los problemas de salud que pueden desarrollarse durante la mediana edad y la etapa postmenopáusica. Se calcula que, por cada mujer que pierde la vida a causa de la VCM, más de 400 sufren diversos grados de discapacidad grave. Esta cifra aumenta drásticamente si se tienen en cuenta otras discapacidades menos graves o "silenciosas", muchas de las cuales comparten similitudes clínicas con los síntomas menopáusicos (Stubbs et al 2022). La VCM se ha asociado a mayores riesgos para la salud a largo plazo, que abarcan una serie de problemas que van desde el dolor crónico en distintas zonas del cuerpo hasta trastornos sexuales y psicológicos graves (Kapoor et al 2020, Chang et al 2021). Además, las mujeres que han sufrido VCM en algún momento de su vida también tienden a experimentar peores síntomas menopáusicos (Mendoza-Huertas et al 2021, Goldstein et al 2023).

En el presente estudio, hemos observado que sufrir cualquier forma de VCM en cualquier momento de su vida se asociaba a una peor calidad de vida postmenopáusica. Estos hallazgos contribuyen a la limitada literatura sobre el impacto de todos los tipos de VCM tanto reciente como pasada en los síntomas menopáusicos (Vegunta et al 2010, Kapoor et al 2020, Mendoza-Huertas et al 2021). En particular, los antecedentes de VCM se asociaron con síntomas menopáusicos más graves en todos los ámbitos, incluidos los síntomas somáticos, psicológicos y sexuales (Thurston et al 2008, Carson et al 2019). En nuestro estudio, observamos una asociación sólida en todos los dominios, siendo evidente el impacto más pronunciado en los dominios psicológico, sexual y relacionado con la pareja. Aunque menos pronunciadas, también se observaron asociaciones significativas en el ámbito de la menopausia y la salud.

El análisis multivariante reveló el impacto significativo de la VCM en las puntuaciones más bajas de la CdV, lo que sugiere que existe un componente de VCM asociado a los síntomas menopáusicos que no se explica por otras variables incluidas en este estudio, como la edad, la situación de pareja, el nivel educativo, la situación laboral o el uso de terapias menopáusicas. En general, la VCM explicó el 21% de la CdV global relacionada con la menopausia y las mujeres que no habían experimentado VCM tenían un 97% menos de riesgo de disminución de la CdV en comparación con las mujeres con antecedentes de VCM.

Los puntos fuertes del presente estudio incluyen la evaluación exhaustiva de los tipos de VCM sufrida y su impacto en la CdV global y en dominios específicos, incluida la sintomatología menopáusica. El uso de un instrumento robusto y validado, la Escala Cervantes, adaptada a las mujeres postmenopáusicas españolas, así como el ajuste por múltiples factores potencialmente influyentes en estos síntomas, contribuyen a la fiabilidad de los resultados.

Las limitaciones del estudio se refieren principalmente al tamaño de la muestra. Como ya se señaló en el informe de la investigación principal (Mendoza-Huertas et al 2022), esto refleja las dificultades a las que se enfrentan estas mujeres para acudir a los centros de salud. Estas dificultades surgen tanto por los obstáculos personales a los que se enfrentan las propias mujeres como por las barreras administrativas impuestas por los partidos políticos opuestos a los conceptos relacionados con la VCM y a la atención integral de las mujeres víctimas de VCM. Se han propuesto mecanismos neurobiológicos y epigenéticos para explicar la relación entre la VCM y la mayor gravedad de los síntomas menopáusicos (McCrory et al 2010, Hakamata et al 2022). También se cree que estos mecanismos están implicados en el adelanto de la menopausia y sus efectos a largo plazo. Mientras que algunas explicaciones apuntan directamente al hipoestrogenismo, otras sugieren alteraciones en el sistema nervioso simpático, el eje hipotálamo-hipófisis-suprarrenal o las vías serotoninérgicas tras la VCM (Shanmugan et al 2020, Shanmugan et al 2017). Además, la mayor prevalencia de problemas psiquiátricos entre las mujeres que han sufrido una VCM puede influir en su percepción de los síntomas menopáusicos, lo que podría dar lugar a una alteración de los umbrales del dolor y de la percepción de síntomas como los sofocos o el insomnio (Schoenaker et al 2014). Es muy probable que existan otras vías cerebrales no descubiertas que relacionen la VCM y la sintomatología menopáusica, lo que abre interesantes vías para futuras investigaciones. En este sentido, cabe destacar que la VCM sufrida en la infancia o a una edad temprana se ha relacionado con alteraciones en la percepción de determinados síntomas y comportamientos en la edad adulta, pudiendo incluso aumentar el riesgo de deterioro cognitivo (McCrory et al 2012).

Edad a la menopausia e historia de violencia

Los datos sobre el adelanto de la edad de la menopausia y el riesgo de desarrollar IOP son especialmente intrigantes. Las mujeres que habían sufrido VCM llegaban a la menopausia aproximadamente 20 meses antes que las mujeres no expuestas, y una de cada cinco llegaba a la menopausia antes de los 40 años.

Mientras que las consecuencias de largo alcance de la VCM, especialmente en términos de salud mental y cardiovascular, están bien documentadas y se asocian con un aumento de la mortalidad prematura por causas distintas a la agresión física (Kapoor et al 2021, Mendoza et al 2021, Vegunta et al 2016, McCrory et al 2010), existen pruebas limitadas sobre la asociación entre la VCM y una menopausia más temprana o un mayor riesgo de IOP. Hasta donde sabemos, éste es el primer relato publicado que detalla el riesgo de menopausia acelerada debido a la VCM.

Aunque las razones precisas de este hallazgo siguen sin estar claras, podría atribuirse potencialmente a la mayor propensión de estas mujeres a adoptar comportamientos como el uso de psicofármacos y hábitos nocivos como el tabaquismo, que se observan con mayor frecuencia en este grupo. Todas las formas de VCM predisponen a las mujeres a factores de riesgo relacionados con el estilo de vida, aumentando el riesgo de síntomas menopáusicos más graves y de aparición más temprana de la menopausia. Por ejemplo, el tabaquismo se ha asociado con una reducción de un año en la edad de la menopausia natural y podría explicar la relación entre la VCM y la menopausia precoz (Mishra et al 2018). Sin embargo, según nuestro análisis multifactorial, este adelanto no dependía de estos factores, lo que sugiere que la propia VCM puede contribuir a adelantar la menopausia.

Otra explicación plausible gira en torno al mayor riesgo de intervenciones ginecológicas en las mujeres expuestas a la VCM, debido potencialmente al mayor riesgo de enfermedades que requieren tales procedimientos (infecciones, tumores) (Gazzuola et al 2017). Sin embargo, en nuestro estudio, sólo una paciente se sometió a histerectomía y doble anexectomía, y ninguna de las que se sometieron a estos procedimientos había desarrollado IOP.

VII. CONCLUSIONES

VII. 1. Sobre el estudio piloto: reflexiones iniciales

La VCM es una pandemia que afecta a todas las mujeres por igual, da igual su edad, condición, procedencia social o educación recibida. En esta primera muestra, la VCM es un claro agente nocivo para la salud sexual, reproductiva y general de las mujeres afectadas.

VII.2 Sobre la Revisión Sistemática y el Metaanálisis

Esta revisión contribuye a la literatura sobre la VCM y sugiere que deberíamos considerar la implementación de un programa continuo de su detección, incluso después de la edad reproductiva y antes de la aparición de los síntomas de la menopausia o el deterioro de la función sexual. Esta revisión proporciona pruebas adicionales de que las mujeres que han sufrido VCM y han llegado a la menopausia corren un mayor riesgo de sufrir un deterioro de su salud. Además, aparte de las consecuencias físicas o psicológicas directas de la VCM, la mayoría de estas mujeres también corren un mayor riesgo de padecer otros trastornos menos graves (lesiones, dolor crónico, depresión y trastorno de estrés postraumático) que, no obstante, son lo suficientemente perturbadores como para justificar que se tengan en cuenta como parte de su atención clínica.

En conclusión, una historia de VCM aumenta los síntomas de la menopausia y empeora las condiciones físicas y la salud sexual y psicológica de estas mujeres cuando llegan a la mediana edad. Por lo tanto, es fundamental considerar estos antecedentes como parte de nuestra práctica clínica habitual a la hora de tratar a mujeres menopáusicas con síntomas excesivos y advertir de los riesgos generales para la salud a largo plazo a los que se enfrentan todas las mujeres que han sufrido un episodio de VCM a lo largo de su vida.

VII.3 Sobre el Impacto de la VCM

En nuestro estudio, se observó que la VCM estaba asociada con la sintomatología menopáusica y la mala calidad de vida. Estas asociaciones persistieron tras el ajuste por múltiples factores, y las mujeres que habían experimentado cualquier forma de VCM mostraron una peor CdV durante la menopausia.

Las mujeres expuestas a la violencia de género llegaron a la menopausia aproximadamente 20 meses antes y presentaron mayor riesgo de padecer IOP antes que las no expuestas.

REFERENCIAS

- Ali P, McGarry J. Intimate partner violence, post-traumatic disorders and menopausal symptoms. *Evidence-Based Nursing*. 2019; 22: 90.213.321.
- Assari S, Caldwell CH, Abelson JL, Zimmerman M. Violence Victimization Predicts Body Mass Index one Decade Later among an Urban Sample of African American Young Adults: Sex as a Moderator and Dehydroepiandrosterone as a Mediator. *Journal of Urban Health*. 2019; 96: 632–643.
- Bauer HM, Gibson P, Hernandez M, Kent C, Klausner J, Bolan G. Intimate partner violence and high-risk sexual behaviors among female patients with sexually transmitted diseases. *Sexually Transmitted Diseases*. 2002; 29: 411–416.
- Bonomi AE, Thompson RS, Anderson M, et al. Intimate partner violence and women's physical, mental, and social functioning. *Am J Prev Med* 2006; 30:458–466.
- Boyd BAJ, Gibson CJ, Van Den Eeden SK, McCaw B, Subak LL, Thom D, et al. Interpersonal Trauma as a Marker of Risk for Urinary Tract Dysfunction in Midlife and Older Women. *Obstetrics & Gynecology*. 2020; 135: 106–112.
- Bremner D, Vermetten E, Kelley ME. Cortisol, dehydroepiandrosterone, and estradiol measured over 24 hours in women with childhood sexual abuse-related posttraumatic stress disorder. *Journal of Nervous and Mental Disease*. 2007; 195: 919–927.
- Brunton R, Dryer R. Child Sexual Abuse and Pregnancy: a Systematic Review of the Literature. *Child Abuse & Neglect*. 2021; 111: 104802.
- Campbell JC. Health consequences of intimate partner violence. *Lancet*. 2002; 359: 1331–1336.
- Cannell MB, Weitlauf JC, Garcia L, Andresen EM, Margolis KL, Manini TM. Cross-sectional and longitudinal risk of physical impairment in a cohort of postmenopausal women who experience physical and verbal abuse. *BMC Womens Health* 2015;15:98. doi: 10.1186/s12905-015-0258-2.
- Carson MY, Thurston RC. Childhood abuse and vasomotor symptoms among midlife women. *Menopause* 2019; 26(10):1093-1099. doi: 10.1097/GME.0000000000001366.
- Chang JC, Miller E, Thurston RC. Addressing intimate partner violence with midlife women: awareness, support, empowerment. *Menopause* 2021; 28(11):1313-1315. doi: 10.1097/GME.0000000000001832.
- Consejo General del Poder Judicial (<https://www.poderjudicial.es/cgpj/es/Temas/Estadistica-Judicial/Estudios-e-Informes/Violencia-sobre-la-Mujer/>).

Coronado PJ, Monroy M, Fasero M, Sánchez-Borrego R, Palacios S, Rejas J, Ruiz MA; AEEM collaborative group for the study of psychometric validation of the Cervantes Short-Form. Population-based norms for the Cervantes-SF short-form questionnaire assessing health-related quality of life in menopause. *Maturitas* 2021; 146:34-41. doi: 10.1016/j.maturitas.2021.01.004.

Dombek K, Capistrano EJM, Costa ACC, Marinheiro LPF. Risk factors associated with sexual dysfunction in Brazilian post-menopausal women. *International Journal of Impotence Research*. 2016; 28: 62–67.

European Society of Contraception and Reproductive Health. Position Paper on Sexual and Reproductive Health and Rights 2019 (The Madrid Declaration). Disponible en: <https://escrh.eu/education/statements/>

Fernandez-Botran R, Miller JJ, Burns VE, Newton TL. Correlations among inflammatory markers in plasma, saliva and oral mucosal transudate in post-menopausal women with past intimate partner violence. *Brain, Behavior, and Immunity*. 2011; 25: 314–

Gazzuola Rocca L, Smith CY, Grossardt BR, Faubion SS, Shuster LT, Stewart EA, Rocca WA. Adverse childhood or adult experiences and risk of bilateral oophorectomy: a population-based case-control study. *BMJ Open* 2017;7(5): e016045. doi: 10.1136/bmjopen-2017-016045.

Gibson CJ, Huang AJ, McCaw B, Subak LL, Thom DH, Van Den Eeden SK. Associations of Intimate Partner Violence, Sexual Assault, and Posttraumatic Stress Disorder with Menopause Symptoms among Midlife and Older Women. *JAMA Internal Medicine*. 2019; 179: 80–87.

Gibson CJ, Lisha NE, Walter LC, Huang AJ. Interpersonal trauma and aging-related genitourinary dysfunction in a national sample of older women. *American Journal of Obstetrics and Gynecology*. 2019; 220: 94. e1–94.e7.

Goldstein LA, Jakubowski KP, Huang AJ, Seal KH, Maguen S, Inslicht SS, Byers AL, Gibson CJ. Lifetime history of interpersonal partner violence is associated with insomnia among midlife women veterans. *Menopause* 2023; 30(4):370-375. doi: 10.1097/GME.0000000000002152.

Hakamata Y, Suzuki Y, Kobashikawa H, Hori H. Neurobiology of early life adversity: A systematic review of meta-analyses towards an integrative account of its neurobiological trajectories to mental disorders. *Front Neuroendocrinol* 2022; 65:100994. doi: 10.1016/j.yfrne.2022.100994.

Howard JR, O'Neill S, Travers C. Factors affecting sexuality in older Australian women: sexual interest, sexual arousal, relationships and sexual distress in older Australian women. *Climacteric*. 2006; 9: 355–367.

Kapoor E, Okuno M, Miller VM, Rocca LG, Rocca WA, Kling JM, Kuhle CL, Mara KC, Enders FT, Faubion SS. Association of adverse childhood experiences with menopausal symptoms: Results from the Data Registry on Experiences of Aging, Menopause and Sexuality (DREAMS). *Maturitas* 2021; 143:209-215. doi: 10.1016/j.maturitas.2020.10.006

Karakurt G, Silver KE. Emotional abuse in intimate relationships: the role of gender and age. *Violence Vict* 2013;28(5):804 -821.

Kelley EL, Cannell MB, Gass M, Sealy-Jefferson S, Woods NF, Bird CE, et al. Is Interpersonal Abuse Associated with Sexual (Dis)satisfaction among Postmenopausal Women? *Women's Health Issues*. 2019; 29: 299–307.

Kellner M, Muhtz C, Weinås Å, Ćurić S, Yassouridis A, Wiede- mann K. Impact of physical or sexual childhood abuse on plasma DHEA, DHEA-S and cortisol in a low-dose dexamethasone suppression test and on cardiovascular risk parameters in adult patients with major depression or anxiety disorders. *Psychiatry Research*. 2018; 270: 744–748.

Loxton D, Schofield M, Hussain R, Mishra G. History of domestic violence and physical health in midlife. *Violence against Women*. 2006; 12: 715–731.

Makaroun LK, Brignone E, Rosland A, Dichter ME. Association of Health Conditions and Health Service Utilization with Intimate Partner Violence Identified via Routine Screening among Middle-Aged and Older Women. *JAMA Network Open*. 2020; 3: e203138.

Manandhar M, Hawkes S, Buse K, Nosrati E, Magar V. Gender, health and the 2030 agenda for sustainable development. *Bulletin of the World Health Organization*. 2018; 96: 644–653.

Matthews KA, Chang Y, Thurston RC, Bromberger JT. Child abuse is related to inflammation in mid-life women: role of obesity. *Brain, Behavior, and Immunity*. 2014; 36: 29–34.

McCrary E, De Brito SA, Viding E. Research review: the neurobiology and genetics of maltreatment and adversity. *J Child Psychol Psychiatry*. 2010; 51(10):1079-95. doi: 10.1111/j.1469-7610.2010.02271.x.

Mendoza N, Juliá MD, Galliano D, Coronado P, Díaz B, Fontes J, Gallo JL, García A, Guinot M, Munnamy M, Roca B, Sosa M, Tomás J, Llana P, Sánchez-Borrego R. Spanish consensus on premature menopause. *Maturitas* 2015; 80(2):220-5.

Mendoza N. Incorporation of the perspective of gender, equity and Human Rights in teaching and learning of sexual and reproductive health. Coimbra Group Seminar Innovation in Learning and Teaching in Science, Technology, Engineering and Mathematics (STEM) fields Granada, 14 November 2019

Mendoza-Huertas L, Garcia Jabalera I, Mendoza N. Effects of violence against women on health during menopause: a systematic review and metanalysis. *Clin Exp Obstet Gynecol*. 2021;48(6):1292–1299. doi: 10.31083/j.ceog4806205

Mendoza-Huertas L, Mendoza N. Impact of Violence against Women on Sexual and Reproductive Health: Research Protocol and Results from a Pilot Study. *Clin. Exp. Obstet. Gynecol*. 2022, 49(7), 145. <https://doi.org/10.31083/j.ceog4907145>

Meyer SR, Lasater ME, Lee L, Garcia-Moreno C. Measurement of violence against women and disability: protocol for a scoping review. *BMJ Open* 2020; 10(12):e040104. doi: 10.1136/bmjopen-2020-040104.

Midei AJ, Matthews KA, Chang Y, Bromberger JT. Childhood physical abuse is associated with incident metabolic syndrome in mid-life women. *Health Psychology*. 2013; 32: 121–127.

Mishra GD, Chung HF, Gelaw YA, Loxton D. The role of smoking in the relationship between intimate partner violence and age at natural menopause: a mediation analysis. *Womens Midlife Health* 2018; 4:1. doi: 10.1186/s40695-017-0031-9.

Mitchell ES, Woods NF. Depressed mood during the menopausal transition: is it reproductive aging or is it life? *Women's Midlife Health*. 2017; 3: 11.

Modesitt S, Gambrell A, Cottrill H, et al. Adverse impact of a history of violence for women with breast, cervical, endometrial, or ovarian cancer. *Obstet Gynecol* 2006; 107:1330-1336.

Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Medicine*. 2009; 6: e1000097.

Moraes SDDA, da Fonseca AM, Soares JM, Bagnoli VR, Souza MA, Ariê WMY, et al. Construction and validation of an instrument that breaks the silence: the impact of domestic and/or sexual violence on women's health, as shown during climacterium. *Menopause*. 2012; 19: 16–22.

Mouton CP, Rodabough RJ, Rovi SLD, Brzyski RG, Katerndahl DA. Psychosocial effects of physical and verbal abuse in post-menopausal women. *Annals of Family Medicine*. 2010; 8: 206–

Pinkerton JV, Dougherty P, Modesitt SC. The effects of abuse on health problems in menopausal women. *Menopause* 2008; 15(1):1-4.

Position Paper on Sexual and Reproductive Health and Rights 2019. Ternat: European Society of Contraception and Reproductive Health, 2019. Licence: CC BY-NC-SA 3.0 IGO. 2019. Available at: <https://escrh.eu/wp-content/uploads/2019/08/ESC-Position-Paper.pdf> (Accessed: 21 May 2010).

Rodriguez M, Bauer H, McLoughlin E, et al. Primary care physicians miss opportunities to screen patients for intimate partner abuse. *Journal of the American Medical Association*. 1999; 282: 468–474.

Ryan GL, Mengeling MA, Summers KM, Booth BM, Torner JC, Syrop CH, et al. Hysterectomy risk in premenopausal-aged military veterans: associations with sexual assault and gynecologic symptoms. *American Journal of Obstetrics and Gynecology*. 2016; 214: 352.e1–352.e13.

Schoenaker DA, Jackson CA, Rowlands JV, Mishra GD. Socioeconomic position, lifestyle factors and age at natural menopause: a systematic review and meta-analyses of studies across six continents. *Int J Epidemiol*. 2014; 43(5):1542-62. doi: 10.1093/ije/dyu094.

Shanmugan S, Cao W, Satterthwaite TD, Sammel MD, Ashourvan A, Bassett DS, Ruparel K, Gur RC, Epperson CN, Loughhead J. Impact of childhood adversity on network reconfiguration dynamics during working memory in hypogonadal women. *Psychoneuroendocrinology* 2020;119:104710. doi: 10.1016/j.psyneuen.2020.104710.

Shanmugan S, Loughhead J, Cao W, Sammel MD, Satterthwaite TD, Ruparel K, Gur RC, Epperson CN. Impact of Tryptophan Depletion on Executive System Function during Menopause is Moderated by Childhood Adversity. *Neuropsychopharmacology* 2017; 42(12):2398-2406. doi: 10.1038/npp.2017.64.

Stubbs A, Szoek C. The Effect of Intimate Partner Violence on the Physical Health and Health-Related Behaviors of Women: A Systematic Review of the Literature. *Trauma Violence Abuse* 2022; 23(4):1157-1172. doi: 10.1177/1524838020985541.

Thurston RC, Bromberger J, Chang Y, Goldbacher E, Brown C, Cyranowski JM, Matthews KA. Childhood abuse or neglect is associated with increased vasomotor symptom reporting among midlife women. *Menopause* 2008;15(1):16-22.

Thurston RC, Chang Y, Derby CA, Bromberger JT, Harlow SD, Janssen I, et al. Abuse and subclinical cardiovascular disease among midlife women: the study of women's health across the nation. *Stroke*. 2014; 45: 2246–2251.

Vegunta S, Kuhle C, Kling JM, Files JA, Kapoor E, David PS, Rullo J, Sood R, Thielen JM, Jatoi A, Schroeder DR, Faubion SS. The association between recent abuse and menopausal symptom bother: results from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS). *Menopause* 2016; 23(5):494-8. doi: 10.1097/GME.0000000000000578.

World Health Organization. Violence against women Prevalence Estimates, 2018. Global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women. WHO: Geneva, 2021. CC BY-NC-SA 3.0 IGO. Available at: <https://www.who.int/news-room/fact-sheets/detail/violence-against-women> (Accessed: 9 March 2021).