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USO DE MEDICAMENTOS POTENCIALMENTE INAPROPRIADOS EM INSTITUIÇÕES DE LONGA PERMANÊNCIA PARA IDOSOS: REVISÃO INTEGRATIVA

Santo Antônio de Jesus
2021

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Trabalho de Conclusão de Curso III (GCCS894**)** do Curso de Enfermagem da Universidade Federal do Recôncavo da Bahia, como pré-requisito para conclusão do curso.

Orientador: Prof. Dr. Marcus Fernando da Silva Praxedes.

Coorientadora: Profa. Dra. Joseneide Santos Queiroz

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Uso de medicamentos potencialmente inapropriados em instituições de longa permanência para idosos: revisão integrativa

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Santo Antônio de Jesus/BA, 29 de setembro de 2021

Dedico este trabalho a Deus, o maior orientador da minha vida, à toda minha família que nunca me abandonou nos momentos de necessidade. Ao meu orientador que me auxiliou na germinação das ideias e durante todo o processo de desenvolvimento deste trabalho. E minha coorientadora pelo incentivo e, sempre com uma presença cheia de otimismo.

LISTA DE SIGLAS

BVS - Biblioteca Virtual em Saúde

CEP - Comitê de Ética e Pesquisa

CINAHL - *Cumulative Index to Nursing and Allied Health Literature*

IBP - Inibidores da bomba de prótons

IC - Intervalo de confiança

ILPIs - Instituições de Longa Permanência para Idosos

LILACS - Literatura Latino-americana em Ciências da Saúde

MEDLINE - *Medical Literature Analysis and Retrieval System Online*

MPI - Medicamentos Potencialmente Inapropriados

PCC - População, Conceito e Contexto

PRISMA - *Preferred Reporting Items for Systematic Reviews and Meta-Analyses*

RAM - Reações adversas aos medicamentos

RI - Revisão Integrativa

SciELO - *Scientific Electronic Library Online*

START - *Screening Tool to Alert doctors to Right Treatment*

STOPP - *Screening Tool of Older Person's Prescriptions*

APRESENTAÇÃO

O presente trabalho de conclusão de curso será apresentado no formato de artigo científico intitulado "**Use of potentially inappropriate medications in long-stay institutions for the elderly: an integrative review".** O manuscrito foi submetido ao periódico *Australian Journal of Advanced Nursing* (AJAN) (Fator de Impacto=0,647, Qualis A1 área Enfermagem) (ANEXO A), seguindo normas específicas do mesmo (ANEXO B).

Título

USO DE MEDICAMENTOS POTENCIALMENTE INAPROPRIADOS EM INSTITUIÇÕES DE LONGA PERMANÊNCIA PARA IDOSOS: REVISÃO INTEGRATIVA

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USO DE MEDICAMENTOS POTENCIALMENTE INAPROPRIADOS EM INSTITUIÇÕES DE LONGA PERMANÊNCIA PARA IDOSOS: REVISÃO INTEGRATIVA

RESUMO

Objetivo: Analisar a prevalência do uso de medicamentos potencialmente inapropriados (MPI) em Instituições de Longa Permanência para Idosos (ILPIs). **Introdução:** Os idosos são vulneráveis aos problemas relacionados aos medicamentos, principalmente devido às alterações farmacodinâmicas e farmacocinéticas, próprias do envelhecimento. Nesse sentido, destacam-se os MPI para idosos que, apesar de serem associados aos desfechos negativos, continuam sendo prescritos e utilizados sem cautela em ILPIs. **Método:** Revisão integrativa da literatura foi usada para obter artigos de bases de dados online relevantes, tendo como pergunta norteadora: "Qual a prevalência do uso de medicamentos potencialmente inapropriados para idosos em Instituições de Longa Permanência?". O processo de busca e seleção dos estudos seguiu as recomendações PRISMA 2020. Os critérios de elegibilidade foram estudos observacionais e experimentais, nos idiomas inglês e português, realizados nos últimos 10 anos com pacientes idosos ≥ 60 anos e estudos de prevalência de uso de MPI em idosos residentes em ILPIs. **Resultados:** A amostra final foi composta por 11 artigos, dos quais, seis (54,54%) foram publicados no Brasil, dois (18,18%) na Malásia e um na Austrália, Irlanda e Espanha, respectivamente. O principal tipo de estudo foi o transversal com 10 (90,90%) artigos, publicados entre 2012 e 2019, sendo predominante o ano de 2012 (36,36%). A média de prevalência de uso de MPI foi de 43,86% (7,8%-80%), destacando-se maior relação com o sexo feminino (58,5%) e a polifarmácia (58,7%). **Discussão:** Os resultados observados apontam alta e preocupante prevalência de MPI para idosos institucionalizados. É fundamental a proposição e implementação de estratégias que visem à diminuição do uso desses medicamentos. Destacaram-se as intervenções educativas, desprescrição e informatização dos sistemas de prescrição. Tais estratégias se mostraram efetivas e viáveis. A equipe de enfermagem, nesse sentido, se destaca por ser a última barreira antes do uso do medicamento. Portanto, a identificação de tais medicamentos e a discussão, junto ao prescritor e demais membros da equipe de saúde, torna-se de grande valia no processo de revisão da prescrição e diminuição do uso dos MPI. **Conclusão:** Os resultados deste estudo destacam a importância de sensibilizar os profissionais de saúde para o uso racional de medicamentos e maior segurança da farmacoterapia proposta para a população idosa. **Implicações para a pesquisa, política e prática:** Pesquisas futuras nesta temática são necessárias para reforçar a necessidade da diminuição das prescrições inadequadas e a importância do uso racional de medicamentos para residentes em ILPIs.

Palavras-chave: Idoso; Prescrição Inadequada; Instituições de Longa Permanência para idosos; Medicamento potencialmente inapropriado.

O que já se sabe sobre o assunto?

- O uso de medicamentos por idosos institucionalizados é maior do que os que vivem na comunidade.
- O uso de MPI para idosos ainda é muito frequente.
- Os critérios que identificam o uso de MPI para idosos são fundamentais para uma farmacoterapia com maior segurança.

O que este artigo adiciona?

- Contribui para o conhecimento existente sobre o uso de MPI em residentes de ILPIs e chama atenção para a alta prevalência do uso dos mesmos.
- Identifica várias estratégias para a redução do uso de MPI para idosos.
- Enfatiza a importância da integração da equipe multidisciplinar para a redução do uso de MPI, em especial a equipe de enfermagem.

INTRODUÇÃO

As mudanças na sociedade repercutem no cuidado da pessoa idosa. A diminuição do número de filhos e a inserção da mulher no mercado de trabalho fazem com que as atribuições do cuidado aos idosos deixem de ser exclusivas da família e passem a ser também das Instituições de Longa Permanência para Idosos (ILPIs).[1] Assim, observa-se uma crescente demanda por essas instituições, visto que se configuram como espaços alternativos de cuidado de pessoas que não vivem mais em suas residências em função de motivos diversos relacionados a questões sociais e de saúde.[2]

Estudos apontam uma maior prevalência de doenças crônicas entre idosos residentes em ILPIs, além de uma maior média de utilização de medicamentos quando comparada à de idosos que vivem em comunidade.[3,4] Destaca-se que, ao mesmo tempo em que a farmacoterapia possibilita benefícios à saúde desses indivíduos, observa-se que eles estão mais vulneráveis aos problemas relacionados aos medicamentos, principalmente devido às alterações farmacodinâmicas e farmacocinéticas, próprias do envelhecimento. Ademais, o uso de diversas fórmulas farmacológicas, favorecem interações e reações adversas aos medicamentos (RAM).[4,5]

Nesse sentido, a inadequação das prescrições para pacientes idosos é um problema de saúde pública dada a sua associação com morbimortalidade, além dos custos aos serviços de saúde decorrentes das reações adversas. Destacam-se os medicamentos potencialmente inapropriados (MPI) para idosos, em que os riscos associados à sua utilização podem ser superiores aos benefícios terapêuticos.[6] Apesar dos MPI serem associados aos desfechos negativos neste grupo, continuam sendo prescritos e utilizados sem cautela como tratamentos de primeira linha na população idosa, mesmo em situações em que os mesmos podem ser evitados ou substituídos.[7]

Diante desse panorama foram desenvolvidas e publicadas listas de MPI e instrumentos para identificação dos mesmos. Destacam-se os Critérios de Beers[8], os critérios *Screening Tool of Older Person's Prescriptions* (STOPP)[9] e *Screening Tool to Alert doctors to Right Treatment* (START)[9], que objetivam facilitar a adaptação da farmacoterapia para os idosos e auxiliar os profissionais de saúde a prescreverem de forma mais segura. Reafirma-se a importância desses critérios como importantes

ferramentas utilizadas na avaliação geriátrica específicas na escolha da utilização do uso de medicamentos.[10]

Percebe-se a importância da realização de pesquisas que analisem a farmacoterapia prescrita aos idosos residentes em ILPIs, visto ser este um ambiente com alto índice de uso de medicamentos e propenso a ocorrência de intercorrências envolvendo os mesmos. Tais pesquisas permitem uma visão geral do uso de MPI, podendo fornecer dados importantes às equipes de saúde, para que estas possam promover o uso racional de medicamentos, ponderando os riscos e benefícios resultantes da terapia proposta. Nessa perspectiva, o presente estudo tem por objetivo analisar a prevalência do uso de MPI em ILPIs.

MÉTODOS

Trata-se uma revisão integrativa (RI) de literatura, que visa a análise da produção bibliográfica em determinada área temática e que compila estudos desenvolvidos por meio de várias metodologias, o que permite ao pesquisador uma síntese de resultados, com possibilidade de aprofundamento de um determinado assunto, além de apontar lacunas do conhecimento que precisam ser preenchidas com a realização de novos estudos.[11]

Para o desenvolvimento dessa RI de literatura, optou-se por um planejamento[12], que é composto por uma sequência de etapas que organizam e fundamentam a pesquisa: elaboração da questão de pesquisa; busca na literatura; categorização dos estudos; avaliação dos estudos; interpretação dos resultados e apresentação da revisão.

Para a construção da pergunta de pesquisa, utilizou-se a estratégia População, Conceito e Contexto (PCC), a fim de orientar na busca da RI.[13] Foram definidos: P- idosos, C- prevalência do uso de MPI e C- instituições de longa permanência para idosos. Com base nessas definições foi estabelecida a pergunta norteadora: “Qual a prevalência do uso de medicamentos potencialmente inapropriados para idosos em Instituições de Longa Permanência?”

Para a seleção dos artigos foi realizado um levantamento nas bases eletrônicas de dados Biblioteca Virtual em Saúde do Ministério da Saúde (BVS/MS), *Google Scholar*, *Medical Literature Analysis and Retrieval System Online* (*MEDLINE*), *SciELO* (*Scientific Electronic Library Online*) e *Cumulative Index to Nursing and Allied Health Literature* (CINAHL). Utilizou-se a combinação dos descritores de saúde nos idiomas inglês e português, com pequenas adaptações, de acordo as especificidades de cada base de dados: ("Inappropriate Prescribing" OR "Potentially Inappropriate Medication List") AND ("Homes for the Aged" OR "Nursing Homes"), e ("Prescrição inadequada" OR "Lista de medicamentos potencialmente inadequados") AND ("Instituição de Longa Permanência" OR "Asilo"). A busca foi realizada entre 25/01 a 10/08/2021.

Os critérios de elegibilidade foram estudos observacionais e experimentais, realizados nos últimos 10 anos com pacientes idosos ≥ 60 anos; estudos que analisaram o uso de medicamentos utilizados por idosos residentes em ILPIs e que definiram a prevalência do uso de MPI. Foram excluídos os artigos que não puderam contribuir

de forma efetiva para a edificação deste trabalho e que se encontravam duplicados, sem respaldo científico, artigos de revisão, estudos de caso, estudos com animais, carta ao editor e aqueles que não estivessem nos idiomas inglês ou português.

Para a seleção dos artigos foram estabelecidos os seguintes passos: 1) dois revisores treinados (R1 e R2) fizeram a leitura e avaliação dos títulos e resumos de forma independente e de acordo com os critérios de elegibilidade; 2) os artigos selecionados foram lidos na íntegra e feita a seleção final. Diante de qualquer divergência entre os dois revisores, foi considerada a opinião de um terceiro revisor (R3).

Para sistematização da extração dos dados foi utilizado um formulário específico contendo: autor, ano, país, tipo de estudo, número da amostra, média de idade, uso de instrumentos e prevalência do uso de MPI. O processo de busca e seleção dos estudos seguiu as recomendações do *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA 2020).[14] Os dados extraídos foram identificados, explorados e sintetizados de forma narrativa com a tabulação dos resultados dos estudos incluídos, sendo estes conduzidos a partir da análise descritiva.

Por se tratar de uma pesquisa que não envolve coleta de dados primários e o contato direto com seres humanos, de qualquer natureza, não foi necessário submetê-la ao Comitê de Ética e Pesquisa (CEP), de acordo com a resolução número 466/12 do Conselho Nacional de Saúde.[15] Porém, por se tratar de uma revisão integrativa, os aspectos éticos foram considerados, sendo referidas e mantidas as ideias e conceitos originais dos autores pesquisados e respeitando os critérios de elegibilidade.

RESULTADOS

O processo de busca resultou na identificação de 1.624 estudos e após as etapas de seleção, 11 estudos observacionais foram incluídos (Figura 1).

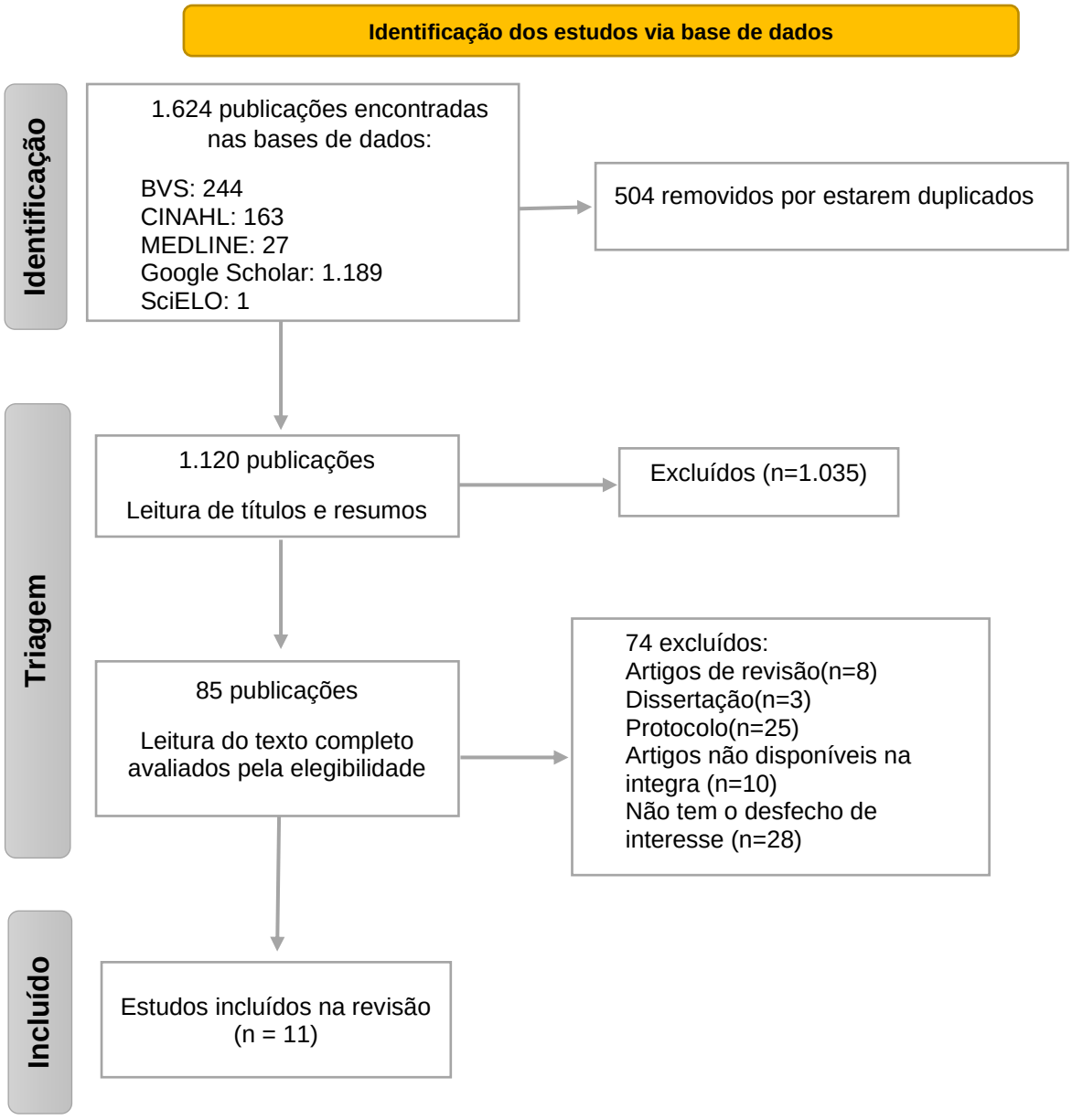

Figura 1 – Fluxograma de seleção dos estudos, adaptado do PRISMA.

Dentre os estudos incluídos, seis (54,54%) foram publicados no Brasil, dois (18,18%) na Malásia e um na Austrália, Irlanda e Espanha, respectivamente. Nesta seleção, o principal tipo de estudo foi o transversal com 10 (90,90%) artigos publicados entre 2012 e 2019, sendo predominante o ano de 2012 (36,36%). O tamanho amostral, pela

soma de todos os estudos, foi de 1.999 idosos. A média de idade foi de 79,9 anos (dos estudos que apresentaram tal variável como contínua). O critério mais utilizado para identificação dos MPI para idosos foi o Critério Beers, presente em 7 (63,6%) artigos. As características gerais dos estudos estão sumarizadas na Tabela 1.

Tabela 01. Características gerais dos estudos incluídos na revisão integrativa, 2021.

Autor/Ano	País	Tipo de estudo	Amostra (n)	Média de Idade (anos)	Instrumento	Prevalência de MPI
Fochat *et al*., 2012[16]	Brasil	Transversal	122	80,3	Critérios de Beers (2003)	7,8%
Garbin *et al*., 2017[17]	Brasil	Transversal	261	≥60	Critérios de Beers (2003)	50,6%
García-Gollarte *et al*., 2012[18]	Australia	Transversal	100	84,7	STOPP-START (2008)	79%
Gautério-Abreu *et al*., 2016[19]	Brasil	Transversal	39	80-89	Critérios de Beers (2003)	33,33%
Liew *et al*., 2019[20]	Malásia	Transversal	155	75,01	STOPP / START e os critérios de Beers (2015)	21,3%
Lima *et al*., 2017[21]	Brasil	Transversal	253	77	Critérios de Beers (2015)	80%
Lima; Garbin; Garbin., 2013[22]	Brasil	Transversal	261	≥60	Critérios de Beers (2003)	32,4%
Ryan *et al*., 2013[23]	Irlanda	Coorte	313	84,4	STOPP-START (2009)	59,8%
Al Aqqad *et al*., 2014[24]	Malásia	Transversal	211	77,7	STOPP-START (2008)	23,7%
Smanioto; Haddad., 2013[25]	Brasil	Transversal	203	76,4	Critérios canadenses de Mcleod, (1997)	58,1%
Ubeda *et al*., 2012[26]	Espanha	Transversal	81	84	Critérios de Beers 2003 e STOPP-START 2010	36,5%

Fonte: Elaborado pelos autores.

A partir da análise dos dados, observou-se que a média de prevalência de uso de MPI foi de 43,86% (7,8%-80%). Destacou-se a prescrição para o sistema gastrointestinal (34,5%), medicamentos para dor (15,1%) e sistema nervoso central (14,9%). Os principais foram inibidores da bomba de prótons (IBP) (34,5%), benzodiazepínicos (30,4%) e antipsicóticos (26,3%) (Tabela 2).

Tabela 2. Prevalência dos medicamentos potencialmente inapropriados para idosos, segundo os instrumentos identificados.

Sistema de Órgãos, Categoria Terapêutica	Prevalência média (%)	Medicamento (%)	Prevalência média (%)
Antianêmico	4,0	Sulfato ferroso[25]	4,0
Anticolinérgico	13,13	Anticolinérgico[18,24]	17,2
		Anti-histamínicos de primeira geração[24]	15,6
		Prometazina[16]	6,6
Anti-infeccioso	4,9	Nitrofurantoína[16]	4,9
Cardiovascular	4,7	Antiarrítmicos[21]	7,2
		Ácido acetilsalicílico[25]	5,1
		Sinvastatina[25]	4,3
		Hidroclorotiazida[25]	4,3
		Enalapril[25]	4,0
		Captopril[25]	3,2
Endócrino	10,9	Glibenclamida\ Clorpropamida[24]	10,9
Gastrointestinal	34,5	Inibidores da bomba de prótons [18,23]	34,5
Medicamento para dor	15,1	Analgésicos[21,22]	15,1
Sistema nervoso central	14,9	Benzodiazepínicos[18,23]	30,4
		Antipsicóticos[18,21-22]	26,3
		Ansiolíticos[21]	12,5
		Diazepam[16,17]	7,0
		Antidepressivos[21]	6,8
		Fluoxetina[16,17]	6,3

Fonte: Elaborado pelos autores.

DISCUSSÃO

Após leituras sucessivas dos estudos selecionados para a presente revisão e o agrupamento de informações foi possível identificar três categorias para discussão: Uso de medicamentos potencialmente inapropriados; Fatores associados ao uso de medicamentos potencialmente inapropriados e Estratégias para a diminuição do uso de medicamentos potencialmente inapropriados.

Uso de medicamentos potencialmente inapropriados

O uso de MPI é um problema frequente e sério entre os idosos. A presente RI identificou alta prevalência (43,86%) do uso de medicamentos inadequados para residentes em ILPIs. Estudos realizados apontaram diferentes prevalências, chegando a 80% no Brasil[21] e a 79% na Austrália.[18] Tais achados apontam a magnitude do problema e a necessidade de maior atenção por parte dos gestores de políticas públicas de saúde e profissionais de saúde.

A comparação dos resultados de estudos realizados em todo o mundo não é simples. Assim, observa-se que as desigualdades na prevalência do uso de medicamentos podem refletir diferenças entre populações quanto ao estado de saúde e modelo de atenção à saúde específico em cada país, além de traços demográficos e culturais diferentes, relacionados ao consumo de medicamentos.[17]

Os estudos analisados demonstram que alguns medicamentos têm maior prevalência de utilização nas ILPIs, como os IBP, benzodiazepínicos e antipsicóticos. Os IBP foram os MPI mais prescritos. Os medicamentos dessa classe estão entre os mais usados em todo o mundo e sua utilização aumenta com a idade, pois são eficazes na redução da secreção de ácido gástrico e considerados a melhor opção terapêutica contra doença do refluxo gastroesofágico, esofagite, dispepsia, tratamento sintomático de úlcera péptica, além de serem utilizados para reduzir o risco de sangramento gastrointestinal relacionado ao uso de anti-inflamatórios não esteroidais (AINEs) e aspirina em baixas doses.[27] Sua utilização inadequada e prolongada compromete a segurança do idoso e pode ocasionar outros problemas mais importantes, como aumento de fraturas ósseas, diarreia associada ao *Clostridium*

difficile e risco aumentado de infeção respiratória. Vale salientar que se deve evitar o uso desnecessário de IBP em longo prazo na população idosa e, quando necessária, deve ser considerada a individualização e adequação de doses, de acordo com parâmetros bem definidos.[28] Estudos observaram que na Austrália a maioria dos IBP eram utilizados sem indicação clara (52,0%), ou seja, sem patologia associada ou em associação com outro medicamento [18] e, na Irlanda, com superdosagem (17,0%)[23], que pode levar a intoxicação e/ou a morte.

Os benzodiazepínicos também apresentaram expressiva prevalência de uso. Sua utilização está associada a um maior risco de quedas, fraturas ósseas, *delirium* e contribuição para a deterioração mental na população idosa.[26] Com o envelhecimento, mais idosos sofrem com dor crônica, insônia e depressão, e consequentemente utilizam desses medicamentos com maior frequência.[29] Há ampla variação na prescrição dos benzodiazepínicos, como na Austrália (35%)[18], Irlanda (25,8%)[23], Brasil (21,1%)[29] e Espanha (12,5%).[26] Para diminuição da prevalência desses fármacos, recomenda-se a terapia não medicamentosa como método de primeira linha para tratamento de dor crônica ou insônia, pois estimula mudanças no estilo de vida e a adoção de hábitos mais saudáveis, assim garantindo maior qualidade de vida dos residentes em ILPIs.[30] No entanto, quando medidas não farmacológicas não forem possíveis, é de suma importância o acompanhamento das possíveis RAM.[28]

Além dos medicamentos já citados, os antipsicóticos são comumente prescritos de forma imprópria para idosos institucionalizados, demostrando alta prevalência em alguns estudos. Na população estadunidense foi de 31,63%[31], já na população brasileira 26,5%[21] e nos australianos 26%.[18] A utilização desses medicamentos entre os residentes de ILPIs, reflete o alto número de idosos afetados por transtornos mentais ou comportamentais.[32,33] Assim, recomenda-se a otimização do seu uso, à luz da eficácia, das possíveis reações adversas e segurança.

Fatores associados ao uso de medicamentos potencialmente inapropriados

Os estudos selecionados para análise também observaram algumas variáveis em relação a utilização de MPI, dentre elas destacam-se o sexo feminino e a polifarmácia. Observou-se maior prevalência do uso de MPI em pessoas do sexo feminino, com

média de 58,5%.[17-20,24,26] É necessário compreender que existem diferenças biológicas claras em termos anatômicos e fisiológicos entre pessoas do sexo feminino e masculino e, portanto, diferenças no efeito do envelhecimento nas funções orgânicas, que não se reduzem ao sistema reprodutivo, mas abrangem diversos outros aspectos, como os musculoesqueléticos e cardiovasculares, ocasionando reações diversas em resposta aos medicamentos utilizados.[34]

Diante desse panorama, percebe-se que além de preocupar-se com a utilização de MPI é importante e necessário analisar aspectos relacionados ao sexo biológico, buscando atentar para as especificidades e não universalizar os tratamentos, pois as alterações anatomofisiológicas têm consequências farmacocinéticas e farmacodinâmicas, determinando grande variabilidade individual na resposta aos medicamentos.[35] Tal atitude possibilitará intervenções medicamentosas mais eficazes, diminuindo as possíveis RAM e garantindo a segurança dos pacientes residentes em ILPIs.

A alta prevalência da polifarmácia em idosos, identificada em alguns estudos, com média de 58,7%[17,18,20,21,24-26], está associada diretamente com polimorbidade (42,35%)[17,21] o que, por sua vez, ocasiona maior consumo de medicamentos e aumenta a probabilidade de prescrição inadequada. Em estudo realizado observou-se que o uso de múltiplos medicamentos (5+) foi fator de risco para o uso de medicamentos inadequados (*odds ratio* 4,81; Intervalo de confiança de 95% 2,31–10,0; $p < 0,001$).[20] Ademais, a complexidade da farmacoterapia gerada pela polifarmácia, com a existência de vários horários, formas de administração, diferentes dosagens e instruções especiais de uso, pode colocar os residentes em risco de incidentes clínicos e piores resultados de saúde.[36]

Diante do exposto, é possível adotar algumas medidas para redução da polifarmácia tais como: manter o registro atualizado dos medicamentos, revisando-os a cada consulta; identificar o nome dos medicamentos pelo nome genérico e grupo terapêutico; certificar-se da indicação adequada; ter conhecimento dos efeitos secundários; conhecer as alterações promovidas pelo envelhecimento e evitar redundâncias farmacológicas.[25]

Portanto, faz-se necessário ressaltar a importância do cuidado na administração simultânea de fármacos que possam interagir entre si e o monitoramento das RAM

implicadas em desfechos negativos. Quando estas questões não são levadas em consideração gera-se um ciclo vicioso, no qual a polimorbidade associada a polifarmácia tendem a intensificar a utilização dos MPI e estes por sua vez tendem a aumentar o índice de outras/novas complicações, fazendo com que a saúde dos idosos residentes em ILPIs fique cada vez mais comprometida.[37]

Estratégias para diminuição do uso de medicamentos potencialmente inapropriados

Diante das altas taxas de prevalência apontadas pelos estudos selecionados, torna-se essencial a identificação e estímulo ao uso de estratégias com foco na diminuição do uso de MPI para idosos. Dentre algumas estratégias, tem-se as intervenções educativas, que podem auxiliar na divulgação e uso de instrumentos capazes de identificar os MPI, a exemplo dos critérios Beers[8] e STOOP-START.[9] Um estudo na Espanha[26] obteve modificação das prescrições médicas em 53% dos pacientes, com a utilização do critério STOOP-START.[9] Intervenções utilizando os critérios de Beers colaboram para a redução do uso de MPI, de 61% para 29,5%.[38]

Resultados apontam que os Critérios de Beers[8] e STOOP-START[9] devem ser utilizados pelos profissionais de saúde como guia de apoio, a fim de se garantir maior segurança no uso dos medicamentos, pois a utilização de fármacos no tratamento de pacientes idosos deve ser cuidadosa, baseada em julgamento clínico individualizado no que diz respeito aos idosos institucionalizados.[17,39] Dessa forma, demonstra-se que tais instrumentos podem ser utilizados em processos educativos e contribuir para a redução de prescrições inadequadas em ILPIs. No entanto, para que tais processos tenham êxito, é fundamental o envolvimento e aceitação do prescritor em mudar sua prática e a participação de uma equipe multidisciplinar, em específico médico, farmacêutico e enfermeiro.

Nesse sentido, a capacitação profissional pode contribuir de forma efetiva para a redução de danos e influenciar positivamente a segurança do paciente idoso.[40] Destaca-se o papel do enfermeiro, que é a última barreira de proteção para o uso adequado do medicamento. Tal profissional deve ser capacitado a identificar os MPI e, através de evidências científicas, discutir junto à equipe multidisciplinar a

necessidade de manutenção, modificação ou exclusão da terapia proposta. Estudo realizado demonstrou que ações de capacitação aos enfermeiros que estão à frente no cuidado integral a pessoa idosa, pode reduzir o uso de MPI. Observou-se que a prevalência do uso de MPI diminuiu significativamente no grupo de intervenção (11,7, intervalo de confiança de 95% (IC) 95% 20,5 a 2,9; P<0.009).[41] Demonstra-se assim, a importância da capacitação do enfermeiro nesse processo de adequação da farmacoterapia proposta, visando a redução do número de MPI a idosos institucionalizados.

As intervenções mencionadas acima não podem afirmar os benefícios clínicos alcançados, que muitas vezes não foram avaliados clinicamente de forma significativa, não considerando fatores como a mortalidade e qualidade de vida. No entanto, a implementação eficaz das intervenções educativas tende a melhorar a prescrição medicamentosa e aumentar a segurança no uso de medicamentos.[28]

Vale ressaltar que existem outras importantes iniciativas para a redução do uso de MPI, como a revisão da prescrição com desprescrição medicamentosa e sistemas informatizados. A desprescrição é o processo planejado e supervisionado de interrupção ou redução de dose de um tratamento farmacoterapêutico que não está sendo benéfico ao paciente, causando algum evento adverso ou sintomas de rebote em decorrência de uma interação medicamentosa.[42] Esta atitude demostra uma ação efetiva na diminuição da polifarmácia inadequada e redução de danos ao paciente.[43] Em estudo realizado na Austrália, com pessoas idosas que vivem em ILPIs, as revisões individualizadas de medicamentos reduziram significativamente o número de medicamentos regulares em 2,0 ± 0,9 (intervalo de confiança de 95% 0,08–3,8, p = 0,04).[44] Ademais, em revisão sistemática realizada, observou-se que a desprescrição possibilitou a revisão abrangente da medicação, com redução da mortalidade por todas as causas (*odds ratio* 0,74, IC 95%: 0,58 a 0,95) e da prescrição de MPI.[45]

Destaca-se também a tomada de decisão baseada nos sistemas informatizados que possibilitam a prescrição eletrônica e o registro dos medicamentos utilizados pelo paciente, os quais emitem alertas de risco e fornecem informações sobre interações medicamentosas.[46] Observou que a informatização do sistema de prescrição, em apoio à tomada de decisão, foi capaz de reduzir significativamente (p = 0,02) a prescrição de MPI para idosos (*odds ratio* = 0,55, IC 95% = 0,34 - 0,89).[47] Revisão

sistemática também observou que tais sistemas foram capazes de reduzir o número médio de prescrições potencialmente inadequadas por paciente, bem como aumentaram a descontinuação das mesmas.[48] Assim, destaca-se a necessidade do aumento do uso de sistemas eletrônicos que permitam o compartilhamento de informações e a interoperabilidade aprimorada de informações clínicas de residentes de ILPIs.[49]

Outra estratégia identificada para o uso adequado de medicamento, foi a utilização de protocolos de saúde, considerados estratégicos para a minimização de eventos adversos evitáveis na assistência à saúde[50]. Protocolos voltados para a prescrição, uso e administração de medicamentos garantem maior segurança à farmacoterapia proposta, além de possibilitarem a implementação de indicadores de saúde que irão subsidiar as ações dos gestores para melhorias na assistência prestada.

Os idosos que residem em instituições de longa permanência são mais propensos à iatrogenia medicamentosa, que contribui para desfechos clínicos negativos, comprometendo seu estado de saúde. Neste sentido, a prevenção dos erros e do risco de dano em função da sua ocorrência, deve ser identificada precocemente, como forma de traçar estratégias para a sua prevenção. [51] A compreensão do processo de envelhecimento e da farmacoterapia proposta é fundamental para a proposição e implementação de estratégias que visem maior segurança à população idosa.

Limitações do estudo

Algumas limitações merecem menção. Estudos relevantes podem não ter sido capturados, apesar do rígido seguimento da metodologia recomendada. A estratégia de busca utilizada não poderia ter detectado documentos não indexados ou aqueles que empregam termos específicos relacionados aos MPI para idosos. Os estudos observacionais foram o principal desenho dos estudos incluídos nesta revisão, e os resultados dependeram de sua qualidade metodológica. Deve-se também considerar a ampla heterogeneidade metodológica nos estudos selecionados e a possibilidade de viés de publicação, o que pode ter causado limitação. Porém, apesar das limitações, identificou-se a alta prevalência de MPI em ILPIs, locais ainda pouco estudados acerca da farmacoterapia utilizada na população idosa, o que reafirma a importância da intensificação nesse tipo de estudo.

CONSIDERAÇÕES FINAIS

A partir das evidências encontradas foi possível identificar alta e preocupante prevalência de MPI, bem como dos medicamentos mais utilizados por residentes de ILPIs. Os resultados tendem a sensibilizar os profissionais da saúde, para que possam realizar a revisão da farmacoterapia proposta aos idosos, no intuito de evitar ou diminuir a prescrição dos MPI e propor melhores práticas que garantam a segurança, assim fazendo uso racional e cuidadoso de medicamentos.

Foram destacadas algumas estratégias para diminuição do uso de MPI, em que se ressalta a importância da equipe multidisciplinar envolvida no processo medicamentoso para a redução de prescrições inadequadas e ocorrência de eventos adversos, com destaque para equipe de enfermagem, pois está na linha de frente, ocupando algumas etapas como o aprazamento da prescrição médica, preparo e monitoramento do uso de medicação na população idosa. Assim, os enfermeiros poderão participar de forma interdisciplinar no cuidado direcionado à população supracitada a fim de promover a saúde, prevenção e implementar estratégias para redução da prescrição de MPI.

Diante do exposto e do baixo número de artigos identificados, é indicado que novas pesquisas sejam realizadas acerca dessa temática, o qual poderá contribuir para as atividades educativas aos profissionais de saúde e, consequentemente, para a redução das taxas de prevalência dos MPI.

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Title

USE OF POTENTIALLY INAPPROPRIATE MEDICATIONS IN LONG-STAY INSTITUTIONS FOR THE ELDERLY: AN INTEGRATIVE REVIEW

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USE OF POTENTIALLY INAPPROPRIATE MEDICATIONS IN LONG-STAY INSTITUTIONS FOR THE ELDERLY: AN INTEGRATIVE REVIEW

ABSTRACT

Objective: To analyse the prevalence of the use of potentially inappropriate medications (PIM) in Long Stay Institutions for the Elderly (LSIE).

Background: The elderly is vulnerable to drug-related problems, mainly due to pharmacodynamic and pharmacokinetic alterations, proper of aging. In this perspective, it is important to highlight the PIM for the elderly that, despite being associated with negative outcomes, continue to be prescribed and used without caution in LSIE.

Method: Integrative literature review was used to obtain articles from relevant online databases, having as guiding question: "What is the prevalence of the use of potentially inappropriate medications for the elderly in Long Stay Institutions?". The search and selection process of the studies followed the PRISMA 2020 recommendations. The eligibility criteria were observational and experimental studies, in English and Portuguese languages, conducted in the last 10 years with elderly patients ≥ 60 years and studies of the prevalence of PIM use in elderly residents in LSIE.

Results: The final sample comprised 11 articles, of which, six (54.54%) were published in Brazil, two (18.18%) in Malaysia and one each in Australia, Ireland, and Spain, respectively. The main type of study was cross-sectional with 10 (90.90%) articles, published between 2012 and 2019, with 2012 being predominant (36.36%). The mean prevalence of PIM use was 43.86% (7.8%-80%), highlighting greater relationship with female gender (58.5%) and polypharmacy (58.7%).

Discussion: The observed results point out high and worrisome prevalence of PIM for institutionalized elderly. It is essential the proposition and implementation of strategies aimed at reducing the use of these drugs. The educational interventions, deprescription and computerization of the prescription systems stood out. Such strategies proved to be effective and feasible. The nursing team, in this sense, stands out for being the last barrier before the use of the medication. Therefore, the identification of such drugs and the discussion, together with the prescriber and other members of the health team, becomes of great value in the process of prescription review and decrease in the use of PIM.

Conclusion: The results of this study highlight the importance of raising awareness among health professionals for the rational use of medicines and greater safety of the pharmacotherapy proposed for the elderly population.

Implications for research, policy, and practice: Future research on this theme is needed to reinforce the need for the reduction of inappropriate prescriptions and the importance of rational use of medicines for residents in LSIE.

Keywords: Drug Therapy, Elderly, Inappropriate Prescription, Long Stay Institutions for the Elderly, Nursing Home, Potentially Inappropriate Medication.

What is already known about the topic?

- The use of medications by institutionalised elderly people is higher than those living in the community.
- The use of PIM for the elderly is still very common.
- The criteria that identify the use of PIM for the elderly are fundamental for a pharmacotherapy with greater safety.

What this paper adds:

- It contributes to the existing knowledge on the use of PIM in residents of LSIE and draws attention to the high prevalence of their use.
- It identifies various strategies for reducing the use of PIM for the elderly.
- It emphasizes the importance of the integration of the multidisciplinary team to reduce the use of PIM, especially the nursing team.

INTRODUCTION

Changes in society have repercussions on the care of the elderly. The decrease in the number of children and the insertion of women in the labour market mean that the attributions of elderly care are no longer exclusive to the family but also to Long-Stay Institutions for the Elderly (LSIE). [1] Thus, there is a growing demand for these institutions, since they are configured as alternative care spaces for people who no longer live in their homes due to various reasons related to social and health issues. [2]

Studies indicate a higher prevalence of chronic diseases among elderly residents in nursing homes, in addition to a higher average use of medication when compared to the elderly living in the community. [3,4] It is noteworthy that, while pharmacotherapy provides health benefits to these individuals, it is observed that they are more vulnerable to drug-related problems, mainly due to pharmacodynamic and pharmacokinetic changes, typical of aging. Moreover, the use of various pharmacological formulas favors interactions and adverse drug reactions (ADR). [4,5]

In this sense, the inadequacy of prescriptions for elderly patients is a public health problem given its association with morbidity and mortality, in addition to the costs to health services resulting from adverse reactions. Potentially inappropriate medications (PIM) for the elderly stand out, in which the risks associated with their use may outweigh the therapeutic benefits. [6] Despite the fact that PIM are associated with negative outcomes in this group, they continue to be prescribed and used without caution as first-line treatments in the elderly population, even in situations where they can be avoided or substituted. [7]

In view of this panorama, lists of PIM and instruments for their identification were developed and published. The Beers Criteria[8], the *Screening Tool of Older Person's Prescriptions* (STOPP)[9] and *Screening Tool to Alert doctors to Right Treatment* (START)[9] stand out, aiming to facilitate the adaptation of pharmacotherapy for the elderly and help health professionals prescribe more safely. The importance of these criteria is reaffirmed as important tools used in specific geriatric assessment in choosing the use of medication. [10]

It is perceived the importance of conducting research that analyses the pharmacotherapy prescribed to elderly residents in LSIE, since this is an environment

with high rates of drug use and prone to the occurrence of complications involving them. Such research allows an overview of the use of PIM, and may provide important data to health teams, so that they can promote the rational use of medicines, weighing the risks and benefits resulting from the proposed therapy. From this perspective, the present study aims to analyse the prevalence of the use of PIM in LSIE.

METHOD

This is an integrative literature review (IR), which aims to analyse the bibliographic production in each subject area and compiles studies developed by means of various methodologies, which allows the researcher a synthesis of results, with the possibility of deepening a given subject, besides pointing out gaps in knowledge that need to be filled by conducting new studies. [11]

For the development of this literature review, we opted for planning[12], which is composed of a sequence of steps that organize and ground the research: elaboration of the research question; literature search; categorization of studies; evaluation of studies; interpretation of results and presentation of the review.

The Population, Concept and Context (PCC) strategy was used to construct the research question to guide the search for the IR. [13] The following were defined: P- elderly, C- prevalence of PIM use and C- long-stay institutions for the elderly. Based on these definitions, the guiding question was established: "What is the prevalence of the use of potentially inappropriate medications for the elderly in Long Stay Institutions?"

To select the articles, a survey was conducted in the electronic databases Virtual Health Library of the Ministry of Health\Brazil (BVS/MS), *Google Scholar*, *Medical Literature Analysis and Retrieval System Online* (*MEDLINE*), *SciELO* (*Scientific Electronic Library Online*) and *Cumulative Index to Nursing and Allied Health Literature* (CINAHL). The combination of health descriptors was used, with minor adaptations, according to the specificities of each database: ("Inappropriate Prescribing" OR "Potentially Inappropriate Medication List") AND ("Homes for the Aged" OR "Nursing Homes. The search was conducted between 01/25/01 and 08/10/2021.

The eligibility criteria were observational and experimental studies, conducted in the last 10 years with elderly patients ≥ 60 years old; studies that analysed the use of medications used by elderly residents in LSIE and that defined the prevalence of the use of PIM. Articles that could not contribute effectively to the construction of this work and that were duplicated, without scientific support, review articles, case studies, animal studies, letters to the editor, and those that were not in English, or Portuguese were excluded.

The following steps were established for the selection of articles: 1) two trained reviewers (R1 and R2) read and evaluated the titles and abstracts independently and according to the eligibility criteria; 2) the selected articles were read in full, and the final selection was made. In case of any disagreement between the two reviewers, the opinion of a third reviewer (R3) was considered.

To systematize data extraction, a specific form was used containing: author, year, country, type of study, sample number, mean age, use of instruments, and prevalence of PIM use. The process of search and selection of studies followed the recommendations of the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA 2020).[14] The extracted data were identified, explored, and synthesized in narrative form with the tabulation of the results of the included studies, and these were conducted from descriptive analysis.

As this is research that does not involve primary data collection and direct contact with human beings of any nature, it was not necessary to submit it to the Research Ethics Committee. [15] However, because it is an integrative review, ethical aspects were considered, and the original ideas and concepts of the researched authors were referred to and maintained, respecting the eligibility criteria.

RESULTS

The search process resulted in the identification of 1,624 studies and after the selection steps, 11 observational studies were included (Figure 1).

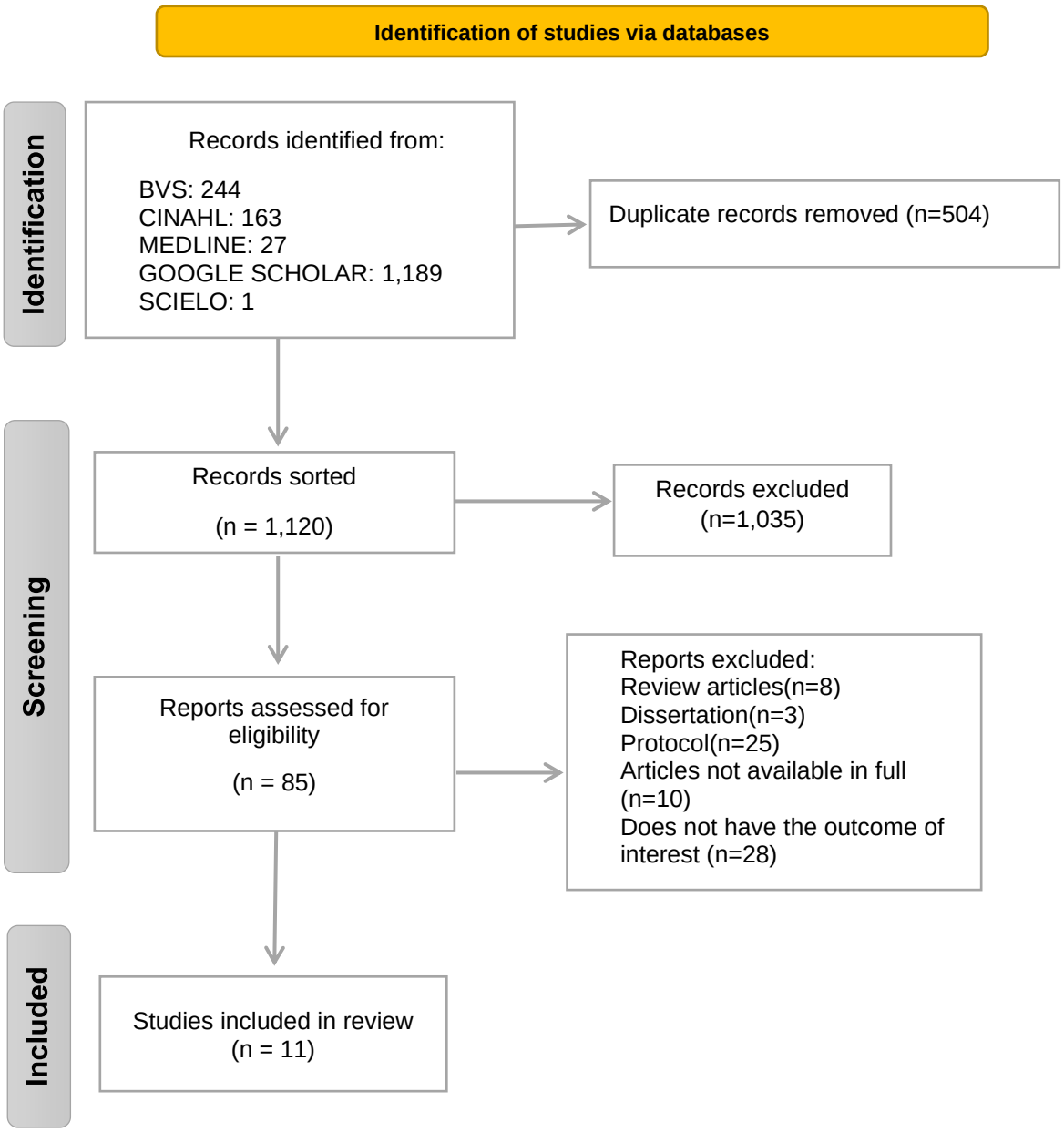

FIGURE 1 - FLOW DIAGRAM OF STUDY SELECTION, ADAPTED FROM PRISMA 2020

Among the studies included, six (54.54%) were published in Brazil, two (18.18%) in Malaysia and one each in Australia, Ireland, and Spain, respectively. In this selection, the main type of study was cross-sectional with 10 (90.90%) articles published between 2012 and 2019, with 2012 being predominant (36.36%). The sample size, by

the sum of all studies, was 1,999 elderlies. The mean age was 79.9 years (of the studies that presented such variable as continuous). The criterion most used to identify the PIM for the elderly was the Beers Criteria, present in 7 (63.6%) articles. The general characteristics of the studies are summarized in Table 1.

TABLE 01. GENERAL CHARACTERISTICS OF THE STUDIES INCLUDED IN THE INTEGRATIVE REVIEW, 2021

Author/Year	Country	Type of study	Sample (n)	Average Age (years)	Instrument	Prevalence of PIM
Fochat *et al*., 2012[16]	Brazil	Transversal	122	80,3	Beers criteria (2003)	7,8%
Garbin *et al*., 2017[17]	Brazil	Transversal	261	≥60	Beers criteria (2003)	50,6%
García-Gollarte *et al*., 2012[18]	Australia	Transversal	100	84,7	STOPP-START (2008)	79%
Gautério-Abreu *et al*., 2016[19]	Brazil	Transversal	39	80-89	Beers criteria (2003)	33,33%
Liew *et al*., 2019[20]	Malaysia	Transversal	155	75,01	STOPP / START and the Beers criteria (2015)	21,3%
Lima *et al*., 2017[21]	Brazil	Transversal	253	77	Beers criteria (2015)	80%
Lima; Garbin; Garbin., 2013[22]	Brazil	Transversal	261	≥60	Beers criteria (2003)	32,4%
Ryan *et al*., 2013[23]	Ireland	Cohort	313	84,4	STOPP-START (2009)	59,8%
Al Aqqad *et al*., 2014[24]	Malaysia	Transversal	211	77,7	STOPP-START (2008)	23,7%
Smanioto; Haddad., 2013[25]	Brazil	Transversal	203	76,4	Canadian Mcleod criteria, (1997)	58,1%
Ubeda *et al*., 2012[26]	Spain	Transversal	81	84	Beers criteria (2003) and STOPP-START 2010	36,5%

Source: Prepared by the authors.

From the data analysis, it was observed that the mean prevalence of use of PIM was 43.86% (7.8%-80%). The prescription for the gastrointestinal system (34.5%), pain medications (15.1%) and central nervous system (14.9%) stood out. The main ones were proton pump inhibitors (PPIs) (34.5%), benzodiazepines (30.4%) and antipsychotics (26.3%) (Table 2).

TABLE 2. PREVALENCE OF POTENTIALLY INAPPROPRIATE MEDICATIONS FOR THE ELDERLY

Organ System, Therapeutic Category	Average prevalence (%)	Medication (%)	Average prevalence (%)
Antianemic	4,0	Ferrous sulphate[25]	4,0
Anticholinergic	13,13	Anticholinergic[18,24]	17,2
		First generation antihistamines[24]	15,6
		Promethazine[16]	6,6
Anti-infective	4,9	Nitrofurantoin[16]	4,9
Cardiovascular	4,7	Antiarrhythmics[21]	7,2
		Acetylsalicylic acid[25]	5,1
		Simvastatin[25]	4,3
		Hydrochlorothiazide[25]	4,3
		Enalapril[25]	4,0
		Captopril[25]	3,2
Endocrine	10,9	Glibenclamide/ Chlorpropamide[24]	10,9
Gastrointestinal	34,5	Proton pump inhibitors[18,23]	34,5
Pain medication	15,1	Analgesics[21,22]	15,1
Central nervous system	14,9	Benzodiazepines[18,23]	30,4
		Antipsicóticos[18,21-22]	26,3
		Anxiolytics[21]	12,5
		Diazepam[16,17]	7,0
		Antidepressants[21]	6,8
		Fluoxetine[16,17]	6,3

Source: Prepared by the authors.

DISCUSSION

After successive readings of the studies selected for the present review and the grouping of information it was possible to identify three categories for discussion: Use of potentially inappropriate medications; Factors associated with the use of potentially inappropriate medications and Strategies to reduce the use of potentially inappropriate medications.

Use of potentially inappropriate medications

The use of PIM is a frequent and serious problem among the elderly. The present IR identified a high prevalence (43.86%) of the use of inappropriate medications for residents in LSIE. Studies have pointed out different prevalence, reaching 80% in Brazil[21] and 79% in Australia. [18] Such findings point to the magnitude of the problem and the need for greater attention from public health policy managers and health professionals.

Comparison of the results of studies conducted around the world is not straightforward. Thus, it is observed that inequalities in the prevalence of medicines use may reflect differences between populations regarding health status and specific health care model in each country, in addition to different demographic and cultural traits related to medicines consumption. [17]

The analysed studies show that some medications have a higher prevalence of use in LSIE, such as PPIs, benzodiazepines, and antipsychotics. PPIs were the most prescribed PIM. The drugs of this class are among the most used worldwide and their use increases with age, as they are effective in reducing gastric acid secretion and considered the best therapeutic option against gastroesophageal reflux disease, esophagitis, dyspepsia, symptomatic treatment of peptic ulcer, besides being used to reduce the risk of gastrointestinal bleeding related to the use of nonsteroidal anti-inflammatory drugs and low-dose aspirin. [27] Their inappropriate and prolonged use compromises the elderly's safety and may cause other more important problems, such as increased bone fractures, diarrhoea associated with *Clostridium difficile* and increased risk of respiratory infection. It is worth noting that unnecessary long-term use of PPIs should be avoided in the elderly population and, when necessary, individualization and dose adequacy should be considered, according to well-defined

parameters. [28] Studies have observed that in Australia most PPIs were used without clear indication (52.0%), without associated pathology or in association with another drug [18] and in Ireland, overdose (17.0%)[23,] which can lead to intoxication and/or death.

Benzodiazepines also showed significant prevalence of use. Their use is associated with a higher risk of falls, bone fractures, *delirium,* and contribution to mental deterioration in the elderly population. [26] With aging, more elderly suffers from chronic pain, insomnia, and depression, and consequently use these drugs more frequently. [29] There is wide variation in the prescription of benzodiazepines, such as in Australia (35%)[18,] Ireland (25.8%)[23], Brazil (21.1%)[29] and Spain (12.5%). [26] To reduce the prevalence of these drugs, non-drug therapy is recommended as a first-line method for the treatment of chronic pain or insomnia, as it stimulates changes in lifestyle and the adoption of healthier habits, thus ensuring a higher quality of life for residents in LSIE. [30] However, when non-pharmacological measures are not possible, the follow-up of possible ADR is of utmost importance. [28]

Besides the drugs already mentioned, antipsychotics are commonly prescribed inappropriately for institutionalized elderly individuals, demonstrating high prevalence in some studies. In the American population it was 31.63%[31], in the Brazilian population 26.5%[21] and in the Australians 26%. [18] The use of these medications among residents of nursing homes reflects the high number of elderly individuals affected by mental or behavioural disorders. [32,33] Thus, it is recommended to optimize their use considering efficacy, possible adverse reactions, and safety.

Factors associated with the use of potentially inappropriate medicines

The studies selected for analysis also observed some variables in relation to the use of PIM, among which we highlight the female gender and polypharmacy. A higher prevalence of PIM use was observed in females, with a mean of 58.5%. [17-20,24,26] It is necessary to understand that there are clear biological differences in anatomical and physiological terms between females and males and, therefore, differences in the effect of aging on organic functions, which are not reduced to the reproductive system, but include several other aspects, such as musculoskeletal and cardiovascular, causing different reactions in response to the drugs used. [34]

Given this panorama in addition to being concerned with the use of PIM, it is important and necessary to analyse aspects related to biological sex, seeking to pay attention to the specificities and not to universalize treatments, because anatomophysiological changes have pharmacokinetic and pharmacodynamic consequences, determining great individual variability in response to drugs. [35] This attitude will enable more effective drug interventions, reducing possible ADR and ensuring the safety of patients living in LSIE.

The high prevalence of polypharmacy in the elderly, identified in some studies, with a mean of 58.7%[17,18,20,21,24-26], is directly associated with polymorbidity (42.35%)[17,21] which, in turn, leads to higher consumption of drugs and increases the probability of inappropriate prescription. A study showed that the use of multiple medications (5+) was a risk factor for the use of inappropriate medications (*odds ratio* 4.81; 95% confidence interval 2.31-10.0; $p < 0.001$). [20] Furthermore, the complexity of pharmacotherapy generated by polypharmacy, with the existence of multiple schedules, forms of administration, different dosages, and special instructions for use, may put residents at risk of clinical incidents and worse health outcomes. [36]

Given the above, it is possible to adopt some measures to reduce polypharmacy, such as: keeping an updated record of medications, reviewing them at each appointment; identifying the name of the medications by generic name and therapeutic group; making sure of the appropriate indication; having knowledge of side effects; knowing the changes caused by aging and avoiding pharmacological redundancies. [25]

Therefore, it is necessary to emphasize the importance of care in the simultaneous administration of drugs that may interact with each other, and the monitoring of ADR involved in negative outcomes. When these issues are not taken into consideration, a vicious cycle is generated, in which polymorbidity associated with polypharmacy tends to intensify the use of PIM and these, in turn, tend to increase the rate of other/new complications, making the health of elderly residents in LSIE increasingly compromised. [37]

Strategies to reduce the use of potentially inappropriate medications

Given the high prevalence rates indicated by the selected studies, it is essential to identify and encourage the use of strategies focused on reducing the use of PIM for

the elderly. Among some strategies, there are the educational interventions, which can help in the dissemination and use of instruments capable of identifying the PIM, such as the Beers[8] and STOOP-START criteria. [9] A study in Spain[26] obtained modification of prescriptions in 53% of patients with the use of the STOOP-START criteria. [9] Interventions using the Beers criteria collaborate to reduce the use of PIM from 61% to 29.5%. [38]

Results point out that Beers Criteria[8] and STOOP-START[9] should be used by health professionals as a support guide, to ensure greater safety in the use of medications, since the use of drugs in the treatment of elderly patients should be careful, based on individualized clinical judgment regarding institutionalized elderly people. [17,39] Thus, it is demonstrated that such instruments can be used in educational processes and contribute to the reduction of inappropriate prescriptions in LSIE. However, for such processes to be successful, it is essential the involvement and acceptance of the prescriber to change their practice and the participation of a multidisciplinary team, specifically physician, pharmacist, and nurse.

In this sense, professional training can effectively contribute to harm reduction and positively influence the safety of the elderly patient. [40] The role of nurses, who are the last barrier of protection for the proper use of medication, is highlighted. This professional should be trained to identify the PIM and, through scientific evidence, discuss with the multidisciplinary team the need for maintenance, modification, or exclusion of the proposed therapy. A study showed that training actions for nurses who oversee the integral care of the elderly person can reduce the use of PIM. It was observed that the prevalence of PIM use decreased significantly in the intervention group (11.7, 95% confidence interval (CI) 95% 20.5 to 2.9; P<0.009). [41] This demonstrates the importance of training nurses in this process of adequacy of the proposed pharmacotherapy, aiming at reducing the number of PIM in institutionalized elderly patients.

The interventions mentioned above cannot affirm the clinical benefits achieved, which often have not been assessed clinically in a meaningful way, not considering factors such as mortality and quality of life. However, effective implementation of educational interventions tends to improve drug prescribing and increase safety in the use of medicines. [28]

It is worth noting that there are other important initiatives to reduce the use of PIM, such as prescription review with drug deprescribing and computerized systems. Deprescribing is the planned and supervised process of interrupting or reducing the dose of a pharmacotherapeutic treatment that is not being beneficial to the patient, causing some adverse event or rebound symptoms due to a drug interaction. [42] This attitude demonstrates an effective action in reducing inappropriate polypharmacy and reducing harm to the patient. [43] In a study conducted in Australia with elderly people living in nursing homes, individualized medication reviews significantly reduced the number of regular medications by 2.0 ± 0.9 (95% confidence interval 0.08-3.8, p = 0.04). [44] Furthermore, in a systematic review performed, it was observed that deprescribing enabled comprehensive medication review, with a reduction in all-cause mortality (*odds ratio* 0.74, 95% CI: 0.58 to 0.95) and PIM prescribing. [45]

Also noteworthy is the decision making based on computerized systems that enable electronic prescribing and registration of the medications used by the patient, which issue risk alerts and provide information on drug interactions. [46] It observed that computerisation of the prescription system, in support of decision making, was able to significantly (p = 0.02) reduce PIM prescribing for the elderly (odds ratio = 0.55, 95% CI = 0.34 - 0.89). [47] Systematic reviews also noted that such systems were able to reduce the average number of potentially inappropriate prescriptions per patient, as well as increasing their discontinuation. [48] Thus, the need for increased use of electronic systems that enable information sharing and enhanced interoperability of clinical information from residents of LSIE is highlighted. [49]

Another strategy identified for the proper use of medication was the use of health protocols, considered strategic for minimizing avoidable adverse events in health care50. Protocols for the prescription, use and administration of medicines ensure greater safety to the proposed pharmacotherapy, besides enabling the implementation of health indicators that will subsidize the actions of managers for improvements in the assistance provided.

The elderly living in long-stay institutions are more prone to drug iatrogenesis, which contributes to negative clinical outcomes, compromising their health status. In this sense, the prevention of errors and the risk of harm due to their occurrence should be identified early, to outline strategies for their prevention. [51] Understanding the aging

process and the proposed pharmacotherapy is essential for the proposition and implementation of strategies aimed at greater safety for the elderly population.

Study limitations

Some limitations deserve mention. Relevant studies may not have been captured, despite the strict follow up of the recommended methodology. The search strategy used could not have detected non-indexed documents or those employing specific terms related to PIM for the elderly. Observational studies were the main design of the studies included in this review, and the results depended on their methodological quality. The wide methodological heterogeneity in the selected studies and the possibility of publication bias should also be considered, which may have caused limitation. However, despite the limitations, we identified the high prevalence of PIM in LSIE, places that have been little studied about the pharmacotherapy used in the elderly population, which reaffirms the importance of intensifying this type of study.

CONCLUSION

Based on the evidence found, it was possible to identify a high and worrying prevalence of PIM, as well as the most used medications by residents of LSIE. The results tend to sensitize health professionals, so that they can review the pharmacotherapy proposed to the elderly, to avoid or reduce the prescription of MPI and propose best practices to ensure safety, thus making rational and careful use of medicines.

Some strategies to reduce the use of PIM were highlighted, highlighting the importance of the multidisciplinary team involved in the medication process to reduce inappropriate prescriptions and occurrence of adverse events, especially the nursing team, as it is on the front line, occupying some steps such as scheduling the medical prescription, preparation and monitoring of medication use in the elderly population. Thus, nurses may participate in an interdisciplinary way in the care directed to the population to promote health, prevention, and implement strategies to reduce the prescription of PIM.

Given the above and the low number of articles identified, it is recommended that further research be conducted on this topic, which can contribute to educational activities for health professionals and, consequently, to reduce the prevalence rates of PIM.

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ANEXO B

[AJAN] Submission Acknowledgement - Australian Journal of Advanced Nursing (AJAN)

De: Australian Journal of Advanced Nursing (ajan@anmf.org.au)

Para: marcusfera@yahoo.com.br

Data: quinta-feira, 16 de setembro de 2021 15:30 BRT

Dear Professor Marcus Fernando da Silva Praxedes:

Thank you for submitting the manuscript, "USE OF POTENTIALLY INAPPROPRIATE MEDICATIONS IN LONG-STAY INSTITUTIONS FOR THE ELDERLY: AN INTEGRATIVE REVIEW" to AJAN - The Australian Journal of Advanced Nursing.

Your manuscript and any accompanying documents and files have been successfully submitted to *The Australian Journal of Advanced Nursing's* (*AJAN*). Your submission will now be examined for adherence to our submission requirements and author guidelines. The journal's editorial team will endeavour to provide an initial decision regarding the eligibility of your manuscript for progression to peer review within ten days.

If your manuscript and/or accompanying documentation does not adhere to our submission requirements or is deemed to be outside the scope of our journal, your submission may be respectfully declined.

The Australian Journal of Advanced Nursing's (*AJAN*) online journal management system allows you to track the progress of your manuscript through the editorial and review process. To track the progress of your manuscript, please log in to the journal's web site:

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If you have any questions, please contact the Editorial Office.

Thank you for considering *AJAN* as a venue for your work.

AJAN editorial team

—

ajan@anmf.org.au

ANEXO B

Australian Journal of Advanced Nursing (AJAN): Author Guidelines

Contents

Requirements at Submission

As part of the submission process, authors are required to check off their manuscript's **compliance with <u>all</u> of the following items**. Manuscripts may be returned to authors that do not adhere to these guidelines.

- The manuscript **aligns to *AJAN*'s Mission, Aims, and Scope**.

- The manuscript is **presented in accordance with the journal style and structure** detailed in the author guidelines.

- The manuscript **is accompanied by a cover letter** in line with the requirements detailed in the author guidelines.

- Included in the cover letter are **suggestions for two unbiased peer reviewers** who have no conflict of interest with the authors of the manuscript.

- The manuscript is **accompanied by a single copyright transfer agreement** that has been signed by all authors.

- A **separate title page file is included** with the submission and is presented in line with the requirements detailed in the author guidelines.

- A **structured abstract including the title of the work is included in the manuscript file** and is presented in line with the requirements detailed in the author guidelines.

- **Consecutive line numbers** have been included in the manuscript.

- **Any other materials** (e.g. supplementary files) have been consolidated appropriately, are attached, and are clearly defined/labelled.

- The authors have clearly and truthfully **declared any relevant conflicts of interest**.

- The **manuscript has not been, or will not be, published or submitted to any other publisher** while it is under consideration by *AJAN.*

- The manuscript is written in a clear, understandable fashion and uses **correct British English spelling, grammar, and syntax**.

- In-text **citations and the reference list are complete** and correctly formatted.

To make a submission to the *Australian Journal of Advanced Nursing (AJAN)*, please access https://www.ajan.com.au and register a user account. This account will allow the submitting author (who should also be the corresponding author for the manuscript) to upload and track the progress of their submission through the review process.

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1. Start

Having accessed the submission portal, firstly select the section of the journal you would like to make your submission to. As an example, a systematic review would be published within the 'Reviews and Discussion Papers' section. Once you have selected the section you would like to submit to, proceed to indicate that you have met all submission requirements and provide any additional comments you would like to make to the editor.

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Proceed to the uploading of your manuscript and accompanying documents by clicking 'save and continue'.

2. Upload Submission

To begin uploading your manuscript document files, select the article component you wish to upload, this may be your cover letter. Select cover letter in the dropdown menu and either drag your cover letter file into the field or click upload file and select it from its location on your computer manually. Click continue, this will allow you to briefly review the details of the upload. Clicking continue again will provide the option to add another file. Select this option and repeat the process for your title page, article text (your main manuscript file) and any accompanying supplementary data.

On initial submission you will not be uploading any revised files so ignore this option (once your submission has progressed and, at request of the editors, you are uploading a revised manuscript then please select, from the drop-down menu, the file you are providing a revised version of at that time). If you click out of the document upload screen or wish to upload additional documents, selecting 'Upload File' at the top right of your screen (under the 'Upload Submission' tab) will reopen the document upload screen. Having uploaded all documents of your submission, click 'save and continue' and proceed to 'Enter Metadata'.

3. Enter Metadata

When in the 'Enter Metadata' screen enter the title of your manuscript where indicated and copy your abstract into the 'Abstract' field. This abstract should be a direct copy of the abstract from the beginning of your article text file. If your manuscript has more than one author, please select 'add contributor' and provide the required details for each contributing author until all individuals on the manuscripts author list have been

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4. *Confirmation & Next Steps*

If you are satisfied that you are ready to formally submit your manuscript to the journal, you may then click 'Finish submission'. At this stage you will have successfully submitted your manuscript and will receive an automated email in confirmation. You can now use your user login at any time to check on the progress of your submission. If you requested a peer review role when registering your user login, we may contact you regarding review of other works which will also require the use of your user login and navigation of the *AJAN* submission portal.

If you have any issues in successfully completing a submission please do not hesitate to contact the editorial team at ajan@anmf.org.au, we will be happy to assist you where we can.

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The Mission of the *Australian Journal of Advanced Nursing (AJAN)* is to provide a forum to showcase and promote a wide variety of original research and scholarly work to inform and empower nurses, midwives, and other healthcare professionals to improve the health and wellbeing of all communities and to be prepared for the future.

To realise this mission, *AJAN*'s aims are to:

- Equip the nursing, midwifery, and wider health professions to deliver safe, quality, evidence-based care in all settings.
- Promote the professional and personal safety and wellbeing of nurses, midwives, and other healthcare staff in all environments.
- Support nurses and midwives to be leaders in clinical and maternity care, research, and policy across health and social issues.
- Publish and disseminate a wide variety of high-quality, evidence-based original research and other scholarly work to inform and influence health, maternity, aged care, and public health policy, research, and practice.
- Maintain and promote values that underpin an economically, environmentally, and socially sustainable future for all communities.

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The *AJAN* publishes a wide variety of original research, review articles, practice guidelines, and commentary relevant to nursing and midwifery practice, health- maternity- and aged- care delivery, public health, healthcare policy and funding, nursing and midwifery education, regulation, management, economics, ethics, and research methodology. Further, the journal publishes personal narratives that convey the art and spirit of nursing and midwifery.

As the official peer-reviewed journal of the Australian Nursing and Midwifery Federation (ANMF), *AJAN* is dedicated to publishing and showcasing scholarly material of principal relevance to national nursing and midwifery professional, clinical, research, education, management, and policy audiences. Beyond *AJAN's* primarily national focus, manuscripts with regional and international scope are also welcome where their contribution to knowledge and debate on key issues for nursing, midwifery, and healthcare more broadly are significant.

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Conflict of Interest

Full disclosure of conflicts of interest to the editor are a requisite to publication. Conflicts of interest can be described where any primary interest may be influenced through a secondary interest. This may exist where existing financial and/or personal

relationships with other individuals may influence the conduct and outcome of the authors work. The *AJAN's* approach to conflicts of interest operates in accordance with the ICMJE, and as such use of the ICMJE standard form is required where preparing a conflict of interest statement. The ICMJE standard form can be located on the ICMJE website. Where conflicts of interest are noted to exist, a statement outlining these must be made in a subsection at the end of the manuscript text prior to the references.

Declaring a conflict of interest does not necessarily preclude the submission from publication, however failure to disclose a conflict of interest is a form of misconduct potentially leading to correction or retraction of a publication. Once completed, a declaration of conflict of interest must be provided along with the manuscript at the time of submission. Where no conflicts of interest are noted to exist, a statement that no conflicts of interest exist must be made in a subsection at the end of the manuscript text prior to the references.

Role of the Funding Source

Authors are required to identify all sources of funding that enabled the conduct of the research and/or preparation of the submitted manuscript. Authors must also state the role, if any, that a funding source had in study design; in the collection, analysis and interpretation of data, and; in the writing of the report. The corresponding author must state whether they maintained full access to all data within the study and final responsibility for the decision to submit for publication. All acknowledgements of role of the funding source are to be presented in a subsection at the end of the manuscript text prior to the references.

The *Australian Journal of Advanced Nursing* publishes a wide variety of original research, review articles, practice guidelines, and commentary relevant to nursing and midwifery. Sections of the journal are used to categorise these published works by the structure and content of the articles and to provide guidance to prospective authors. A brief overview of each is detailed below.

Journal word count limits:

- Research papers (3,000 – 5,000 words)
- Reviews and Discussion Papers (3,000 – 5,000/6,000 words)
- Methodology Papers and Theoretical Frameworks (2,000 – 4,000 words)
- Letters to the editor (1,500 words)
- Case Studies (1,500 words)
- Editorials (1,500 – 2,000 words)

Research Papers (3,000 – 5,000 words)

Authors should direct their manuscript to the Research Papers section of *AJAN* if their research is original and looks to support and improve advances and decision making in fields that are aligned to the mission and scope of the journal. Research papers will typically be between 3,000 to 5,000 words in length and will provide a clear and concise presentation of the research that the paper is reporting on. The journal does not accept research papers that report on studies undertaken on animals and that have not adhered to, or received approval from, a relevant human research ethics committee.

Reviews and Discussion Papers (3,000 – 5,000/6,000 words)

Evidence-synthesis and other critical appraisals of existing literature or evidence is to be published under this section. Evidence-synthesis is inclusive of systematic reviews, scoping reviews, and other review types. The *AJAN* considers all types of evidence synthesis, however where established guidance for a review type exists, it must be adhered to. Evidence- synthesis articles will typically be between 3,000 and 6,000 words, however in some instances where a particular evidence synthesis technique requires an increase to this word limit to ensure effective reporting of the work, it may be granted. In this situation the author must provide a supporting explanation as to why the word count was exceeded. Due to publishing constraints and in fairness to other authors, we are unable to accept reviews which are overly long.

Also published within this section are discussion papers and literature reviews (non- systematic) that provide critical analysis and engagement with key topics aligned to the mission and scope of the journal. Commentary provided in a discussion paper must be supported by a well-presented overview of current and potentially evolving evidence. Typically, a concise discussion paper will adhere to similar word limit constraints as a research paper, i.e. 3,000 – 5,000 words.

Methodology Papers and Theoretical Frameworks (2,000 – 4,000 words)

Authors may submit papers that report on new methods, tests or procedures that are entirely novel or offer a better or updated version of an existing method, or describe a theoretical framework for application in practice. The article must describe in which

ways the method builds on established practice and/or the evidence that is currently available and be thoroughly tested. The article will ideally, but not necessarily, prove the value of the method by offering an example of application and be presented within 2,000 to 4,000 words.

Letters to the Editor (1,500 words)

Letters to the editor may be submitted in response to published articles or as an independent work. These letters should provide relevant, readable, and compelling commentary related to the published article in question or to the mission and scope of the journal and must be of likely interest to the journal's readership. Letters to the editor should not exceed 1,500 words and are limited to ten references.

Case Studies (1,500 words)

The case studies section of the journal allows authors a means to publishing works which may not present suitably as original research but provide a unique commentary of an experience, research or finding/s that are related to the journals mission and scope, and that are of interest to its readership. Examples of such works may include quality improvement projects, pilot studies, and research where important preliminary results should be made public prior to conclusion of e.g. a large study. A work presented as a case study should provide significant critical analysis and highlight key points of difference substantiated in relation to current knowledge or practice. Case studies which simply recount events with no critique, reflection, or analysis will not be accepted. A case study should clearly and concisely be presented within 1,500 words.

Editorials (1,500 – 2,000 words)

Editorials are generally solicited by invitation only. These evidence-informed commentaries are commissioned by the Journal's editors to provide insight and provoke discussion on contemporary topics of interest and key issues aligned to the scope and mission of the journal. Editorials may be presented in a more journalistic style than a research paper and will generally be between 1,500 – 2,000 words. The journal welcomes suggestions for invited editorials from readers; these can be made by contacting the editorial office at ajan@anmf.org.au

Language Standards

The *Australian Journal of Advanced Nursing* supports and encourages manuscript submissions of authors from around the globe and acknowledges that authors whose native language is not English may have difficulties writing manuscripts to the standard of English required by the journal. In this instance, we encourage authors to engage the services of a scientific editor or copyeditor to improve the quality of the manuscript before submitting.

While the journal is pleased to receive submissions from anywhere in the world, unfortunately, where the quality of written expression interferes with the ability of readers or reviewers to understand the material, manuscripts may be sent back to authors.

Reporting Guidelines

Adhering to reporting guidelines enhances the clarity, quality, and rigor of published research. For an overview of established guidance in relation to many of the study types published by the journal, the editors suggest authors refer to the EQUATOR network. Whilst the journal does not demand that authors adhere to every guidance framework described against each study type by the EQUATOR network, it is strongly recommended under most circumstances.

Please note, in the case of systematic reviews and scoping reviews, adherence to the preferred reporting items for systematic reviews and meta-analyses (PRISMA) and the PRISMA-extension for scoping reviews (PRISMA-ScR) is required.

Where an author does follow established guidance, the associated checklist or necessary acknowledgement should be included with their submission. This can either be as an appendix included within their supplementary data file and referenced in-text, or if appropriate, in the main body of the text.

Title Page

The title page must be submitted as a separate file (DOC, DOCX, or RTF) and may be more than one page in length if necessary.

Titles must be specific, descriptive and concise. Titles should be written in sentence case (i.e. only the first word of the text and proper nouns capitalised. Study design should be noted in the title where appropriate, as an example this may include where the study is a clinical trial, systematic review or meta-analyses.

The title page should be the only file which lists the names, post-nominals, and affiliations of the authors.

The title page should also include the details of the corresponding author, acknowledgements, funding support, and a declaration of any relevant conflicts of interest.

Article Style

File Format

Manuscript files may be submitted in the following formats: DOC, DOCX or RTF. Microsoft word documents should not be locked or protected.

Length

Please refer to the above word limit guidance described against each journal section. All manuscripts must present and discuss findings concisely. The editors reserve the right to reject manuscripts that are deemed too long, or to request that the author(s) shorten the manuscript to a more suitable length.

Font

For the body of the manuscript, please use a standard 12 font size and 'Arial' font. To add symbols to the manuscript, use the Insert → Symbol function in your word processor or paste in the appropriate Unicode character.

Headings

Please limit manuscript sections and sub-sections to five heading levels. Make sure heading levels are clearly indicated in the manuscript text. Recommended heading levels are:

Heading Level One (e.g. Title) – Size 14, Bold

Heading Level Two (e.g. Abstract, Background, Methods, Results, Discussion) – Size 12, Bold

Heading Level Three (e.g. subsections/headings i.e. Participants) – Size 12, Bold, Italic

Heading Level Four (e.g. lower subheadings i.e. Themes) – Size 12, Italic

Heading Level Five (e.g. sub-themes) – Size 12, Italic, Indented

Layout and Spacing

Manuscript text must be 1.5 spaced, text must be formatted into a single column only (i.e. not multiple columns).

Page and Line Numbers

Page and line numbers must be included in the manuscript file only. Use continuous line numbers throughout the document, i.e. do not restart the numbering on each page.

Footnotes

Footnotes are not permitted. Any manuscripts utilising footnotes will be returned to the authors and a request made to move the information, depending on appropriateness, either into the main text or to the reference list.

Language

Manuscripts must be submitted in academic British English. Any manuscripts utilising American English will be returned to the authors and a request made to update the language style to British English prior to resubmission.

Abbreviations

Abbreviations must be defined upon first appearance in the text. Non-standard abbreviations must not be used unless they appear at least three times in the text. Abbreviations should be kept to a minimum. Abbreviations or acronyms must not be used at the start of new sentences, in which case the whole term must be spelled out. Abstracts may only contain standard abbreviations which are spelled out at the first use; e.g. Emergency department (ED).

In-Text Reference Style

The journal uses a superscripted version of the 'Vancouver' referencing style. Authors should follow the formatting guidance detailed below and where formatting requirements are not provided, should consult the National Library of Medicine's *Citing Medicine* for clarification. Please note further guidance on formatting reference lists is provided in the 'reference list' section of this document.

Within the body of the manuscript (in-text), references should be cited sequentially using superscripted Arabic numerals only following punctuation. For example:

"as reported by Sharplin and colleagues.[1]"

Two references are separated by a comma. For example.[1,2]

Three or more consecutive references must include a hyphen between the first and last citation. For example.[1-3,6,12,21-24]

All superscript citations must follow a punctuation mark and there should be no gap between the punctuation mark and the superscripted number, or between superscripted numbers.

References in tables, figures, and boxes should follow consecutive numerical order according to where the item is within the body of the manuscript (i.e. tables, figures, and boxes should not include citations listed separately to those listed in the rest of the manuscript). In-text references should not be used in the abstract.

Equations

We recommend using MathType for display and inline equations. If this is not possible, Equation Editor or Microsoft's Insert→Equation function is acceptable.

Article Structure

The main body of the manuscript should be ordered in a manner that corresponds to the abstract. Subheadings may be used (see above for details on the use of heading levels in *AJAN*). Below is a brief guide to a standard structure for a research manuscript for publication in *AJAN.* Some variation may be necessary, which may be acceptable by *AJAN.*

Beginning Section

Abstract

Submitted manuscripts must include a structured abstract of no more than 400 words. The abstract should use standard headings such as:

Implications for research, policy, and practice

Other headings may be acceptable if those above are not suited to the type of article. For example; a case study or discussion paper. All abstracts must:

- Describes the main objective(s) of the study.
- Provide a high-level overview of the methodological process undertaken.
- Concisely summarise the important findings of the study and their significance.

Keywords

No more than six keywords should be provided. Ideally these should be different from the words in the title to improve article identification in online databases. Medical Subject Headings (MeSH), a controlled and hierarchically-organised vocabulary produced by the National Library of Medicine, can be used to identify appropriate keywords.

Manuscript Contributions

Following the keywords, authors should include two sections:

What is already known about the topic?

- (text describing what is known about the topic)

What this paper adds

- (text describing what knowledge this paper adds to the topic)

Each may have up to three short, dot-pointed sentences of no more than 40 words each.

Objective

The objective of the work/research should be clearly and concisely stated, explaining to the reader exactly what is hoped to be demonstrated or argued in the manuscript as well as the rationale for the study.

Background

The background should contextualise the manuscript within its field of study and must be comprehensive enough that readers outside of the field are able to understand the importance and significance of the study.

Background should:

- introduce and define the problem being addressed and its importance;
- provide a brief overview of relevant literature;
- make note of controversies or disagreements within the field of study, and;
- provide a brief concluding remark regarding the overall aim of the work.

Middle Section

Method

Description of the method should allow full replication of the study by other sufficiently skilled investigators.

Results

The results section should present and describe the relevant findings of the study. Please note, the interpretation of the results or analysis of the results in relation to other evidence should not appear in the results section.

Discussion

The discussion section should discuss the implications of the findings of the study. The discussion of these implications should refer to the overall objective/aim of the study and the findings impact on the field, related studies, and potential future direction for research.

Conclusion

Should state the concluding remarks, resulting from the findings and discussed implications of the study. Please note that any editorial decisions made by *AJAN* are not reliant on the perceived significance or impact of a study and as such the overstatement of concluding remarks should be avoided. If appropriate, this section may also clearly and succinctly explain any implications or recommendations that can be made to decision makers and knowledge users based on the results of the work.

Ending Section

Acknowledgements

This section should include any acknowledgements to those who contributed to the study but do not meet the criteria for authorship. It is the authors responsibility to ensure any individual named in acknowledgement agrees to being stated as such and their contribution should be clearly described (e.g. 'contributor' provided assistance with locating background literature and statistical analysis). Please note, acknowledgements should be included in the title page, and not the main body of the manuscript, when making a submission.

Reference List

A reference list, as noted above, should follow the requirements of the Vancouver referencing style in line with the guidance below. Any and all available works are acceptable within a reference list provided they have been accepted for publication (where references have been accepted but are yet unpublished, supporting evidence is required to affirm the inclusion of the reference). Unpublished or unavailable works cannot be accepted as an appropriate reference.

In the reference list, journal article references should adhere to the following format:

Peters MDJ. Managing and coding references for Systematic Reviews and Scoping Reviews in EndNote. *Med Ref Serv Q*. 2017; 36(1): 19-31.

In the reference list, journal names should be abbreviated in their standard form as in Index Medicus

If there are six authors or fewer, list all six in the form: surname space initials comma. For example:

Sharplin G, Corsini N, Cameron K, Ramsey I, Adelson P, Eckert M. If there are seven or more list the first six in the same way, followed by et al.

For a book, list any editors and the publisher, the city of publication, and year of publication.

For a chapter or section of a book, also list the authors and title of the chapter/section, and the page numbers.

For online material, please cite the URL along with the date you accessed the website in brackets. For example: [cited 19 Nov 2019]. Available from: https://www.ajan.com.au/index.php/AJAN

References for online journal articles should include DOI numbers where they are available. For examples of the above, please see the reference list guide at the end of this document.

Supporting Information/ Supplementary Files

Authors should submit essential supporting files and multimedia along with their manuscripts as supporting information. These files will be subject to peer review but will not be copyedited, and as such will be published as they are provided in a single combined .PDF file. Please refer to 'Supplementary data and information' below for further information.

Other Elements

Please do not insert, but only indicate, in the main body of the article text where Figures and Tables should be located. Both Figures and Tables are to be inserted immediately after the first paragraph in which they are cited. The accompanying Figures and Tables should then be uploaded separately in a consolidated document. Please note however, all Figure and Table files to be included in an appendix should be uploaded as part of the supplementary data file.

When indicating headings in the body of the manuscript please note, Table headings precede (are above) the table itself. Figure and box headings follow (are below) the figure or box.

Accompanying Files and Information

Cover Letter

Manuscripts submitted to *AJAN* must attach a cover letter to the submission signed by the corresponding author confirming that:

- The manuscript is an original work and no part has been published or submitted elsewhere.
- All authors have read and approved the submitted version of the manuscript.
- Development of the manuscript and any research reported therein has adhered to

ethical standards.
- All authors fulfil the requirements of authorship recommended by the ICMJE.

The authors should also explain to the Editor how their manuscript aligns to the *AJAN's* Mission and Scope and what contribution their work makes to the journal, healthcare, professions, or scholarship more broadly.

Recommendations for peer reviewers

Authors are required to provide AJAN with recommendations for at least two unbiassed peer reviewers. Suitable reviewers should have either expertise in the focus topic, or the methodological approach used in the submitted manuscript. Importantly, given the journal's adherence to ethical publishing standards and guidelines of COPE and the ICMJE, authors should not suggest peer reviewers with whom they have a real or perceived conflict of interest.

Examples of conflict of interest are:

- the reviewer and the author have recently or regularly collaborated (e.g. publications, projects)
- the reviewer and author have a relationship either inside or outside of a professional context that may bias their review (e.g. on a committee together, work at the same institution)
- any other situation which might influence the reviewer's judgement of the manuscript.

Potential reviewers who would likely not be characterised as having conflict of interest are those who have published works on a similar topic, have used a similar methodology, or those whose work has been referenced in the submitted work but are not otherwise affiliated with the authors.

We ask that authors do not contact the suggested reviewers for any reason regarding the manuscript, including their availability to undertake the review.

Supplementary data and information

The *AJAN* allows authors to publish supplementary data in ONE separate .PDF file that may accompany the published manuscript. Multiple labelled appendices referred to in the manuscript may be presented in the one file with a contents section on the first page. Material presented in the supplementary data should not be essential to understanding of the manuscript and as such, each manuscript must be able to stand alone without reference to data presented in the supplementary material.

There is no word limit for material presented within the supplementary data section and authors may choose to include material here that cannot fit within the word count of their relevant journal section. While the supplementary material will be reviewed with the manuscript by editors and peer reviewers, it will not be copyedited or proof-read and will be published 'as is'.

Authors are responsible for ensuring the accuracy and clear presentation of any supplementary material. If the editors and/or peer reviewers have concerns regarding the quality or clarity of the supplementary data, the authors may be asked to make improvements to these prior to acceptance. The journal retains the right to decline to publish any supplementary data that is not deemed necessary or of a publishable standard.

Initial Decision

The editorial review team assesses all submitted manuscripts at their time of submission, at this initial stage of review submitted manuscripts will be assessed for their appropriateness to the scope of the journal, adherence to these guidelines and overall suitability as a scholarly work. Ultimately, an in-house decision will be made as to whether the submitted manuscript is appropriate for progression to peer review and potential publication in *AJAN*. Manuscripts accepted at this stage will then be entered into the double-blind peer review process. Where manuscripts are not found to be appropriate, the outcome will be quickly communicated to the author.

Double-Blind Peer Review

All manuscripts accepted to undergo peer review will be assessed by independent members of an expert panel. As the process is double-blinded, reviewers will not be informed of the author of the manuscript and vice-versa. Authors may suggest potential peer reviewers or advise of unacceptable peer reviewers (e.g. where there is a conflict of interest) in their cover letter accompanying their initial submission.

Recommendations made by the peer reviewers will be considered by the Editor-in-Chief and the author will receive notification as to the acceptance, provisional acceptance (acceptance with major or minor revisions) or decline of their manuscript.

The final decision to publish is made by the Editor-in-Chief in consideration of all recommendations made by reviewers, senior, and associate editors.

The editorial team encourages authors to register their interest to peer review for *AJAN;* if you wish to do so, please request the reviewer role when registering a user account or, if you have already created an account, select the peer reviewer role in your account settings. Please contact the editorial office at ajan@anmf.org.au if you have any queries.

Proofing, Copyediting, and Author Acceptance

The manuscript will be proofed and copyedited by *AJAN* staff. Once any necessary changes have been made the manuscript will be returned to the author for approval prior to publication.

It is important to note that our proofing and copyediting services are limited and that the costs of this are not passed on to the authors. Manuscripts written in an unacceptable standard of English cannot be taken forward for publication. In this case, we are not able to effectively copyedit the manuscript without potentially altering the meaning and intent of the article, and so where necessary, we ask authors to work with a native English speaker or a scientific editor/copyeditor capable of understanding the content of the work to produce and submit a manuscript that would be understandable to the editors and the reviewers.

It is the authors' responsibility to look over any corrections made in the copyediting process to ensure that the material is accurate and correct.

Publication

The finalised manuscript will be published online in an open-access, quarterly issue of *AJAN*.

Journal Articles

Journal Article with 1 – 6 authors

Pope CJ, Sharma V, Sharma S, Mazmanian D. A systematic review of the association between psychiatric disturbances and endometriosis. *J Obstet Gynaecol Can*. 2015; 37(11): 1006-15.

Journal article with more than 6 authors

Ramsey I, de Rooij BH, Mols F, Corsini N, Horevoorts NJE, Eckert M, et al. Cancer survivors who fully participate in the PROFILES registry have better health-related quality of life than those who drop out. *J Cancer Surviv*. 2019; 13(6): 829-39.

Journal article with 2 authors

Mealer M, Moss M. Moral distress in ICU nurses. *Intensive Care Med*. 2016; 42(10): 1615- 17.

Journal article published online ahead of print

Fernandez PR, Lord H, Halcomb PE, Moxham L, Middleton R, Alananzeh I, et al. Implications for COVID-19: a systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. [E-pub ahead of print, 2020 May 8] *Int J Nurs Stud*. 2020; 103637.

Journal article if including DOI

Brady BR, De La Rosa JS, Nair US, Leischow SJ. Electronic cigarette policy recommendations: a scoping review. *Am J Health Behav*. 2019. Jan 1; 43(1): 88-104. Available from: https://doi.org/10.5993/AJHB.43.1.8.

Note: if referencing DOIs all applicable references must have their DOI included in the manuscript reference list in line with the guidance above. All other formatting requirements (e.g. formatting related to no. of authors) is consistent with other reference examples provided here.

Journal article in-press

Fraher EP. The value of workforce data in shaping nursing workforce policy: a case study from North Carolina. *Nurs Outlook*. 2017; 65(2): [in-press].

Theses / Dissertation

de Moel-Mandel C. Towards a nurse-led model of care for medication abortion provision in regional and rural Victoria [dissertation]. Burwood: Deakin University; 2018.

Published in language other than english

Aslan FE, Öntürk ZK. Safe operating room environment; biological, chemical, physical and psychosocial risks, effects and precautions [Turkish]. *Maltepe Üniversitesi Hemşirelik Bilim ve Sanatı Dergisi.* 2011; 4(11): 133-40.

Book

Print

Alligood MR. Nursing theorists and their work. 9th ed. St. Louis: Elsevier; 2017.

Editors/compilers

Gilstrap LC 3rd, Cunningham FG, VanDorsten JP, editors. Operative obstetrics. 2nd ed. New York: McGraw-Hill; 2002.

Chapter

Kushner KE. Community health nursing practice. In: Potter PA, Perry AG, Stockert PA, Hall AM, editors. Canadian fundamentals of nursing. 5th ed. Toronto: Elsevier; 2014; 42-53.

Government and Technical Reports

Print

Royal Commission into Aged Care Quality and Safety. Interim report: neglect. Commonwealth of Australia. 2019.

Online

World Health Organization (WHO). Interim Report: Pulse survey on continuity of essential health services during the COVID-19 pandemic. World Health Organization. Geneva. 2020. [cited 2020 Sept 16]. Available from: https://www.who.int/publications/i/item/WHO-2019- nCoV-EHS_continuity-survey-2020.1.

Australian Bureau of Statistics (ABS). Employment and unemployment: an international perspective. Australian Bureau of Statistics. Canberra. 2020. [cited 2020 Sept 19] Available from: https://www.abs.gov.au/articles/employment-and-unemployment-international- perspective.

Web Page

Organisation

Nursing and Midwifery Board of Australia (NMBA). Fact sheet: recency of practice. Nursing and Midwifery Board of Australia. 2020. [cited 2020 Jul 9] Available from: https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/FAQ/recency-of- practice.aspx.

Author

Hemingway A. Nurses are on the coronavirus frontline, so why are they being left out of the response? The Conversation. 2020. [cited 2020 Sep 12] Available from: https://theconversation.com/nurses-are-on-the-coronavirus-frontline-so-why-are-they-being- left-out-of-the-response-143658

Software

NVIVO qualitative data analysis software. QSR International Pty Ltd. Version 11, 2015.

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