

# Medication use problems among older adults at a primary care: A narrative of literature review

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## Abstract

Appropriate medication use is one of the most significant challenges among the older population. Although medication use problems are well documented at the secondary and tertiary health care level, the evidence at the primary care level of OECD region is limited. A narrative review of existing literature was conducted through a nonsystematic search for original articles through electronic search databases, Ovid Medline, Google Scholar from 2001 to 2021, and a combination of citation references. Medication use problems are prevalent in older adults at the primary care level. The main issues of medication use identified were as follows; nonadherence, adverse drug events, accessibility, polypharmacy, inappropriate medications, belief about medications, lack of knowledge and awareness, and lack of deprescribing. In addition, the current review has identified the possibilities of the problems: many medications, forgetfulness, lack of deprescribing, lack of communication, poor understanding, and limited awareness of inappropriate medications. This review found that various medication use problems subclusters were identified to impact the health care need among older adults. Therefore, effective interventions targeting these issues need to be developed to reduce medication use problems among older adults at a primary care level.

## KEYWORDS

medication use, narrative review, older adults, primary care

## 1 | INTRODUCTION

The growing aging population is prominent globally. It is projected that by 2050, the proportion of the world's population over 60 years will be 22%.<sup>1</sup> This demographic transition to aging populations increases the health care burden because of multimorbidity and older adults' complex health care needs. Older adults often take several medications for chronic illnesses; however, the support ecosystem

to optimize medication use in older adults is either lacking or not appropriately optimized, especially in the Organisation for Economic Co-operation and Development (OECD) regions. This region is comprised of 38 developed countries globally that aims to shape the policy constituting social, economic, and environmental challenges.<sup>2</sup>

The aging process involves psychosocial and physiological changes that alter the body's pharmacokinetics and pharmacodynamics.<sup>3</sup> That leads to drug response variation and increases the

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probability of interactions, contraindications, and adverse effects.<sup>4</sup> Older populations have a higher prevalence of comorbidities, resulting in multiple medication use. Medication usage exponentially increases the number of medication use problems among older adults, including the complexities of comorbidities, their complications, adverse events, and inappropriate medications.<sup>5</sup>

Medication use problems are defined from five various stages, including prescribing, communicating orders, dispensing, administering, and monitoring.<sup>6</sup> Definition varies according to the components, which is related to be a problem with medication use among older adults. Elliott<sup>7</sup> defined the medication use problem as an extension of the main domains: inappropriate prescribing, polypharmacy and non-adherence that included drug-related problems such as suboptimal monitoring of drugs, poor medication management in patients' homes under-prescribing, and poor communication between health professionals. Accessibility to primary health care, especially for medication access, has been a significant barrier among older adults due to disability, cognitive impairment, and transportation.<sup>8</sup> Accessibility to primary care providers, especially to a pharmacist, would help to meet the justification to prevent adverse drug events and complexity of medication regime among the older population. Older people with comorbidities believe that their prescribed medication reduces their health care burden, and this can be achieved with medication adherence.<sup>9</sup> Therefore, it is essential to incorporate target beliefs about medication to predict adherence.<sup>10</sup> Low socioeconomic status with transportation barriers has resulted in problems accessing medications.<sup>11</sup>

Optimizing polypharmacy by interacting with prescribers and older adults is a predictor of high quality of health.<sup>12</sup> Chronic disease was the leading cause of older adults attending primary care in recent times.<sup>13</sup> Several studies have explored older adults' interaction with the primary health care system.<sup>14-16</sup> Similarly, some studies have reported that individuals with multiple illnesses often visit primary care.<sup>17,18</sup> Primary care envisions providing comprehensive care to the population at their local places or nearby. It covers health promotion and health education, preventive health measures, and essential treatment and is often the first point of contact for patients.<sup>19</sup> At the primary care level, health care services are generally designed and delivered for the health care needs of the general population. Despite the increasing aging population, the outlook of primary care services has not changed significantly to cater to the needs of the older adult population.<sup>20</sup> Naidoo and Van Wyk<sup>21</sup> mentioned no counseling or communication done for medications prescribed for older adults in a study conducted at three primary care facilities in KwaZulu-Natal province, South Africa. They recommended having more geriatric care and specialization at the primary care level. Likewise, Forsyth et al.<sup>22</sup> also supported the need for geriatric-focused primary care support for nursing homes and aging people. Geriatric-focused service delivery needs primary health care, especially in vulnerable and cognitively impaired populations.<sup>23</sup> Studies have reported medication usage problems with older adults such as polypharmacy, nonadherence of medication, adverse effects of medication, need for a medication review and deprescribing, and complex medication regimens.<sup>24-26</sup>

Medication use problems of older adults are complex and multifaceted and have an enormous impact on the patients, the health system, and the economy.<sup>27,28</sup> Medication use problems of the older adult start from their home or residential care unit where the older adults either manage medication on their own or are taken care of by care assistants who are ill equipped to ensure appropriate medication use. Older adults on multiple medications for chronic health problems interact with an overburdened primary health care system that lacks appropriate geriatric-focused appropriate medicine use support services.<sup>29</sup> The involvement of pharmacists at the primary care level to respond to some of these needs would optimize the geriatric population's health.<sup>24,29</sup>

Several publications have studied and documented various medication use problems with aging people at the primary care level, such as polypharmacy, nonadherence of medication, adverse effects of medication, need for a medication review, and deprescribing complex medication regimens.<sup>24,25,30</sup> Although the previous review by Abrahamson et al.<sup>30</sup> was done in the OECD region, it emphasized more on the medication review intervention, which could contribute to the optimization of economic level at the primary care level. Therefore, a comprehensive analysis of medication usage problems of older adults at the primary care level in the OECD region is lacking. Moreover, magnitude and various medication use problems, i.e. medication adherence, can be viewed through objective and subjective measures.<sup>31</sup> Subjective measures the patients' evaluation of their medication-taking problems.<sup>32</sup> This review aims to construct evidence from studies on medication use problems that focused on both measures among older adults' population in primary care.

## 2 | METHODOLOGY

This narrative review describes and discusses the current literature on medication use problems among older adults at a primary care level.

### 2.1 | Search strategy

We searched for original articles through an electronic search of the database, i.e. Ovid Medline, Google Scholar from 2001 to 2021, and a combination of citation references. Search terms related to medication use problems are defined as an extension from the main domains: inappropriate prescribing, polypharmacy, nonadherence, and drug-related problems.<sup>7</sup> Muldoon et al.<sup>33</sup> defined primary care to be an interaction between prescriber and patient while primary health care broadens the interaction to individual and also the population in a community. Thus, for our search, we included any studies that included the community pharmacy, primary health care institutions, or private clinics as one of their settings. We also included any primary care settings that collaborated with any secondary or tertiary health care settings. We also included the search term of older adults over the age of 65 according to United Nations World

Population Prospects.<sup>34</sup> The search strategy for the Ovid Medline database is included in Appendix S1.

## 2.2 | Inclusion/exclusion criteria

We restricted the search for the articles published in the English language. We limited the search for the last 20 years to come up with articles covering current challenges and evolution of problems on medication use among older adults at a primary care level. We included older adults above 65 years old and the Organisation for Economic Co-operation and Development (OECD) studies. We excluded studies done in other languages and systematic review, conference abstracts, and editorial letters.

## 3 | RESULTS

### 3.1 | Medication use problems

Most recent literature discussed medication use problems of older adults, focusing mainly on the primary care level. Therefore, 22 articles were retrieved to evaluate medication use problems of older adults at the primary care level (Table 1).

### 3.2 | Medication nonadherence

Multiple studies have pointed out that medication adherence is a complex challenge among older adults. Studies have reported nonadherence as one of the major issues with older adults regarding medication use. In a most recent study in Ireland, 31% of older patients with comorbidities were noncompliant with their medications.<sup>35</sup> In another related study, it was indicated that low medication adherence was around 53% among older adults attending primary and tertiary health care centers.<sup>36</sup> A cross-sectional study in Portugal to evaluate medication adherence among older adults concluded that almost half of them have difficulties managing their medications, and educational interventions are needed to improve medication adherence.<sup>37</sup> However, their study involving older adults staying in nursing homes was excluded. In another recent study, in a primary care setting in Germany, improper medication administration and nonadherence among older adults with dementia were high, as 60% had drug-related problems.<sup>38</sup> The other identified drug-related problems in their study were mainly inappropriate medication combination (34.8%), outdated medication list (24.7%), inappropriate administration timing (40.4%), inappropriate medications (22.9%), forgetfulness (18.4%), and inadequate medication storage (43.7%). The author had justified that a home medication review is needed to reduce medication use problems in older adults in the community. In a study conducted in Korea, the medication adherence rate among diabetic older adults varied between respondents attending tertiary health care and private general practitioners.

The latter showed a lesser adherence rate according to the Morisky score.<sup>39</sup> Unintentional nonadherence was primarily because of less knowledge and difficulties in managing medications.<sup>39</sup> The limitation of this study was restricting the questions to be short to accommodate the filling time, leading to a less reliable tool.

It follows another issue of nonadherence, resulting from a complex medication regimen being prescribed. In Korea, 60% of older adults have problems understanding the medication label and information, leading to nonadherence.<sup>36</sup>

### 3.3 | Adverse drug events

Adverse drug events are regarded as one of the challenges regarding medication use among older adults. Information regarding adverse drug events can be obtained from medication booklets, via the internet or health magazine, or health care professionals such as pharmacists, doctors, and nurses.

A study in a nursing home in Massachusetts revealed that 410 older adults out of 2916 total nursing home residents had adverse drug events.<sup>40</sup> Adverse drug events lead to a severe risk of their disease progression. Despite these findings, another study found that through a focus group interview among older adults living in a community in Portugal, most reported having low adverse drug events because of their adaptation and knowledge of the consequences.<sup>41</sup> Thus, knowledge and communication with health care providers contributed to better understanding and easy adaptation to medication side effects. However, that differs in various primary health care settings and often significantly impacts medication use patterns among older adults. Therefore, adverse drug events are a significant challenge that can have deleterious effects on the health outcomes of the older person.

### 3.4 | Accessibility

Gilliland et al.<sup>42</sup> mentioned that geographical accessibility to primary care providers varies across London, with a high proportion of vulnerable populations experiencing low accessibility and the older population having difficulties reaching them. It demonstrated the existence of medication use care deprivation areas. In contrast, the Lisbon Metropolitan Area reflected high spatial variability of proximity to pharmacies.<sup>43</sup> In another study in Sweden, it is worth mentioning that most of the older population raised concerns about accessibility to primary health care.<sup>44</sup> Studies are limited for accessibility needs; however, the mentioned studies have concluded that access to primary health care concerns medication access to older adults.

### 3.5 | Polypharmacy

Polypharmacy is defined as having multiple or more five medications, and it is one of the biggest challenges among older adults.<sup>29,38</sup>

TABLE 1 Summary of medication use problems among older adults at primary care

Author, Year, Country	Settings	Methods	Participants	Issues of medication use problem	Findings
Kim et al., <sup>35</sup> 2018, Ireland	15 general practices	Adherence to medication was measured by the medication possession ratio	855 community-dwelling patients aged $\geq 70$ years	Medication nonadherence	31% of older patients with multimorbidity were nonadherent to their medication
Jin et al., <sup>36</sup> 2016, Korea	3 tertiary care hospitals, 6 community pharmacies, and 2 senior centers	Cross-sectional study Medication adherence was measured by the Adherence to Refills and Medication Scale	160 participants aged 65 years and older	Medication nonadherence	52.5% showed low adherence to medication. The factors affecting medication adherence included the patient's degree of satisfaction with the service ( $\beta = -0.215$ , $p = 0.022$ ), sufficient explanation of medication counseling ( $\beta = -0.335$ , $p = 0.000$ ), education level ( $\beta = -0.153$ , $p = 0.045$ ), health-related problems ( $\beta = -0.239$ , $p = 0.004$ ), and dosing frequency ( $\beta = 0.189$ , $p = 0.018$ )
Gomes et al., <sup>37</sup> 2020, Portugal	38 public primary care centers	Cross sectional study, Questionnaire to assess medication adherence	1089 polymedicated patients with $\geq 65$ years old	Medication nonadherence	47.7% were considered nonadherent. Forgetfulness (38.8%), difficulties in managing medication (14.3%), concerns with side effects (10.7%), and the price of medication (9.2%) were pointed as relevant medication nonadherence-related factors
Notenboom et al., <sup>36</sup> 2014, Netherland	A community pharmacy and a geriatric outpatient ward	Qualitative interview	59 older adults	Lack of knowledge and awareness about medications	63% participants reported problems with reading and understanding the instructions
Wucherer et al., <sup>38</sup> 2017, Germany	Primary care centre	Cross-sectional study	414 older patients aged 70 years and above	Medication nonadherence, Inappropriate medication	Medication administration and nonadherence were 60%. Drug interactions were (17%), and inappropriate drug choice (15%)
Park et al., <sup>39</sup> 2010, Korea	One tertiary hospital and two private clinics	Interview survey Morisky's self-report	265 older adults aged 65 years and above	Medication nonadherence	The medication adherence was significantly higher in tertiary hospital patients (61.1%) compared to private clinic patients (43.2%)
Field et al., <sup>97</sup> 2001, United States	18 Nursing homes which was served by a pharmacy which is within the community	Case-control study	2916 nursing home residents	Adverse drug events	410 residents had adverse drug events. A major risk factor for ADEs identified in our study was the number of regularly scheduled medications

(Continues)

TABLE 1 (Continued)

Author, Year, Country	Settings	Methods	Participants	Issues of medication use problem	Findings
Henriques et al., <sup>41</sup> 2012, Portugal	Lisbon's Health Centre	Qualitative interview	18 older adults aged above 65 years and above	Adverse drug event	Participants reported very few adverse effects
Padeiro <sup>43</sup> 2018, Portugal	801 community pharmacies at Lisbon Metropolitan Area	Descriptive spatial analysis	Older adults aged 65 years and above	Accessibility	61.2% of the elderly live less than a 10 min walk from the nearest pharmacy and 76.9% live less than 15 min away
Gilliland et al., <sup>39</sup> 2019, London	Five sub-LHIN areas	Population-based study examining the geographical accessibility to all PCPs	All primary care providers within the city of London, Ontario	Accessibility	Access scores for French- and Arabic-speaking PCPs are found comparatively high (mean = 2.85 and 1.01 respectively) as compared to Spanish-speaking PCPs (mean = 0.47)
Nymberg et al., <sup>44</sup> 2019, Sweden	3 Primary health care centres	Qualitative interview	15 older adults aged 65–80 years old	Accessibility	Most of the older adults raised concern towards accessibility to primary care
George et al., <sup>45</sup> 2017, United States	Community-dwelling older adults	Cross sectional study	482 community dwelling adults age 65 years and older	Polypharmacy	The prevalence of polypharmacy defined as the use of 5 or more medications was 34% (n = 164) amongst the 482 participants
Wastesson et al., <sup>46</sup> 2018, Sweden	Pharmacies in Sweden	Longitudinal cohort study	822,619 older adults aged more than 75 years	Polypharmacy	The prevalence of polypharmacy (more than 5 drugs) was 45%
Wastesson et al., <sup>47</sup> 2019, Sweden	Pharmacies in Sweden	Longitudinal cohort study	711,432 older adults (aged 65 years and older) living in Sweden with five or more prescription drugs	Polypharmacy	82% were continuously exposed to polypharmacy for 6 months or longer, and 74% for 12 months or longer
Rieckert et al., <sup>48</sup> 2018, United Kingdom, Italy, Austria, Germany	GPs in five study centres (UK/Manchester, Italy/Bolzano, Austria/Salzburg, Germany 1/Rostock, Germany 2/Witten)	Cross sectional study	Older adults aged 75 years and above and taking more than 8 medications	Polypharmacy	Age ≥85 years (OR 0.83; 95% CI 0.70–0.99) led to a significantly lower risk for excessive polypharmacy
Voigt et al., <sup>41</sup> 2016, Germany	Primary care centres	Mixed method Semi-standardized content analysis of patients' records, qualitative interviews with FPs and qualitative interviews with FPs' medical assistants	1241 older adults aged 65 years and above	Inappropriate medication	23.9% of elderly patients received at least one PIM prescription

TABLE 1 (Continued)

Author, Year, Country	Settings	Methods	Participants	Issues of medication use problem	Findings
Denholm et al., <sup>51</sup> 2019, United Kingdom	Primary care	Retrospective cohort Number of medications and potentially inappropriate medication prescribed one year prior to, and including death, was ascertained	Older adults who had dementia and died	Inappropriate medication	One year prior to death, 50% of patients were prescribed a potentially inappropriate medication, falling to 41% at death
Akazawa et al., <sup>52</sup> 2010, Japan	Pharmacies	Retrospective cohort study	Elderly patients aged ≥65 years who had at least 2 pharmacy claims in separate months over a 1-year period	Inappropriate medication	43.6% of the older Japanese population had at least one inappropriate medicine in their prescription
Modig et al., <sup>43</sup> 2009, Sweden	Primary care centres	Cross sectional Medication knowledge was assessed with a questionnaire measuring knowledge about indication and possible adverse effects for each medicine. Belief about medicine questionnaire were used to assess attitude	34 patients aged 65 years and above with multiple illnesses	Belief about medications, Lack of knowledge and awareness about medications	93% of older adults indicated strong belief of the medication outweighs the cost as the difference between necessity score and concern score was positive. 84% did not have any knowledge about possible adverse effects for any of their prescribed medicine
Montiel-Luque et al., <sup>55</sup> 2017, Spain	Primary care centers in the Costa del Sol Health District and North Malaga Health Area	Cross sectional	Older adults above 65 years who were using multiple medications	Polypharmacy	Patients who take a larger number of medicines reported the worst results in quality of life. Older adults did not know the indication of medication and the different brands
Schuling et al., <sup>58</sup> 2012, Netherland	Department of General Practice of the University Medical Center Groningen	Qualitative interview	54 GPs who treating older adults	Deprescribing	GPs feel forced by current guidelines to prescribe many different medicines and feels has less knowledge to prescribe medications for older adults
Djatche et al., <sup>48</sup> 2018, Italy	Primary care in Parma, Italy	Cross sectional Questionnaire were provided to assess perception of deprescribing and potential factors affecting the deprescribing process	160 physicians treating elderly	Deprescribing	72% reported general confidence in their ability to deprescribe. 45% physicians did not feel comfortable deprescribing. 40% of physicians reported hesitance in deprescribing medications prescribed by other prescriber before



Several studies have been published on the current reporting on the prevalence of pharmacy among older adults. Polypharmacy was prevalent in 34% out of 482 older adults who participated in a study conducted in the United States.<sup>45</sup> In another study in Sweden, 82% of respondents were continuously exposed to polypharmacy for 6 months or longer and 74% for 12 months or longer.<sup>46</sup> Similarly, a study by Wastesson et al.<sup>47</sup> in Sweden reported that 45% of the older adults experienced polypharmacy and that the prevalence differed between community-dwelling residents (42%) and those in institutions (69%).

Older populations have a higher prevalence of comorbidities, which often results in multiple medication use. For this reason, they consume a high number of prescribed medicines and over the counter (OTC) medicines to manage their chronic illnesses. To prevent inappropriate medicines, medication appropriateness should be determined before and after prescribing medications by primary health care providers.<sup>48</sup> Evidence-based medicines and appropriate based on Beer's Criteria were suggested to be incorporated in prescribing medications to older adults. Interestingly, polypharmacy for older people above 85 years old was lower.<sup>48,49</sup> However, since it was a cross-sectional study, mortality information among older adults was not feasible to be reported at the time. Nevertheless, these studies have developed evidence on polypharmacy contributing to medication use problems among older adults.

### 3.6 | Inappropriate medications

One of the most significant challenges in the OECD region is having inappropriate medicines among older adults, resulting in polypharmacy. Several studies have highlighted the percentage of inappropriate medications among older adults.<sup>38,50,51,52</sup> A study by Denholm et al.<sup>51</sup> found that the number of inappropriate medicines prescribed for cognitively impaired older adults was relatively high (50%).<sup>51</sup> In another separate study, Wucherer et al.<sup>38</sup> pointed out that the prevalence of potentially inappropriate medications among people with dementia was 23%, and cognitive impairment was one factor of the medication use-related problem. The advantage of the mentioned study is that the study was done in a large sample population and resulted in higher accuracy of findings. A study by Akazawa et al.<sup>52</sup> mentioned that about 43.6% of the older Japanese population had at least one inappropriate medicine in their prescription. Relatedly, in a study in Germany, out of 296 older patients having at least one potentially inappropriate medication, 14% were sedative/hypnotic medicines.<sup>50</sup> Inappropriate medicines could lead to adverse drug events, polypharmacy, and even hospitalization.<sup>53</sup> Suboptimal prescribing is often associated with inappropriate medications among older adults. Therefore, the concept of deprescribing is needed to reduce inappropriate medications to enhance the compliance of older adults towards their treatment regimes. Detailed literature on the included studies has

remarked that older adults have inappropriate medication as their medication use challenges.

### 3.7 | Belief about medications

Patients' belief about medication provides an understanding of their medication use. Therefore, older adults need to be adequately informed and properly counseled to understand their perceptions and beliefs about medicine. Consequently, it might remove any misconception regarding medication and improve their confidence in their medications. Several studies have evidence of findings on belief about medications. Dormann et al.<sup>53</sup> reported that about 96% of the older population understand the necessity of their medication. However, the author added that 34% of them were more concerned about the adverse drug event associated with their medication. In addition, another study had reported that most older adults believed in the necessity of their medications.<sup>54</sup> Similar findings reported that based on respondents' replies to the questionnaire, it had been proven that belief about medication is a necessary component on assessing the magnitude of medication use problems and is often linked to medication adherence.<sup>9</sup>

### 3.8 | Lack of knowledge and awareness about medications

Lack of knowledge or awareness about medications often becomes a great challenge for older adults while taking their medicines. Older patients often get confused with the change of different medications brands, ending with dose error.<sup>38,55</sup> Notenboom et al.<sup>56</sup> mentioned that 37 participants had problems reading and understanding the instructions through a qualitative study. The reason was clear evidence of poor knowledge level among the older population.

### 3.9 | Lack of deprescribing

Deprescribing is an intervention carried out by general practitioners and pharmacists on reducing the number of inappropriate medications and tapering the dose of medications with the supervision of health care providers.<sup>57</sup> Deprescribing is often a mutual agreement between health care providers and patients, reducing the number of medications and inappropriate medications. Many factors affect general practitioners implementing deprescribing in their daily encounters with older people.<sup>58</sup> The author explained that a lack of knowledge on older adults' medication regimes and health care guidelines affects the deprescribing process. Similarly, Djatche et al.<sup>59</sup> mentioned that although many barriers to deprescribing exist, about 72% of the 160 general practitioners in Parma are comfortable and knowledgeable on the process. Therefore, more focus is needed on deprescribing interventions to address medication use challenges among older adults.

## 4 | DISCUSSION

From authors' knowledge, this narrative review is the first comprehensive review on assessing medication use problems among older adults at a primary care level through various subclusters. The subclusters identified are nonadherence, adverse drug events, accessibility, polypharmacy, inappropriate medications, belief about medications, lack of knowledge and awareness, and deprescribing.

Medication adherence is regarded as one of the most significant challenges older adults face in OECD regions. The clinical impact of medication nonadherence is hospitalization mortality and poor health outcomes in older adults.<sup>60,61</sup> Many factors affect medication adherence among older adults, i.e. side effects, forgetfulness, difficulty managing medications, socioeconomic status, disease condition, and communication problems with prescribers and pharmacists.<sup>37,62</sup> Despite that, one of the studies has pointed out that sociodemography does not affect medication adherence.<sup>63</sup> Nonadherence to medications occurs when older adults face challenges administering and skipping the medication. Improper medication administrations such as incorrect preparation of medication before use, incorrect technique of medication devices, and improper storage were the improper medication administration.<sup>56</sup>

The findings on medication adherence were parallel with several studies in other regions.<sup>64,65</sup> Contrary, a recent meta-analysis on medication adherence among older hypertensive patients showed that 68.8% adhered to medications through self-reported medication adherence tools.<sup>66</sup> However, our current review was based on general older population inclusion instead of hypertensive older adults, as mentioned in the meta-analysis study above. Medication adherence barriers can be addressed through various strategies, including community pharmacy-based interventions.

Accessibility to primary care providers, especially pharmacists, would help prevent adverse drug events and simplify the complexity of medication regimes among the older population.<sup>67</sup> Community pharmacies are an optimal first point of contact that can play a crucial role in improving medication access. Nonaccessibility to community pharmacies would lead to higher hospitalization rates and medication nonadherence compared to groups that did not have accessibility to community pharmacies.<sup>68</sup> Therefore, there is a need to explore the older person's beliefs and problems at the primary health care level to improve the care. The distance patients travel to get treatment has always been a concern for aging. Medication needs in the geriatric population need to be fulfilled by creating accessibility within the vicinity of the community. Accessibility to primary health care, especially access to medication, has been a significant barrier among older adults due to various factors, including physical disability, cognitive impairment, and transportation.<sup>69</sup> Levine et al.<sup>11</sup> illustrated that low socioeconomic status with transportation barriers has resulted in problems accessing medications. Following that, more studies are needed to evaluate older adults' perspectives of medication accessibility in primary care.<sup>69</sup>

There is a link between polypharmacy, inappropriate medication, and deprescribing.<sup>70</sup> Medication use problems occur when too

many medications, inappropriate ones, and a lack of deprescribing. Limited global studies have highlighted similar findings with our review, which describes polypharmacy, inappropriate medication, and deprescribing as the primary concern of medication use among older adults.<sup>71-74</sup> There is a need to educate primary health care providers on the appropriate prescribing and reduce polypharmacy.<sup>75</sup> Consequently, polypharmacy among older adults can lead to low quality of life, increased treatment cost, increased drug interactions, side effects, and medical problems.<sup>76-78</sup> On the other hand, potentially inappropriate medications have been found to increase morbidity and mortality rates among older adults.<sup>79</sup> To reduce inappropriate medications for older adults, pharmacist interventions on medication recommendations should be according to various explicit and implicit criteria and tools for deprescribing according to the guidelines. Stakeholders should make a policy concerning medications to older adults at a primary care level. Medication use problem occurs when there is a lack of deprescribing.<sup>57</sup> That often leads to polypharmacy with a higher mortality rate and low quality of life.<sup>80</sup> Ultimately, deprescribing should be promoted, and more emphasis is given to improving medication use among older adults.

Adverse drug events have profound implications on hospitalization, poor health outcomes, lower quality of life, and increasing economic burdens.<sup>81-83</sup> Consequently, it has greatly impacted one of the main medication use problems faced by older adults. Apart from that, older adults tend to lack awareness and adequate knowledge regarding appropriate medication use.<sup>7</sup> Poor knowledge and awareness could lead to increased adverse drug events and improper medication administration.<sup>84,85</sup> Accordingly, a study in Southeast Asian countries shows that only 2.3% of older adults have good knowledge of their medications, proving that patient education is vital to improving medication adherence.<sup>86</sup> In addition, only 20% of the sample size in their study understood how to take their medication before or after meals. Consequently, poor knowledge contributes to low medication adherence among older adults.

Our findings were similar to several studies regarding medication use belief as the primary concern among older adults, and it impacts medication adherence.<sup>87-89</sup> Schüz et al.<sup>9</sup> reported that based on respondents' replies to the questionnaire, it had been proven that medication adherence is highly correlated with a belief about medication. There is a strong need to assess the belief about medication among older adults and their attitude as it determines the level of adherence.<sup>90,91</sup>

It might be challenging to integrate skills for sharing and discussing personal information with older patients and their families in health care provision. Limited studies focused on communication between patients and primary health care providers regarding their medications.<sup>92,93</sup> It is vital for prescribers to actively communicate with older adults regarding their medication information and seek feedback on taking those medications.<sup>93</sup> In addition, effective communication would enhance medication or disease condition knowledge and awareness. In a primary care setting, health care providers should engage more with their older adult patients to focus on health literacy, especially on assessing older adults' understanding



regarding medication administration instructions.<sup>94</sup> The variability in individual priorities underlines the need to involve older adults and primary health care providers in the shared decision making. Foubert et al.<sup>95</sup> described that home visitation, discussion, and decision between home care nurses, physicians, and community pharmacists has managed to identify many drug-related problems and subsequently improve medication safety. However, rational medication prescribing should include older adults in the process of shared decision making. Good quality of health care depends on collaboration among primary health care providers and older adults.<sup>96</sup>

#### 4.1 | Strengths and limitations

This review has some limitations. First, this narrative review has been done nonsystematically; thus, there was a high chance of selection bias of articles. Secondly, the search restriction to the English language probably has created limitations to nonnative English-speaking regions. Besides these limitations, there were some observed strengths. The review comprehensively evaluates various aspects of medication use problems among older adults in the OECD regions at a primary care level. Besides that, only current articles from the last two decades were retrieved to update medication use challenges.

#### 4.2 | Implications for research and practice

Acknowledging various medication use problems at a primary care level, stakeholders and health officials should take serious consideration to provide accessibility, create awareness, and implement interventions to reduce the problems. The community pharmacist's role in providing medication use services to older adults should be on the primary health care priority list. More community-based health care and pharmacies should be built within the proximity of older adults' homes. Engagement between older adults and primary health care providers should be promoted to overcome any medication use challenges. Finally, more studies should develop interventions for improving medication use among older adults.

### 5 | CONCLUSION

This review shows that medication use is still a serious problem among older adults in the OECD countries. Studies have highlighted medication use problems among older adults, such as high incidence of adverse drug events and nonadherence to medication, inappropriate medication, polypharmacy, lack of deprescribing, belief about medications, poor knowledge, and awareness on medication use. Despite such problems, there seems to be a lack of interventions regarding medication use problems of older adults, especially at the

primary care level. Older adults' medication usage problems at primary care need a comprehensive focus and a combined effort of health care providers and health care institutions.

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#### CONFLICT OF INTEREST

All authors declared no conflicts of interest.

#### AUTHORS CONTRIBUTION

C.M and B.K.C contributed to study concept, article screening, data extraction, and manuscript writing. S.S, A.Q.B, and D.A added to the content of the manuscript and revised it substantially. M.I.M.I and N.I supervised the study and critically reviewed the manuscript. All authors have read and approved the final manuscript.

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### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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