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REVIEW ARTICLE

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Does older adults' use of social care influence their healthcare utilisation? A systematic review of international evidence

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Abstract

Improving our understanding of the complex relationship between health and social care utilisation is vital as populations age. This systematic review aimed to synthesise evidence on the relationship between older adults' use of social care and their healthcare utilisation. Ten databases were searched for international literature on social care (exposure), healthcare use (outcome) and older adults (population). Searches were carried out in October 2016, and updated May 2018. Studies were eligible if they were published after 2000 in a high income country, examined the relationship between use of social care and healthcare utilisation by older adults (aged ≥60 years), and controlled for an indicator of need. Study quality and bias were rated using the National Institute of Health (NIH) Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. Study data were extracted and a narrative synthesis was conducted. Data were not suitable for quantitative synthesis. Thirteen studies were identified from 12,065 citations. Overall, the quality and volume of evidence was low. There was limited evidence to suggest that longer lengths of stay in care homes were associated with a lower risk of inpatient admissions. Residents of care homes with onsite nursing had fewer than expected admissions to hospital, compared to people in care homes without nursing, and adjusting for need. Evidence for other healthcare use outcomes was even more limited and heterogeneous, with notable gaps in primary care. We conclude that older adults' use of care homes may moderate inpatient admissions. In particular, the presence of registered nurses in care homes may reduce the need to transfer residents to hospital. However, further evidence is needed to add weight to this conclusion. Future research should build on this evidence and address gaps regarding the influence of community based social care on older adults' healthcare use. A greater focus on primary care outcomes is imperative.

KEYWORDS
access, health care, older people, social care

1 | INTRODUCTION

The number of older adults accessing state funded social care in England has been steadily declining (Age UK, 2017). Only those assessed to have the most severe needs can access state organised services, and even if needs are eligible, most older adults are still expected to contribute to some, or all, of the costs of care. Furthermore, funding and staff shortages in the care sector have

limited the provision of care available (Care Quality Commission, 2016; Humphries & Appleby, 2015; The King's Fund, 2014; The Press Association, 2016), whilst an unstable market has added further pressures to both state and non-state care (Care Quality Commission, 2014, 2016). In 2016, the Care Quality Commission argued that these challenges were compromising the accessibility of adult social care, creating additional and unsustainable demand for health services (Care Quality Commission, 2016). These concerns are relevant beyond the English context as high income countries contend with how best to fund long-term care systems for growing older populations (Organisation for Economic & Co-operative Development, 2011b). The imbalance of public and private funding, private care market failures and a lack of clear policy direction have been noted as particular challenges for care systems in Europe (Mosca, van der Wees, Mot, Wammes, & Jeurissen, 2016) and North America (Galiana & Haseltine, 2019). The United Nations also emphasise the societal costs, especially to women, of poor provision of formal long-term care to older people (UN Women Policy Brief Series, 2017).

Social care plays a critical role in supporting the needs of older adults, and poor access may result in unmet care needs. Indeed, evidence shows that greater social care expenditure is associated with lower levels of unmet need (Iparraguirre, 2017). Yet unmet need among the over 65 population in England is rising, and Age UK estimates that an additional £5.75 billion is needed to ensure all those with at least one unmet care need have access to care (Age UK, 2017). Such unmet need for social care may increase demand for healthcare (Depalma et al., 2013; Hass, DePalma, Craig, Xu, & Sands, 2017; Sands et al., 2006). In the UK context, government is facing sustained demands to increase social care funding and address the rising demand for healthcare. Thus, linking poor access to social care with increased healthcare utilisation has important policy and funding implications for both sectors. The argument is also not widely challenged. The relationship between access to social care and healthcare utilisation by older adults has been subject to some investigation (for example, see Fernandez and Forder (2008); Forder (2009); Hutt, Elder, Fish, and Min (2011)). However, it is not clear whether this body of evidence overall supports a link between the two. A clear synthesis of this evidence is therefore critical.

A systematic review was undertaken to synthesise international evidence about the relationship between access to social care and healthcare utilisation for older adults. Access to care was conceptualised using the model outlined by Gulliford, Figueroa-Munoz, and Morgan (2003), Gulliford et al. (2002), and applied to social, rather than health, care. This model builds upon the framework of Aday and Andersen (1974) and the key concepts are widely applied in international healthcare research (for example, see [Abegunde et al., 2015]; [Blake, Thorpe, & Howell, 2003]; [Kuhlthau, 2011]). That is, access to social care was defined as the *availability and supply* of care, the *utilisation of care*, *equitable access* to care and the *quality* of care. Evidence was mapped onto these four domains with separate syntheses intended for each. The synthesis of evidence regarding the availability and supply of social care is reported elsewhere (Spiers et al., 2019). This paper reports the synthesis of studies examining the influence of social care *utilisation*.

What is known about this topic

- Poor access to adult social care is often anecdotally linked to increased demand on, and use of, health services by older adults
- Whether evidence supports this relationship is unknown

What this paper adds

- Limited evidence from North America indicates that residence in care homes may be linked with reduced numbers of inpatient admissions
- There was insufficient evidence for other healthcare use outcomes, particularly primary care
- More high quality evidence is needed to clarify the influence of use of social care on the use of healthcare by older adults

2 | METHODS

The PRISMA guidance and checklist was used for reporting this systematic review (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

2.1 | Search strategy

A search strategy was developed, tested and refined, based on the exposure (social care), outcomes (healthcare utilisation) and the population (older people) (see supplementary materials). Searches were carried out in OVID Medline In Process, EMBASE, Scopus, Health Management Information Consortium (HMIC), EBM Reviews Cochrane Database of Systematic Reviews, NIHR Health Technology Assessment, NHS Economic Evaluation Database, Database of Abstracts of Reviews of Effectiveness, SCIE Online and ASSIA. Grey literature was accessed through HMIC and SCIE Online. The table of contents of key journals (2016–2017), publications of authors known to have carried out work on this topic, reference lists of included studies and references list of relevant systematic reviews, were also checked. The searches were conducted in October 2016, and rerun (April 2017) to identify any further eligible studies that had been published in the period of undertaking the review. A final search in May 2018 to update the review identified no further eligible studies.

2.2 | Study selection

Titles and abstracts of all search records were screened by one researcher, and 50% of records were screened by co-authors. Disagreements were resolved through consensus with a third

researcher. Record screening was also assisted by Rayyan, an online software tool that assesses the similarity between selected and non-selected records, and facilitates the identification of potentially relevant studies based on screeners' previous selections (www.rayyan.qcri.org) (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016). Full texts were then assessed against review criteria (Tables S1 and S2).

2.3 | Review criteria

Social care was defined as services that support *social care needs*, which are those set out in the 2014 Care Act (Social Care Institute of Excellence, 2015) and which relate to activities of daily living. Both community social care (e.g. domiciliary care) and care homes were eligible. The term *care home* is used throughout to refer to care homes with and without nursing unless otherwise specified. In this systematic review, care homes with nursing were considered to be part of social care. This is because they a) provide social care alongside nursing care and b) are typically provided by social care sectors in the UK and other high-income countries (Centre for Policy on Ageing, 2014), and are thus subject to the same conditions that may restrict access (e.g. means-testing, market instability). This is important because it is these conditions of restricted access to social care that may contribute to increased demand for healthcare.

To examine social care *utilisation*, studies must have used a variable of usage (e.g. number of domiciliary care hours received/used, length of care home stay) or included a comparator group (e.g. another type of social care, or no use of social care). To assess the *independent* influence of social care utilisation, studies of integrated or combined health and social care interventions or services were excluded, unless the effect of the social care component could be isolated. Evaluations of interventions to reduce hospitalisations from care homes (e.g. changes to staffing models, influenza programmes, guidance and tools) were not relevant to this review as the exposure was not utilisation of social care. Rehabilitation interventions were excluded. Eligible healthcare utilisation outcomes were contacts with secondary or primary healthcare.

Studies that did not account for need in the study design or analysis were excluded. The concept of need is defined as the capacity to benefit from care (Oliver & Mossialos, 2004). However, there is no consensus on how best to measure this (Goddard & Smith, 2001; Oliver & Mossialos, 2004). Indicators of need that were considered relevant here included the number of comorbidities, number of dependencies, measures of dependency, measures of difficulty with activities of daily living, measures of cognitive functioning or status, levels of care required and severity of a particular condition (e.g. dementia). For ecological studies using geographical areas as the unit of analysis, measures of area deprivation were considered indicators of need. A study was judged to have accounted for need if: the analysis controlled for one or more of the above indicators; the analysis was stratified by one or more of the above indicators; the study was carried out in a sample that was relatively homogenous in one or more of the above indicators; or, the study was randomised (which minimises the influence of potential confounders) and a Risk of Bias assessment (Higgins & Green, 2011) indicated a low risk of bias regarding randomisation procedures.

All study designs were eligible. Ecological studies were eligible if measures of social care use were relative to a measure of the population (e.g. number of households in receipt of home care per 1,000 adults).

2.4 | Quality assessment, data extraction and synthesis

Study quality and bias were rated using the National Institute of Health (NIH) Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Institutes of Health, 2014) (Table S3). Study details and data were extracted onto an Excel spreadsheet by one researcher. Single data extraction is an acceptable approach when resources are limited but requires a greater degree of caution to avoid errors (Buscemi, Hartling, Vandermeer, Tjosvold, & Klassen, 2006). Indeed, such caution was applied here. The researcher responsible for this data extraction cross-checked extracted material with the source, on a second occasion, to identify and correct errors and omissions. Pooling of data was not possible due to heterogeneity across studies. A narrative synthesis was undertaken, with data synthesised by outcomes (Centre for Reviews & Dissemination, 2009). To prioritise more robust evidence, studies rated poor in quality are detailed in Table S1 and Tables 1–3 and included in the total figure of identified studies, but evidence from these publications is not included in the synthesis. The study protocol was registered on PROSPERO (CRD42016050772).

3 | RESULTS

Twenty-five studies reported across 28 publications met the inclusion criteria (Figure 1).

The synthesis of evidence from studies of social care availability and supply is reported elsewhere (Spiers et al., 2019). Studies of social care quality were omitted from the review due to inconsistency in how this was defined. Just one study reported evidence about equitable access to social care (Intrator, Zinn, & Mor, 2004). Thirteen studies reported evidence about social care utilisation (Table S4). The synthesis of these 13 studies is the focus of this paper.

Eleven of these 13 studies accounted for need (Amador et al., 2014; Bardsley et al., 2012; Blackburn, Locher, & Kilgore, 2016; Carter, 2003; Chappell, Dlitt, Hollander, Miller, & McWilliam, 2004; Deraas, 2011; Gruneir et al., 2012; Hollander & Chappell, 2007; Hutt et al., 2011; Sloane et al., 2005; Wysocki et al., 2014) and a further two did so in a subset of the reported analyses (Reeves & Baker, 2004; Victor, Healy, Thomas, & Seargeant, 2000).

Across included studies, social care utilisation was operationalised as: the amount of social care used (six studies, Table 1) (Amador et al., 2014; Carter, 2003; Deraas, 2011; Gruneir et al., 2012; Hutt et al., 2011; Reeves & Baker, 2004); the type

TABLE 1 Key data for studies reporting evidence about the influence of the amount of social care use on healthcare utilisation

Study	Exposure (social care use)	Outcomes (healthcare use)	Estimate	*p*, CI	Direction of evidence[a]	Quality rating
Amador et al. (2014)	Length of care home stay	Emergency department visits	OR = 0.965	CI: 0.735, 1.266	No statistically significant relationship.	Good
Hutt et al. (2011)	Length of care home (with nursing) stay	Hospitalisation (for residents with a single nursing home stay >180 days)	OR = 0.99	CI: 0.99–0.99	Inverse	Good
	Length of care home (with nursing) stay	Hospitalisation (for residents with multiple nursing home stays totalling >180 days)	OR = 0.997	CI: 0.997–0.998	Inverse	
Reeves and Baker (2004)	Home help/care user rate	Emergency admissions	r = .15	None reported	Positive	Good
	Care home user rate	Emergency admissions	r = .13		Positive	
Gruneir et al. (2012)	Length of care home stay (newly admitted)	Emergency department transfer	OR = 1.9	CI: 1.7–2.1	Inverse	Good
	Length of care home stay (short stay)	Emergency department transfer	OR = 1.5	CI: 1.4–1.7	Inverse	
Carter (2003)	Length of care home (with nursing) stay	Hospitalisation	OR = 0.942	p = .0001	Inverse	Fair
	Length of care home (with nursing) stay	Ambulatory sensitive conditions hospitalisation	No data reported	Reported only as not significant	No statistically significant relationship	
Deraas (2011)	Long-term care user rate	Hospitalisation rate, men, 67–84 years	Coef = 76.99	CI: 44.3, 109.7 p < .001	Positive	Poor
	Long-term care user rate	Hospitalisation rate, men, 85+ years	Coef = 142.36	CI: 58.3, 226.5 p < .001	Positive	
	Long-term care user rate	Hospitalisation rate, women, 67–79 years	Coef = 52.47	CI: 25.7, 79.2 p < .001	Positive	
	Long-term care user rate	Hospitalisation rate, women, 80+ years	Coef = −16.14	CI: −54.0, 21.7 NS	No statistically significant relationship	

[a]Inverse relationship (greater social care use associated with reduced healthcare utilisation, or reduced/lower social care use associated with greater healthcare utilisation); positive relationship (greater social care associated with increased healthcare utilisation); no statistically significant relationship.

of social care used (four studies, Table 2) (Bardsley et al., 2012; Chappell et al., 2004; Hollander & Chappell, 2007; Sloane et al., 2005) and, whether or not social care was used (three studies, Table 3) (Blackburn et al., 2016; Victor et al., 2000; Wysocki et al., 2014). The synthesis reports evidence according to these three sub-groups.

3.1 | Amount of social care use and healthcare utilisation outcomes

Of the studies examining the amount of social care, four studies were rated good in quality (Amador et al., 2014; Gruneir et al., 2012; Hutt et al., 2011; Reeves & Baker, 2004), one was rated fair (Carter,

TABLE 2 Key data for studies reporting evidence on healthcare utilisation between different types of social care

Study	Exposure (social care use)	Outcomes (healthcare use)	Data social care group 1	Data social care group 2	Estimate, CI, *p*	Direction of evidence[a]	Quality rating
Bardsley et al. (2012)	Home care versus care home		*Home based care*	*Care home*		Care home, but no test of difference used	Poor
		Ratio of expected/ observed:					
		Inpatient admissions	1.80 (CI: 1.73, 1.84)	1.32 (CI: 1.27, 1.34)	No test of difference used		
		Emergency admissions	2.64 (CI: 2.50, 2.71)	1.80 (CI: 1.73, 1.84)			
		Elective admissions	1.61 (CI: 1.40, 1.71)	1.09 (CI: 0.98, 1.15)			
		A&E visits	1.83 (CI: 1.73,1.87)	1.40 (CI: 1.34, 1.43)			
		Outpatient visits	1.17 (CI: 1.14, 1.19)	0.62 (CI: 0.61, 0.63)			
		Day case attendances	0.98 (CI: 0.87, 1.04)	0.51 (CI: 0.45, 0.53)			
Hollander and Chappell (2007)	Home care versus care home (without nursing)		*Home based care*	*Residential care*		Residential care, but no test of difference used	Poor
		Data not extracted due to the volume of data presented. Reader is referred to tables 4 and 5 of original paper					
Chappell et al. (2004)	Home care versus care home (without nursing)		*Home based care*	*Residential care*			Poor
		Mean annual physician and hospital costs (Winnipeg)	Care level B: C$2,459	Care level B: C$160	Type of care: $p < .01$ Level of care: NS Type × level of care: NS	Residential care	
			Care level C: C$1,063	Care level C: C$255			
			Care level D: C$1676	Care level D: C$675			
			Care level E: C$1956	Care level E: C$880			
		Mean annual physician and hospital costs (Victoria)	Level A: C$1970	Level A; C$579	Type of care: NS Level of care: NS Type and level of care interaction: NS	No statistically significant difference	
			Level B: C$2,422	Level B: C$257			
			Level C: C$1,020	Level C: C$959			
			Level D: C$434	Level D: C$379			
Sloane et al. (2005)	Care home (without nursing)versus care home (with nursing)		*Assisted living/residential facility*	*Nursing home*			Fair
		Hospitalisation (mild dementia)	14.2	8.4	$p = .009$	Nursing home	
		Hospitalisation (moderate/severe dementia)	14.2	10.0	$p = .115$	No statistically significant difference	

[aa]Type of social care favoured for lower healthcare utilisation; "No statistically significant difference" for non-statistically significant results.

TABLE 3 Key data for studies reporting evidence on healthcare utilisation between use of social care and no use of social care

Study	Exposure (social care use)	Outcomes (healthcare use)	Estimate	CI, *p*	Direction of evidence[a]	Quality rating
Wysocki et al. (2014)	Care home (with nursing) stayers versus leavers	Odds of first potentially preventable hospitalisation	OR: 1.40	CI: 1.01–1.93	Social care use	Good
Victor et al. (2000)	Care homes/ social services care post discharge versus no care	Odds of delayed discharge	OR: 2.6	CI: 1.6–4.4, $p < .001$	No care	Fair
		Odds of delayed discharge	OR: 1.3	CI: 0.8–2.2, $p = .85$	No statistically significant difference	
Blackburn et al. (2016)	Care home (with nursing) versus usual care	Hospital visit rate	Difference: −0.2	$p < .001$	Social care use	Fair
		Length of stay rate (days)	Difference: −0.9	$p = .1222$	No statistically significant difference	
		Emergency department visits rate	Difference: −0.1	$p = .0021$	Social care use	

[a]Use of social care or no social care/usual care favoured for lower healthcare utilisation; "No statistically significant difference" for non-statistically significant results.

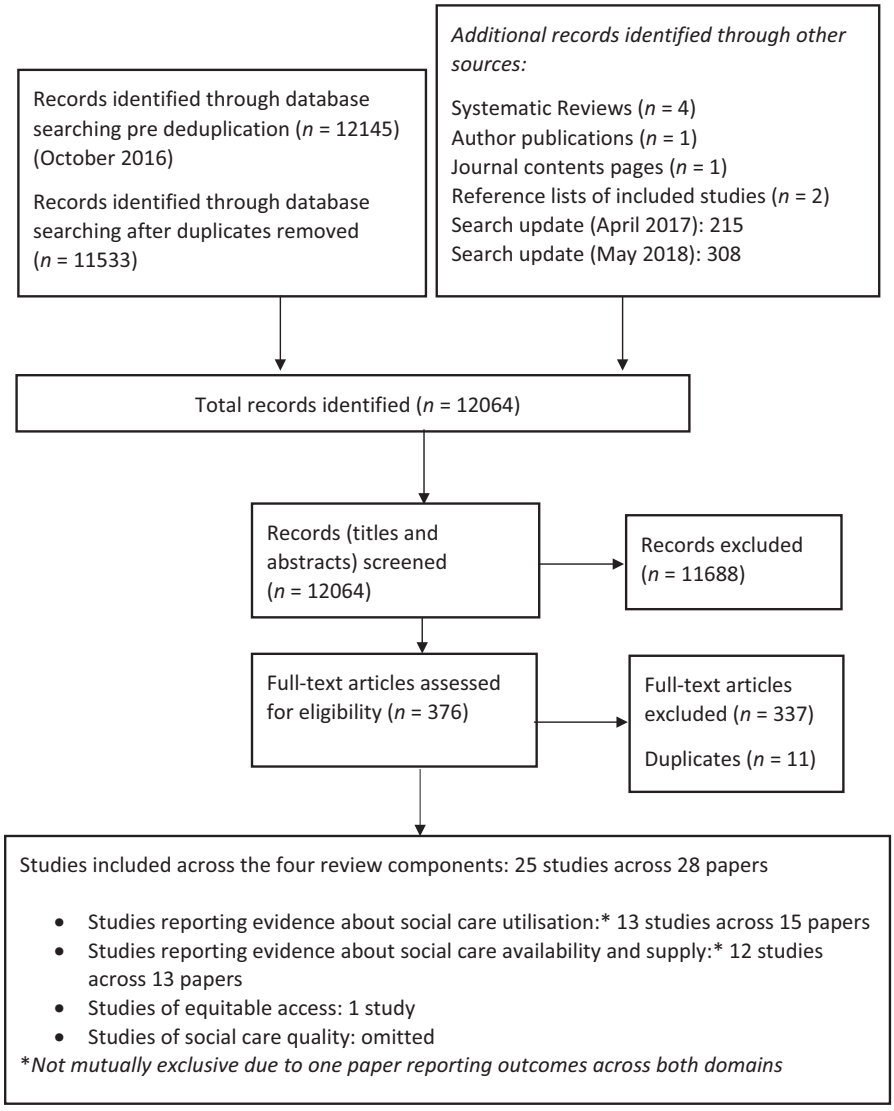

FIGURE 1 PRISMA diagram of study selection

2003) and one was rated poor due to irregularities in the analysis presented (Deraas, 2011). Of studies rated good or fair, outcomes reported were emergency admissions (Reeves & Baker, 2004), emergency service use (Amador et al., 2014; Gruneir et al., 2012) and hospitalisations/inpatient admissions (Carter, 2003; Hutt et al., 2011). Two studies were carried out each in the US (Carter, 2003; Hutt et al., 2011) and England (Amador et al., 2014; Reeves & Baker, 2004) and one in Canada (Gruneir et al., 2012). Three studies were specific to a condition group: Alzheimer's, dementia or impairments indicative of dementia (Amador et al., 2014; Carter, 2003) and heart failure (Hutt et al., 2011). All used administrative and/or patient data in a cross-sectional or retrospective cohort design (Carter, 2003; Gruneir et al., 2012; Hutt et al., 2011; Reeves & Baker, 2004). One study was a prospective longitudinal cohort study (Amador et al., 2014). Four studies carried out analysis at the individual level (Amador et al., 2014; Carter, 2003; Gruneir et al., 2012; Hutt et al., 2011), whilst one carried out area level ecological analyses (Reeves & Baker, 2004).

From studies rated good or fair, there was limited evidence that longer durations of care home residency were associated with a lower risk of hospital admission (two of three studies) (Carter, 2003; Hutt et al., 2011), but not for those with ambulatory sensitive condition related admissions. In one of these studies, the association was particularly small (Hutt et al., 2011). Two studies reported mixed evidence about the relationship between duration of care home stay and emergency department visits (Amador et al., 2014; Gruneir et al., 2012). There was little evidence of a relationship between the number of social care users and emergency admissions (Reeves & Baker, 2004).

3.2 | Types of social care use and healthcare utilisation outcomes

Of the studies that compared healthcare utilisation outcomes between different types of social care, one study was rated fair (Sloane et al., 2005) and three studies were rated poor due to insufficient information in the publication to make a judgement about bias, potential bias in sample selection, a lack of clarity in the findings presented and the use of only descriptive analysis without adjustment for confounders (Bardsley et al., 2012; Chappell et al., 2004; Hollander & Chappell, 2007). The one study rated fair reported that the outcomes inpatient admissions/hospitalisations was carried out in the US, and used a longitudinal cohort design (Sloane et al., 2005).

This study reported higher rates of hospitalisation for those in residential/assisted living facilities compared to nursing homes for those with mild dementia. No significant difference between types of care homes was observed for those with moderate/severe dementia (Sloane et al., 2005).

3.3 | Use versus no use of social care and healthcare utilisation outcomes

Of the studies that compared healthcare utilisation outcomes between those who did and did not receive social care, one study was rated good (Wysocki et al., 2014) and two were rated fair (Blackburn et al., 2016; Victor et al., 2000). Outcomes reported were delayed discharge (Victor et al., 2000), emergency service use/contacts (Blackburn et al., 2016), inpatient admissions/hospitalisations (Blackburn et al., 2016; Wysocki et al., 2014), and LOS (Blackburn et al., 2016). Two studies were carried out in the US (Blackburn et al., 2016; Wysocki et al., 2014) and one in England (Victor et al., 2000). All used retrospective cohort or cross-sectional designs, drawing upon secondary analysis of patient, case note and/or administrative data to compare healthcare utilisation between those in receipt of social care and those who were not (Blackburn et al., 2016; Victor et al., 2000; Wysocki et al., 2014). In two studies, social care use was residence in a care home. One study included both care homes and home care (Victor et al., 2000). The comparators were those not receiving social care (Victor et al., 2000), those receiving usual care (Blackburn et al., 2016) and those transitioning out of a nursing home to home and community based health services (Wysocki et al., 2014).

From this subset of studies, there was limited evidence that residence in a care home was associated with fewer emergency department visits (one study) (Blackburn et al., 2016), and fewer inpatient admissions or a reduced odds of inpatient admission (two studies) (Blackburn et al., 2016; Wysocki et al., 2014). There was no strong evidence of a relationship in either direction for the outcomes delayed discharge (Victor et al., 2000) and LOS (Blackburn et al., 2016).

4 | DISCUSSION

A limited quantity of evidence in this review suggests that care homes may play a role in preventing hospital inpatient admissions by older people. This lends a degree of support to repeated calls for more resources to be directed to social care in order to reduce demand on health services (for example, see Charlesworth et al. (2017); Health & Social Care Committee and Housing (2018)). This may be a challenging message for policy makers who often prioritise spending on health services over social care. For example, in 2018, UK healthcare funding totalled 7.3% of national income; social care funding totalled 1.1% (Charlesworth & Johnson, 2018). A greater volume of higher quality evidence would add weight to this conclusion. Even so, in light of the economic consequences of a projected rise in the number of older people with health and social care needs (Guzman-Castillo et al., 2017), the potential for care homes to moderate costly inpatient admissions is an important finding.

The finding that use of care homes is associated with fewer inpatient admissions and a reduced odds of admission may suggest that this form of care can adequately meet a range of care needs, and prevent deteriorations in health. This interpretation would be strengthened by evidence of an association between use of social care and reductions in other unplanned healthcare use. However, evidence was limited and mixed on these outcomes. It is also possible that this finding may reflect substitution of hospital care for care homes (Forder, 2009). Evidence of shorter lengths of stay

for those resident in care homes would underline this argument. However, evidence was also limited on this outcome. One study showed a lower rate of admissions from care homes with nursing compared to those without nursing. Therefore, if care homes *do* substitute hospital care, then the presence of registered nurses may be an important component of this, as they may reduce the need to transfer residents to hospital. This suggests that the provision of nursing care alongside personal care may be an important part of how social care can moderate healthcare use. Further evidence on a range of healthcare use outcomes may help to elucidate whether care homes have a preventative and/or substitution mechanism.

We did not observe any trends in the outcomes of use of other healthcare services, which likely reflects the paucity of data. Other factors may also account for the lack of any observable trends in these outcomes. In particular, complex influences on the use of each healthcare and social care (Andersen, 1995; Gulliford et al., 2003, 2002), may complicate the relationship between the two. For example, expectations of care can impede take up of services (Sarkisian, Hays, & Mangione, 2002). This may be particularly relevant for social care utilisation, which can be shaped by resistances towards paying for care (Croucher & Rhodes, 2006; Overton & Fox O'Mahony, 2016) and perceived stigma about receipt of state welfare (Hanratty et al., 2012; Moffatt & Higgs, 2007). These attitudes and expectations may influence older people's take up of social care, and consequently, their need for and use of healthcare. Healthcare use outcomes may also be shaped by a range of other factors which, without adjustment in analyses, may confound the relationship with social care use. For example, receipt of informal care may also influence the outcomes as family members often supplement, or even replace, formal long-term care provision (Davey & Patsios, 1999; Tennstedt, Crawford, & McKinlay, 1993). Processes of care and access to other parts of the health system can also shape healthcare utilisation (Huntley et al., 2014, 2013; Purdy, 2010). Between-country differences in health and long-term care systems may also account for the mixed evidence for the outcomes emergency department visits, which was reported by studies in three countries. Finally, the absence of any notable trend in the other outcomes was not explained by whether studies were longitudinal or cross-sectional.

The strength of this review lies in its clear framework of access to social care, distinguishing between the availability of services and their utilisation. Both are important, but different, facets of access (Gulliford et al., 2002). A comprehensive search strategy ensured that all relevant evidence was represented. We employed clear review criteria that enabled us to overlook outdated evidence (>2000 publication), target the relevant population (60+ years), identify evidence from care systems with similar challenges (OECD defined high income countries [Organisation for Economic & Co-operative Development, 2011a]), and ensure that we could reliably interpret the findings in relation to the review question (adjustment for need).

Another major strength is that this review examined evidence about the stand-alone influence of social care utilisation. Studies of integrated health and social care interventions, or those that examined the combined effect of health and social care services, were excluded if the social care component could not be isolated. Furthermore, studies must have examined social care *usage* (e.g. length of care home stay, use vs. no use). Previous research has examined risk factors associated with hospital admission for care home residents (for example, see [Barker, Craig, Spiers, Kunonga, & Hanratty, 2018]; [Becker, Boaz, Andel, Gum, & Papadopoulos, 2010]; [Carter, 2003]; [Carter & Porell, 2005, 2006]; [Gruneir, Miller, Feng, Intrator, & Mor, 2008]; [Gruneir, Miller, Intrator, & Mor, 2007]; [Intrator, Castle, & Mor, 1999]; [Intrator et al., 2007]; [Intrator & Mor, 2004]; [Intrator et al., 2004]). However, few of these studies examine the *use* of social care as a risk factor for hospital use, or assessed whether care home residency independently influences healthcare utilisation. By focusing on a measure of social care utilisation, this review was able to identify what is known about the role of the social care sector in older people's care.

A clear limitation is the small volume of evidence identified in this review. Thirteen studies met the review criteria, but these examined social care utilisation in three different ways (amount of care, use vs. no use and type of care). These are not comparable approaches, and within each group there was little evidence per outcome. Ultimately, a greater volume of high-quality evidence is needed to strengthen and clarify the evidence on the relationship between older adults' use of social care and use of healthcare. Another limitation is that we were unable to account for the type of funding for individual care home placements. Some types of care home placements may be funded through health sectors, rather than social care sectors (e.g. NHS Continuing Healthcare funded placements in care homes with nursing in the UK [Department of Health, 2012]). This is important because the type of funding for individual packages of social care may shape the extent to which certain factors, such as paying for care, pose barriers to access. No detail was available in study publications about this and thus we were not able to consider if and how this may have influenced the relationship between social care use and healthcare utilisation in the synthesis. Critical gaps in the evidence were also notable. First, social care in this review was not restricted to care homes but the evidence largely reflected this type of provision. Yet ageing in place, and remaining in the community, is the preferred approach to supporting older adults, both in the UK and internationally (Centre for Policy on Ageing, 2014; World Health Organization, 2015). Indeed, the most recent estimates for England indicate that 62% of older adults receiving long-term care do so in the community (Office for National Statistics, 2017). Similar trends towards care in the community for older people are also observed in Europe (Lipszyc, Sail, & Xavier, 2012). Future primary research should examine the influence of community based social care provision on healthcare use outcomes. Second, most studies examined secondary care outcomes, with a clear under-representation of primary care use. This may reflect varying levels of integration between primary healthcare and long-term care services between countries (for example, see Clarfield Bergman & Kane[, 2001]). Yet the World Health Organisation emphasises the importance of primary care for supporting healthy ageing (World Health Organization, 2015). In countries where primary care plays a gatekeeping role to other parts of the health sector, such as

the UK, Netherlands and New Zealand (British Medical Association, 2018), primary care will likely play a key role in supporting people as they age. Certainly in the UK, contacts with general practice by those aged over 85 have increased by 16% between 2010/11 and 2014/15 (Baird, Charles, Honeyman, Maguire, & Das, 2016). Thus, understanding the relationship between access to social care and primary care warrants further attention. Finally, few studies were carried out using UK data. This is an important limitation, given the current policy relevance in the UK (Care Quality Commission, 2016; National Institute of Health & Care Excellence, 2015; The King's Fund, 2014).

5 | CONCLUSIONS

Older adults' use of care homes may moderate hospital inpatient admissions, but more evidence is needed to add weight to this conclusion. Even so, this is an important message for policy makers who must ensure sustainable and accessible health and long-term care systems for ageing populations. Further research is required to assess the impact of community based social care, as well as understanding the influence of social care on other healthcare use outcomes including primary care.

CONFLICT OF INTEREST

GS received a doctoral stipend for the submitted work. No other competing interests have been declared.

AUTHOR CONTRIBUTIONS

GS and BH developed the idea for the study. GS, BH, FM, SM and AK drafted the review protocol and design. GS and BH wrote the first draft of the paper and all authors edited the paper for important intellectual content. GS, BH, SM, RB, HJ and DS screened records for study selection. GS undertook the quality assessment of studies, data extraction and the narrative synthesis.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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