**Figures and tables**

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| S1 | AB"Social Participation" OR AB "Social Inclusion" OR AB "social exclusion" OR AB "social Isolation" OR AB "Social relationship" OR AB "Social support theory" OR AB "Social support network" OR AB "Social support" OR AB "Social network" | 129,777 |
| S2 | AB " District nurs\*" OR AB " community nurs\*" OR AB "Hospital at home" OR AB "hospital in the home" | 7,132 |
| S3 | S1 AND S2 | 125 |
| S4 | AB "Rural health" OR AB "rural healthcare" OR AB "Rural\*" OR AB "Rural nursing"  | 241 |
| S5 | S4 AND S2 | 229 |
| S6 | S3 OR S5 | 354 |

Table 1: Search strategy showing the synonyms and Boolean phrases used to find all relevant articles for screening.

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| Inclusion criteria | Exclusion criteria  |
| * Relevant to themes (social networks and synonyms, district nursing and synonyms, rural and synonyms)
* Published since 2009
* Written in English
* Qualitative study (or qualitative data of a mixed methods study)
* Originate from UK, Europe, USA, Canada, Australia, New Zealand
 | * Doesn’t include relevant themes
* Published before 2009
* Not written in English
* Quantitative study
* Does not originate from UK, Europe, USA, Canada, Australia, New Zealand
* Existing literature review
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Table 2: the inclusion and exclusion criteria used during the screening process

Figure 1:

An adapted PRISMA flow diagram of the article selection and screening process (Page *et al.*, 2021)

Records identified from:

Databases (Medline, CINAHL, PsychINFO

(n = 354)

Records screened

(n = 354)

Records excluded (n = 329) for:

* Not including relevant themes (n =179)
* Outside of included countries (n = 66)
* Not original research (n = 45)
* Paediatric or midwifery ( n = 38)
* Existing literature review (n = 16)

Reports sought for retrieval

(n = 22)

Reports not retrieved

(n = 0)

Reports assessed for eligibility by reading full texts

(n = 25)

Reports excluded for:

* Not including relevant themes and data (n = 12)

Records identified from:

Citation searching within existing literature reviews (n = 16)

Literature reviews searched for relevant articles

(n = 16)

Reports identified for full text screening (n = 1)

Studies included in review

(n = 13 )

**Identification of studies via databases and registers**

**Identification of studies via other methods**

**Identification**

**Screening**

**Included**

Literature reviews sought for retrieval

(n = 16 )

Literature reviews not retrieved

(n = 0)

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| Table 3: overview of included studies |  |  |  |  |  |
| **Number,****Author, year,** **Country** | **Study aims and objectives** | **Sample and context** | **Methodological approach** | **Data collection and analysis** | **Content supporting social networks (SN)** | **limitations** |
| **1 Crotty et al. (2015)****South Australia** | To explore the experiences of patients with MH conditions and LTCs on their social network support. | N=29. Users of community mental health services. | Semi structured interviews  | Potential Participants screened by community nurse. Grounded theory | Spouses are an important member of social networks, interacting and increasing the role of formal support. However, those in this group (LTCs and MH problems) have smaller networks and often befriend DNs for their practical and emotional work. This group shows mostly transient relationships and a degree of isolation. | Convenience sampling limits rigour and single site limits transferability  |
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| **2 Devik et al. (2015)** **Norway** | To explore the views of patients on the effect long distances and poor infrastructure has on their EoL care. | Patients over 65 diagnosed with advanced cancer (n=9) and receiving EoL care at home in rural Norway.   | Narrative, semi structured interviews with patients. Using open ended questions | Convenience sampling. Phenomenological hermeneutic approach to analysis. Iterative approach from naïve to comprehensive interpretations | Despite being aware of worsening health outcomes patient would rather stay at home in the rural community. They feel they are able to remain a part of the community and hold some social capital and as such can draw on their relationships for support. Conversely, nursing visits restrict freedom of the patient | Authors have preconceptions as practicing nurses.Small cohort |
| **3 Farmer and Kilpatrick** **(2009)****Scotland and Tasmania** | Can front line HCPs stimulate changes in healthcare through entrepreneurial skills and could policy makers encourage HCPs into this role? | 38 HCPs (Tasmania n=15, Scotland n=23)from rural areas. Primary healthcare services (GPs and DNs) | Mostly face-to-face (n=31) semi structured, ‘exploratory’ interviews. Otherwise telephone (n=7)  | Participants recruited by advertisement, word of mouth and self-selection at research sites. Exploratory interviews were transcribed and thematically analysed | HCPs can built patient’s social capital by identifying needs and then bridging and bonding to others. They feel obliged to become part of the community and use their own social capital to create opportunities for others. Some extreme examples where HCPs set up banks, shops, clubs for the communities. Large scale changes were mostly carried out by healthcare management and GPs whilst district nurses set up health clubs and health related activities.  | Hard to generalize outside of the two countries. Self-selection biases. |
| **4 Findlay et al.** **(2017)****Scotland** | To increase the knowledge of emotional effects of living with frailty | N=11. semi structured interviews with patients at a medical day | Longitudinal qualitative study. Semi structured interviews | Secondary analysis of data from PhD study (n=13). Thematic analysis | Patients wish to stay in their own home but only find contentment in doing so if they are able to connect with family and friends. Their health needs often become a barrier to maintaining relationships due to reduced mobility and district nurse visits restricting their free time. | Secondary analysis (n.b. original author on research team) |
| **5 Gossett- Zakrajsek et al. (2013)****USA** | How do older adults and HCPs experience and perceive transitions from hospital or integration back into communities? | HCPs (n=7) from a ‘home health service’ and patients (n=6) recent discharged from inpatient care  | Participatory Action Research. In context observation and interviews (conducted in pairs or triads) | Purposeful sampling. Field notes and interview transcriptions. Thematic analysis | Three main themes emerged on transmission to home: social support, communication, and reintegration. Informal care was highly valued by patient and HCP. Informal support allows for greater personalization, flexibility and planning of care but relies on good communication/ collaboration between patient, carer and HCP. | Observations abandoned after 6. Carer involvement unplanned for. Lack of sample diversity  |
| **6 Griffiths et al. (2013)** **England** | How and why do DNs construct early support visits in EoL care? | DNs (n=58) and patients (n=10) who give or receive EoL care at home | Multiperspective. Qualitative focus groups, semi-structured interviews, observation  | Self-selected nurses and patient Recordings and written field notes (collected by nurse researchers) transcribed and thematically analysed | During EoL care at home, district nurses intertwined their health tasks with ‘having a chat’. This created an egalitarian and humanistic relationship. Nurses felt this empowered the patients and their carers to take a lead role in their treatment. Themes emerging from the data were enlightenment, explanation and education, advice and instruction. | Self-selected participants patients likely to be most skilled and confident practitioners |
| **7 Grunberg et al.** **(2016)****Sweden** | To use the experiences of DNs on detection and delivering mental health care to increase knowledge of good care | N =25 DNs from Swedish community setting  | Qualitative focus groups and interviews  | Recruited using ‘snowballing’ chain sampling. Same interviewer throughout. Transcriptions thematically analysed | District nurses offered emotional support through informal dialogue by trying to lift their mood and express emotions, This was important for successful integration into the SN which gave the district nurse the ability to advocate, mobilise others and meet emotional needs.  | ‘Snowballing’ recruitment means participants encourage only those with the same values. |
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| **8 Hunsberger et al.** **(2009)** **Canada** | Considering staff and resources shortages paired with varied and complex nature of rural healthcare practices, there is need to evaluate the workforce and how to sustain/improve it. | Nurse administrators (n=21) and Staff nurses (n=44) from Local Health Integrated Network, Ontario. Approximately 100 miles to a large hospital | Qualitative, Semi structured interviews using previous research to guide themes for discussion | Recruitment using flyers and ‘snowball’ technique.Transcripts thematically analysed | The rural district nurse is likely to find the challenges unique to rural healthcare a stressor. These often outweigh the positives aspects and result in changing posts. The expectation to perform tasks outside of health work disgruntles staff. Demands, aging workforce and poor resources suggest rural nursing difficulties will worsen. To improve recruitment should target those from a rural background and education should have rural healthcare modules. | Self-selection and Snowballing recruitment means nurses encourage those with shared values to participate. Increasing bias |
| **9 Kaasalainen et al.****(2014)** **Canada** | To explore nurses’ experiences of providing palliative care in rural areas with a particular focus on the impact of the physical residential setting. | District nurses (n=21) who provide EoL care in rural communities  | Qualitative exploratory techniques. semi structured interviews  | District nurses recruited from previous quantitative survey. Purposeful sampling.Telephone interviewsthematically analysed. Interpretations shared with participants to ensure credibility | Rural district nurses face unique physical and emotional challenges to deliver EoL care. They frequently go beyond their role for the patient. The geographical distances meant support, supplies and patient contact time was restricted. Isolated patients made them more reliant on the district nurse and made poorer health choices of their own.  | Single nursing site reduced transferability.  |
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| **10 Reed et al. (2016)** **Australia** | How do DNs successfully advocate for rural Australian EoL care goals? | DNs (n=7) from a nursing agency in rural Victoria, Australia  | Pragmatism. Written reflective accounts and follow up semi-structured interviews. | Care agency DNs approached to take part voluntarily. Iterative analysis of reflective accounts. Semi structured interviews transcribed and thematically analysed | District nurses need to become generalists in the rural community as there is little/no specialist support. The district nurse can find support and resources due to their knowledge of the community. This requires flexible relationship boundaries as they often know the patient socially. The district nurse integrates into the patient’s family network and build strong rapport. This creates a reciprocal and trusting relationship that can facilitate holistic care. | One practice setting limits transferability.Small sample |
| **11 Reed et al.** **(2018)****Australia** | To create an initial understanding of how nurses practice EoL care in rural areas to provide a platform for further research that could inform practice | District nurses (n=7) who deliver EoL care in rural areas of Australia. Wide spread areas across all states.  | Sequential mixed methods. Nurses wrote reflective accounts the follow up semi-structured interviews | Recruited district nurses purposefully selected from initial those who completed a wide spread Likert style questionnaire. Reflections used to guide semi-structured interviews. Thematic analysis. | District nurses reported knowing the rural area so knew what resources were available. They have a good social capital so can advocate successfully. There is an issue with boundary crossing and confidentiality as the nurse often knows the patient and their family socially. They justify this by demonstrating the likely improved health outcomes. DNs have the emotional intelligence to manage this.  | Self-reporting and reflections rely on timely completion and memory. Small sample size |
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| **12 Roden et al.****(2016)****Australia** | To explore the strategies and sustainability of the health promotion (HP) role of the rural and urban DN | 10 district nurses from varying settings (rural n=5, urban n=5) of New South Wales, Australia  | Semi structured Interviews following up on Likert questionnaire on the self-efficacy and burden on HP | DNs approached to participate in quantitative study then purposeful selection for interviews. Transcriptions thematically analysed  | There is a lack of multidisciplinary support for DNs in rural areas. Their commitment to the community means the district nurse feels responsible to undertake health promotion activities and find them to be successful because they are valued members of the community. Health promotion is usually sacrificed when rural healthcare pressures build.  | Only in New South Wales. Small sample interviewed.  |
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| **13 Terry et al. (2015)****Australia** | To identify which health and safety issues impact on the provision and quality of rural DN careWhat strategies to DNs adopt to overcome these? | Experienced district nurses (n=15) from 3 rural care areas, Australia  | Phenomenological approach. Semi-structured interviews | Sample spread across 3 recruitment sites. Conducted interviews face to face (n=4) or telephone (n=11).Transcripts thematically analysed and consensus reached. | Health and safety issues for rural DNs are primarily environmental; mainly long distances, isolation, poor infrastructure and patient families creating difficulties. Management processes are poor so district nurses felt they had to ‘make do’. A strategy was to rotate caseloads to share burden of long distances to some patients and overburden of client contact. However, this negatively impacted on continuity of care.  | Telephone interviews limits ability to clarify, probe and interpret body language. |
| **14 Wang, Y., et al. (2012)****Norway** | what was important to the service users of a new HaH service; to guide planning in the future | 6 patients transferred to HaH service in Norway | 9 patients recruited from concurrent quantitative study comparing inpatient to HaH experience | 6 Patients were randomized to HaH treatment. Semi-structured interviews were transcribed and thematically analysed by a team of researchers | Participants discussed how they felt being treated at home compared to inpatient settings. Their social network was cited as a source of support during this time. Patients also discussed the relationship they shared with the district nurse and what work they undertook; which included some practical and emotional work alongside their healthcare role.  | Small cohort, recruited from one inpatient setting limits transferability. |
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| Table 4: summary of synthesis process usingsecond and third order processes |
| **Number,****Author, year,****Country** | **Translatable concept** | **Summary of 2nd order interpretations by original author** | **Summary of 3rd order interpretations**  |
| **1 Crotty et al.** **(2015)****South Australia** | Spousal networks, the impact spouses/no spouse has on use of DN. | Spousal networks were denser and more likely to be maintained. Spouses interact with DNs and improve their significance within the SN. When there is no spouse, friends are more valuable; when there is no friendship support DNs fill friendship roles. LTCs alongside poor mental health makes maintaining networks difficult so transient SN members are frequently used. | The DN acts as a conduit to other services adding more ‘weak’, ‘transient’ relationships into the SN. This usually results in a network dominated by HCPs that is unlikely to provide long-term support and will be biomedically framed. This will likely lead to a lack of support with practical and emotional work; especially considering the mental health with long term condition cohort of this study. |
| **2 Devik et al.** **(2015)** **Norway** | Values of patients on rural healthcare and how it affects the quality of care.  | Patients have to adapt to the change in lifestyle when requiring DN input in rural areas due to the interventions being delayed, interrupting schedules and routines and being not readily available. Despite this being exacerbated by rurality patients prefer to remain here due to being a ‘brick’ in history and place giving them increased social capital and a sense of self, security and control.  | The social capital retained by aging in place means patients can retain their existing ties to help meet health, emotional and practical work. DNs are less likely to become part of the patients SN due to their visits being infrequently, on a healthcare schedule and therefore difficult to mobilise by the patient. Patients prefer to navigate the community to find support but targeted those with knowledge of healthcare (e.g. retired nurses). |
| **3 Farmer and** **Kilpatrick** **(2009)****Scotland and** **Tasmania** | HCPs outside of their healthcare role creating opportunities for patients to increase their function and social capital. In rural areas. | The DN role in a rural community is both bonding and bridging with others. Nurses have been known to be embedded in the social fabric of the community and their remit extends to lift-giving, delivery and involvement in community facilities. They use their social capital in communities to implement change and establish entrepreneurial services (often outside of healthcare, such as establishing social clubs). | DNs use their position within the network to identify patient, SN and community needs. Especially true in rural areas where resources are limited, DNs go beyond their role and take it upon themselves to meet the needs. They also bridge and bond to other services (often out of reach to the rural patient) as a form of mobilizing others into the SN and improve the patient’s social capital. Although not explicit in the data the improvement in social support and capital is likely to improve health; the DNs overarching goal. |
| **4 Findlay et al.** **(2017)****Scotland** | Importance of a connection with family and friends when being treated at home. | Frustration and sadness at the lack of support was frequently cited, with contentment noted when friends and family were accessible. The timing of DN visits seem to restrict the ability to maintain existing relationships. | Some participants enjoyed the social aspects of the DN visits but due to timing most found them to be restricting and display ambivalence towards the service and the loneliness it brings. Ideally, individualizing services should reduce loneliness and improve associated mental and physiological health (e.g. frailty).  |
| **5 Gossett-****Zakrajsek et al.****(2013)****USA** | The balance of formal and informal SN members during transitions from hospital to home. | Support, communication and reintegration are the three themes identified during transitions home. Successful transitions occur when there is synchronicity between formal and informal support that is planned with an appreciation for the changes occurred during time spent in hospital. There needs to be good communication between patient and informal and formal support.  | A need for acute care creates changes to the patient’s function and a break from their existing SN support. If there are weak ties these may disperse during inpatient stays. DNs should consider this, communicate with other SN members to overcome new shortcomings in the SN. The support provided of specialist community services at this time seems less likely to be accepted than the generalist DN support due to a stronger tie, frequency of interaction and therefore trust. |
| **6 Griffiths et al.** **(2013)** **England** | Relationship between DN and patient during EoL care. | DNs give information, advice, education and instruction. DNs carry out this work in a relaxed manner that empowers the patients, becomes egalitarian and therefore therapeutic. The physical tasks and assessment are intertwined with the social aspects of their visits; often unnoticed by the patient. The frequency of the visits also correlated to an improved self-efficacy.  | The DNs relaxed approach allows them to integrate into the patient’s SN. The egalitarian relationship, not dissimilar to a friend, allows greater information sharing in both directions. The DN, once part of the SN adds new information and support, mobilise others into the SN and help with practical work that alleviates emotional stresses that impacts on their physical and mental health; thus benefiting the patient and their SN.  |
| **7 Grunberg et al.** **(2016)****Sweden** | Emotional support/work of the DN and how this helps identify needs and improve care. | DNs use informal dialogue to lift patients’ mood and facilitate open discussion that helps identify further needs. This was deemed important to allow an integration into the SN meaning the DN had the role to mobilise others, advocate and meet their emotional needs. These skills are intrinsic with the DN often unaware they are detecting mental health needs. However, time and resources appear a barrier. | Despite the lack of resources DNs can utilize their relaxed approach, intertwined with planned visits, to provide emotional work; either by improving mood or identifying mental health concerns. Their role becomes similar to a friend by using general conversation and joking. They can then integrate into the SN to meet emotional needs and to identify the correct people already in the SN to mobilise where needed. |
| **8 Hunsberger et al.** **(2009)** **Canada** | Values of DNs on rural healthcare and how it affects care and themselves. | Rural healthcare can be rewarding and stressful. Often the initial attraction of open countryside become the stressor due to isolated practice. Acuity in these areas is increasing and experienced nurses are approaching retirement increasing demands on the services. More recently, only those already embedded in rural life appear to choose to work there. Urban policy and decision making frustrates rural healthcare and therefore rural specific training is needed.  | The attraction of rural nursing is to help a community one is already embedded into. The shared community values helps integration into a SN to mobilise others. Willing DNs should nurture the attachment to the community to create stronger SN ties. However, the challenges of rural healthcare seem to outweigh the positives making recruitment a challenge. The blurring of boundaries between community member and DN cause confidentiality concerns and a burden on the DN who may be contacted out of hours or in public spaces.  |
| **9 Kaasalainen et al.****(2014)** **Canada** | Physical and emotional challenges of EoL care in rural areas. | Rural nurses experience a unique challenge when delivering care to their patients; physically and emotionally. DNs have to overcome these challenges to support the patients with their increased risk of isolation and associated poorer health choices. Nurses often demonstrate extreme measures to go above and beyond for their patients.  | Lack of resources force DNs to become generalists but this increases their frequency of interaction with the patient. They negotiate with the SN and community on behalf of the patient. They advocate and mobilise others into the network where possible which could burden the DN and confidentiality issues may arise when discussing the patient with the community. DNs nurture their tie with the SN by completing practical work like stoking the fire.   |
| **10 Reed et al.** **(2016)** **Australia** | Rural DNs working and living in the same area and how this influences their role.  | Successful EoL care requires DNs to be committed to the emotional work involved. Resonating with other studies, the knowledge of the people and resources available in the rural community was noted as valuable in advocating to the appropriate people. The DN needs to have a flexible relationship boundary with the patient create a reciprocal relationship for confident advocacy and emotional support. | EoL care increases the importance for DNs to become part of the SN of the patient and their family and should be encouraged. Increased tie strength and involvement in emotional work creates a reciprocal relationship and shared values that are conducive to good care. There is a risk of confidentiality breaches when advocating to other members of the rural community (e.g. priests). There is also a risk of emotional burden for the DN as they are likely to be unsupported in the rural setting.  |
| **11 Reed et al.** **(2018)****Australia** | How local knowledge influences the way DNs care in rural areas.  | DNs consider the values of patient and family to personalize care. Knowing the available resources in the rural area helps gather support for the patient. DNs have strong community relationships that empower them to advocate successfully. DNs possess the emotional intelligence to manage a personal and professional relationship and can justify it because of the likelihood of improved outcomes. | DNs face a challenge to meet patient’s needs by nurturing a strong SN tie that could overburden them emotionally at EoL. If this is achieved they can successfully mobilise other members of the community and healthcare services. The challenges of burden, confidentiality and emotional distress are overcome by the DNs emotional intelligence. |
| **12 Roden et al.****(2016)****Australia** | DNs use their social capital for health promotion (HP). The pressures on rural DNs make this hard to sustain. | There is a lack of support and competing priorities for a rural DN. However, DNs had a more positive and committed outlook on HP, possibly because they knew and felt responsible for the community they served. Patients were more likely to follow the HP advice due to the respect they had for the DN. HP was often sacrificed when rural challenges (workforce, infrastructure, resources) limited their availability to patients causing stress and disengagement by the DN.  | Effective HP requires committed DNs to be embedded into the community. This increases the tie strength between patient and DN and the patient is then more likely to follow advice. Relationships are mutual, open and conducive to honest reporting of health behaviors. Rurality acts as a facilitator to shared values, community engagement and therefore stronger tie but also restricts the time and resources available to deliver HP effectively. DNs may neglect HP as a result of rurality to treat the patient’s primary health need. |
| **13 Terry et al.** **(2015)****Australia** | The health and safety (HS) issues of rural healthcare and how it affects quality of care. | HS issues are complex and largely environmental. These include isolation, long distances, and poor infrastructure. DNs cite ‘making do’ and developing skills to overcome the HS issues. This includes rotating staff and dividing workload. Lack of funding, support, supervision and specific training exacerbate the problem and result in poor staff retention.  | The needs of the DN and patient cannot be met in parallel. The HS issues in rural communities result in DNs create physical and emotion distress amongst DNs. The coping strategies used makes them less available to the patient, poor continuity of care and therefore a weaker tie is developed within the SN; encompassed by patients ‘making do with who turns up’ and ‘not speaking to them in the same way’. |
| **14 Wang, Y., et al. (2012)****Norway** | Comparing experiences of being treated for acute illness at home or as an inpatient | A surprising finding was that participants at home felt safe despite the limited time with a HCP. This accredited to the ability to communicate via telephone at any time and also the personalized care plans. Being treated in their own home improved the relevance of the information and advice given; patients could relate it to their everyday life and therefore compliance increased. Nurses also had more time to spend 1-to-1. | Aging in place/ being ill in place allows information/health promotion to be more relevant to the patient and their SN and therefore accepted and implemented. They know “what-is-What” will increase long term self and collective efficacy. The acceptance is also due to the increased strength of the tie that is likely to be built between the nurse, patient and their family. This is because they are reliable, attentive, 1-to-1 and have the time to spend with the patient. |
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**References**

Page, M.J. *et al.* (2021) 'The PRISMA 2020 statement: an updated guideline for reporting systematic reviews', *Bmj*, 372, p. n71.