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Collaboration between general practitioners and social workers: A scoping review

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2 A scoping review

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Abstract

Objectives: Aim of the study is to present an overview of collaboration structures and processes between general practitioners and social workers, the target groups addressed as well the quality of available scientific literature.

Design: A scoping review following the guidelines of the PRISMA Statement, ScR Extension.

Included sources and articles: According to a pre-published protocol, three databases (PubMed, Web of Science, DZI SoLit) were searched using the participant-concept-context framework. Literature written in English and German since the year 2000 was included. Two independent researchers screened all abstracts for collaboration between general practitioners and social workers. Articles selected were analyzed regarding structures, processes, outcomes, effectiveness, and patient target groups.

Results: A total of 72 articles from 17 countries were identified. Collaborative structures and their routine differ markedly between health care systems: 36 publications present collaboration structures, 33 articles allow an insight into the processual routines. For all quantitative studies, a level of evidence was assigned. Various measurements are used to determine the effectiveness of collaborations, e.g. hospital admissions and professionals' job satisfaction. Case management as person-centered care for defined patient groups is a central aspect of all identified collaborations between general practitioners and social workers.

Conclusion: This scoping review showed evidence for benefits on behalf of patients, professionals, and health care systems by collaborations between general practitioners and social workers, yet more rigorous research is needed to better understand the impact of these collaborations.

Registration details: Open Science Framework: www.osf.io/w673q

Strengths and limitations of the study:

- To our knowledge, this is the first systematic approach to provide a detailed view of collaborations between general practitioners and social workers.
- Various formats for collaborative, person-centered care processes are highlighted.
- In all studies evaluated, case management was identified as the key approach.
- Measurements allowing for the evaluation of collaborative models are outlined.
- Despite the systematic approach, a risk of bias in the appraisal of the data cannot be excluded.

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Introduction

A 2021 bulletin of the World Health Organization (WHO) attributes 30 to 55% of health outcomes to social determinants of health (SDH) [1]. Social factors are relevant as risk and protective factors. For example, longitudinal data associated with the German Socio-Economic Panel Study (GSOEP) from 1995 till 2005 including 31,800 adults showed a remarkably lower healthy life expectancy for low compared to high income: stratified by gender a reduction of ten years for women and more than 14 years for men is described [2]. The 2008 Japan Public Health Center-based Prospective Study (JPHC Study) with 44,152 individuals demonstrated a 1.45-fold higher risk of stroke mortality for socially isolated men and women [3]. All social stressors enhance the risk of strain-related diseases [4]. Thus, the appropriate address of SDH is fundamental for improving health and reducing inequities that require collaborative action through all sectors [1].

General practitioners (GPs) treat patients with various social issues and different social contexts [5]. Cross-sectional studies outlined common psychosocial problems that are frequent in general practice: e.g., job problems, unemployment, intrafamilial problems, or loneliness [6]. GPs report that patients with SDH require higher consultation times [6, 7]. In recent qualitative research, German GPs reported feeling helpless when confronted with SDH which results in unmet care needs [8, 9]. In the last years, cooperation structures between general practitioners and social care professionals are emerging and range from pilot projects to routine implementations in selected countries or districts [10–13].

Collaborations between GPs and social workers are especially promising as both professions provide low-threshold, person-centered support. Like medicine, social work is based on the interaction of individuals and organizations dedicated to welfare in the state and society [14]. As human rights profession, it has a political and anti-discriminatory function that can strengthen social justice [15]. Social work professionals have a long tradition of cooperation with the medical profession in various health care institutions, e.g. hospitals [16, 17].

A 2018 systematic review by Fraser outlined the potential of collaborations between social workers (SW) and GPs based on 26 randomized control trials: integrated care improved patients' behavioral health outcomes and care processes significantly compared to routine primary care services without SW [18]. According to a 2017/18 survey of 80 German SWs, SWs believe that their patient-related work will be improved by collaborations with GPs [19]. Similarly, GPs are interested in cooperations with SWs, but various barriers exist [20]. Internationally, different forms of collaborations between SWs and GPs exist, yet no review is available. This scoping review addresses collaborations between general practitioners and social workers, focusing on their structures, processes, patient target groups, and effectiveness.

Methods

This scoping review followed the Joanna Briggs Institute (JBI) methodology for reviews [21–23] and the PRISMA Extension ScR [24]. The format of a scoping review was chosen because the available literature is heterogenous regarding content and methodologies, which does not allow for a systematic review or meta-analysis.

Protocol and registration

A protocol was registered prior to the review: www.osf.io/w673q

Eligibility criteria

This review aims at the wide range of interdisciplinary cooperation between GPs and SWs. Therefore, all study types published in English and German since 2000 were included.

Information sources and search strategy

Search parameters were defined based on the 'P-C-C'-approach (Population – Concept – Context) [21, 24]. The following search terms were selected on a meta-level:

(1) Population:

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3 106 a. Professional group #1: general practitioners
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5 107 b. Professional group #2: social worker
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7 108 (2) Concept:
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9 109 a. Collaboration
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11 110 (3) Context:
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13 111 a. Dimension, e.g. setting, community
14
15 112 b. Known structures, e.g., integrated care.
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18 113 A combination of keywords was selected to link both professions or contexts to the concept.
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20 114 The details on keywords and their combinations are provided in the appendix (Appendix Table
21
22 115 1 and Appendix Table 2). Three well-known databases were searched: PubMed, DZI SoLit,
23
24 116 and Web of Science. PubMed was chosen as one of the most important databases for
25
26 117 medicine worldwide. DZI SoLit is one of the most important libraries for social work in German-
27
28 118 speaking countries and is curated by the German Institute for Social Issues (DZI) in Berlin. In
29
30 119 the Web of Science Core Collection, the “Social Work” category was searched to identify
31
32 120 international evidence in the area of social work practice. A pilot search in the database
33
34 121 PubMed provided an enormous data volume; therefore we changed from a “MesH Terms” to
35
36 122 a “Title/Abstract” search. The same key term combination was applied in the Web of Science.
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39 123 In the German Central Institute for Social Issues, a librarian searched the internal database
40
41 124 according to our keyword combinations. The search was piloted on January 21st, 2021, the
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43 125 final search was conducted on August 10th, 2021.
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46 126 **Study selection, data charting, and methodological quality appraisal**
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49 127 After removing duplicates, two reviewers jointly developed a template for preselection: all
50
51 128 abstracts were screened using the P-C-C criteria: population, collaboration concept, context.
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53 129 The two reviewers charted the data independently and discussed the results thereafter.
54
55 130 Following the study protocol, all selected articles were analyzed in full-text and categorized
56
57 131 regarding the following five aspects:
58
59 132 • Collaboration structure/ model
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- 133 • Patient population addressed (target group)
- 134 • (Functional) Impairment of patients
- 135 • Setting/ Country
- 136 • Measurements used to describe a collaboration's effectiveness [25].

137 Classifications of all articles were documented using a literature management program (QSR
138 CITAVI 6.10). All quantitative studies were rated for their methodology using the AHCPR levels
139 of evidence [26] by two researchers with a final review of a senior researcher.

140 **Summarizing and reporting the results**

141 Our qualitative content analysis clustered every source regarding 'structure' (e.g., general
142 practice, primary care center), 'process' (e.g., collaboration frame, roles, responsibilities), and
143 'target groups' (e.g., vulnerable groups, functional health). This summary allows for a
144 correlative view of single articles and thematic clusters.

145 **Risk of bias assessment**

146 This scoping review does not intend to appraise the risk of bias of the studies analyzed [27].

147 **Patient and public involvement**

148 No patient involved.

149

150 **Results**

151 **Selection of sources of evidence, exclusion criteria, and study characteristics**

152 The searches retrieved 1136 references. After removing duplicates, 1119 references remained
153 for preselection of which 882 were excluded for the following reasons (exclusion criteria):

- 154 1. References addressing diseases or temporary life circumstances that typically do not
155 require social work intervention (e.g., maternity care, COPD);

- 156 2. References describing interprofessional collaboration on a metalevel without
- 157 addressing GPs and SWs specifically;
- 158 3. References about social worker practices without collaborations with GPs, and
- 159 4. References from patients' perspective not addressing collaborations.

160 The remaining 227 articles were imported into a literature management program for full-text

161 analysis. During this process, all articles beyond the focus of this scoping review also were

162 excluded:

- 163 5. Articles that describe social interventions without social workers (n=56),
- 164 6. Descriptions of health and social structures without collaboration between GPs and
- 165 SWs (n=37),
- 166 7. Articles not involving the GP settings: in-hospital setting (n=17), pediatric setting,
- 167 including child protection and child/youth psychiatry (n=18), emergency setting (n=5),
- 168 and nursing homes (n=12).

169 The flow chart (Figure 1) summarizes the process of article selection.

170 72 articles from 17 countries were included in the review. 37.5% of the articles originated from

171 North America (n=27), 26.4% from the UK (n=19), and 15.3 % from German-speaking

172 countries (n=11). In descending order, the article types were: qualitative studies (n=24, 33.3%);

173 program/project descriptions (n=11, 15.3%), mixed-methods studies (n=10, 13.9%),

174 quantitative studies (n=8, 11.1%), narrative reviews/expert opinion (n=7, 9.7%), feasibility

175 studies (n=5, 6.9%), systematic or scoping reviews (n=5; 6.9%), one reference books and

176 study protocol. Nearly half of all articles were published since 2018. The study characteristics

177 are outlined in Supplementary Table 1.

178 **Levels of evidence (AHCPR) and measurements**

179 An evidence level was assigned to 25 studies and three systematic reviews. The latter showed

180 a level Ia evidence [18, 28, 29]. Additional four studies had high levels of evidence: a

181 randomized controlled trial with mixed-methods design [30] was marked with level Ib. A level

1lb was assigned three times: for a longitudinal cohort study [31], an interventional non-randomized cohort study [32], and a quasi-experimental study [33]. For the remaining 44 articles, the level of evidence grading was not applicable.

Overall, studies used different measurements. In 23 studies, instruments to measure processes and/or outcomes were mentioned. Nine of 12 studies used standardized instruments to measure patients' psychosocial needs and/or physical functioning [30, 33–42], while the remaining three studies did not specify the instruments used. Eight studies measured patients' health care utilization including hospital (re-)admissions and the frequencies of emergency department visits [30–33, 37, 40, 43, 44]. In addition, characteristics of collaborative processes were measured, e.g., the number of referrals [37, 41, 45, 46], team climate, team development [32, 47–49], and professionals' job satisfaction [31–33, 38, 48, 50]. Cost-effectiveness measurements were addressed in three studies [30, 47, 51].

Collaboration structures and the degree of implementation

Collaborations between SWs and GPs differ markedly between health care systems. We categorized collaborations in: collaboration within the same practice/ institution (e.g. community health center, multi-disciplinary practice) (n=17) [35, 38, 40, 42, 48, 51–62] and collaboration of GPs and SWs from separate institutions (e.g. GPs from a practice collaborating with SWs employed by a public institution) (n=21) [20, 35, 43, 44, 46, 47, 53, 63–76].

The degree of routine implementation of the several collaborations varies between health care systems. The two most advanced collaborations are realized in the UK and Canada. Routine enactment is implemented in the UK, in particular established with social prescribing [68, 77] and Primary Care Networks (PCN) [78] embedded in the National Health Service (NHS) Long Term Plan [79]. In Ontario, Canada, Family Health Teams (FHT) provide community-oriented primary health services [56, 80, 81]. In Germany, general practitioners and social workers collaborate in specialized practices, e.g., for patients with addiction disorders including alcohol dependency [46, 71], yet there are no routine collaborations between GPs and SWs. Regional

models for special patient groups like patients with addiction are also emerging in Switzerland [69]. Primary Care Social Work (PCSW) as part of primary health care teams is also described from Ireland [50] as a community-oriented implementation [82]. Table 1 outlines the details for the respective publications.

Categories		Method	Level of evidence (AHCPR)	Publication year	Country of origin	Ref.
General practitioners and social workers/ social care professionals in the same practice/ institution, n=17	Interprofessional/ multidisciplinary collaboration in practices, n=10	Mixed-methods study	III	2005	UK	[42]
		Quantitative study	III	2020	USA	[35]
		Quantitative study	III	2019	USA	[52]
		Qualitative study	n.a.	2021	UK	[53]
		Qualitative study	n.a.	2017	USA	[54]
		Qualitative study	n.a.	2010	USA	[55]
		Description of a care model	n.a.	2019	Germany	[56]
		Narrative review	n.a.	2012	Germany	[57]
		Description of a care model	n.a.	2009	Netherlands	[58]
		Description of a care model	n..a.	2000	USA	[59]
	Primary Care Centers/ Community Health Centers, n=7	Mixed-methods study	III	2019	Mexico	[38]
		Quantitative study	III	2017	Canada	[48]
		Quantitative study	III	2016	USA	[40]
		Quantitative study	IV	2018	Finland	[60]
		Qualitative study	n.a.	2021	Spain	[61]
		Study protocol	n.a.	2018	USA	[62]
		Program description	n.a.	2005	USA	[51]
Collaboration of general practitioners in practice and social workers/ social care professionals in separate institutions, n=21		Mixed-methods study	III	2018	Netherlands	[47]
		Mixed-methods study	III	2014	UK	[43]
		Mixed-methods study	IV	2003	UK	[75]
		Quantitative study	III	2020	USA	[35]
		Quantitative study	III	2007	Germany	[46]
		Quantitative study	IV	2013	Australia	[44]
		Qualitative study	n.a.	2021	Denmark	[64]
		Qualitative study	n.a.	2021	UK	[53]
		Qualitative study	n.a.	2020	Denmark	[65]
		Qualitative study	n.a.	2020	Germany	[63]

	Qualitative study	n.a.	2019	UK	[20]
	Qualitative study	n.a.	2018	Netherlands	[66]
	Qualitative study	n.a.	2018	UK	[67]
	Qualitative study	n.a.	2017	UK	[68]
	Qualitative study	n.a.	2015	UK	[70]
	Qualitative study	n.a.	2013	UK	[72]
	Qualitative study	n.a.	2013	Canada	[73]
	Qualitative study	n.a.	2003	UK	[74]
	Qualitative study	n.a.	2000	USA	[76]
	Description of a care model	n.a.	2015	Switzerland	[69]
	Reference book	n.a.	2013	Germany	[71]

Table 1: Structures of collaboration between general practitioners and social workers, n=36

n.a.= not applicable, Ref. = Reference

Processes of collaboration

All collaborations between GPs and SWs target special patient groups in form of the case- and care management which were described in more detail in 49 of these 72 articles.

Specific formats of collaborations were identified in 33 articles:

- 1.) Joint discussions, e.g., round tables and team meetings (n=21) [18, 28, 30, 32, 40, 44, 47, 49, 53, 59, 61, 67, 69, 72–74, 76, 80, 83–85];
- 2.) Referrals from GP practice or multidisciplinary groups to social workers (n=11) [32, 43, 46, 53, 55, 59, 60, 68, 71, 84, 86], which sometimes is phrased as ‘social prescribing’ in the literature;
- 3.) Vice versa, referral from social workers to the primary care setting/ GP practice (n=5) [34, 52, 65, 87, 88].

Surprisingly, these processes are already implemented routinely in some countries, e.g., the United Kingdom. Details are presented in Table 2.

Categories	Method	Level of evidence (AHCPR)	Publication year	Country of origin	Process routine		Ref.
					Pilot projects	Established practice	
Joint discussions, e.g. team meetings, round table, n=21	Systematic review	Ia	2018	USA		X	[18]
	Systematic review	Ia	2015	Netherlands		X	[28]
	Mixed-methods study	Ib	2018	UK	X*		[30]
	Quantitative study	IIa	2015	USA		X	[32]
	Mixed-methods study	III	2019	Canada	X		[80]
	Mixed-methods study	III	2018	Netherlands	X		[47]
	Quantitative study	III	2016	USA	X		[40]
	Mixed-methods study	III	2013	Australia		X	[44]
	Quantitative study	IV	2017	UK	X		[49]
	Qualitative study	n.a.	2021	UK		X*	[53]
	Qualitative study	n.a.	2021	Spain		X	[61]
	Qualitative study	n.a.	2019	USA	X		[83]
	Qualitative study	n.a.	2018	UK		X	[67]
	Qualitative study	n.a.	2013	Canada		X	[73]
	Qualitative study	n.a.	2013	UK		X	[72]
	Qualitative study	n.a.	2003	UK		X	[74]
	Qualitative study	n.a.	2000	USA	X		[76]
	Narrative review	n.a.	2015	Switzerland		X	[69]
	Narrative review	n.a.	2014	USA		X	[84]
	Narrative review	n.a.	2014	USA	X		[85]
	Narrative review	n.a.	2000	USA		X	[59]
Referral from general practice or multidisciplinary groups to a social worker, n=11	Quantitative study	IIa	2015	USA		X	[32]
	Mixed-methods study	III	2014	UK		X	[43]
	Quantitative study	III	2007	Germany		X	[46]
	Quantitative study	IV	2018	Finland		X	[60]
	Qualitative study	n.a.	2021	USA		X	[86]
	Qualitative study	n.a.	2021	UK		X*	[53]
	Qualitative study	n.a.	2017	UK		X*	[68]
	Qualitative study	n.a.	2010	USA	X		[55]
	Reference book	n.a.	2013	Germany	X	X	[71]

	Narrative review	n.a.	2014	USA		X	[84]
	Narrative review	n.a.	2000	USA		X	[59]
Referral from social worker to general practice or multidisciplinary groups, n=5	Mixed-methods study	III	2021	USA	X		[34]
	Quantitative study	III	2019	USA		X	[52]
	Qualitative study	n.a.	2020	Denmark		X	[65]
	Qualitative study	n.a.	2012	USA		X	[88]
	Narrative review	n.a.	2019	UK		X	[87]

Table 2: Processes of collaboration between general practitioners and social workers, n=33

n.a. = not applicable, Ref. = Reference

*social prescribing

It is remarkable that the majority of articles from the category “referral from social worker to general practice or multidisciplinary work” were published since 2019. We used the term „referral“ to describe any recommendation to contact and/or interact with another health care professional. In some settings, the term “social prescribing” is used instead. For example, social prescribing is a key component of universal personalized care in the NHS [11] and a prime example of collaboration between GPs and SWs. Also, different terms are used to describe the roles of SWs, e.g., ‘informal broker’ [88] or ‘accompaniment’ [65].

Target groups

According to our synthesis, collaborative care is targeting special patient groups with high needs, such as geriatric patients and those with mental health problems. The frequencies of the various target groups addressed are presented in Figure 2 based on a total of 46 articles. In five of these publications, several target groups are addressed. Geriatric patients are focused in 22 articles [28–30, 32, 33, 35, 40–42, 52, 53, 55, 63, 66, 67, 70, 72, 73, 76, 84, 89, 90] with additional five articles specifically addressing geropsychiatric patients [36, 47, 80, 87, 91]. Other risk groups are adults with complex care needs (n=10) [40, 52, 53, 60, 62, 64, 81, 92–94] as well as those requiring palliative (n=2) [34, 43] and oncological (n=1) care [37]. Mental diseases are addressed in nine articles [36, 38, 44, 51, 65, 74, 85, 87, 95], while an additional five articles detail collaboration issues for patients affected by addiction [46, 62, 69, 71, 96, 97].

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Discussion

Our scoping review showed that patient-centered case management is central in professional collaborations between GPs and SWs from various countries. However, otherwise, such collaborations differ by structure, process, and patient target groups. Also, the degree of scientific evaluation and evidence of the effectiveness, as well as the routine implementation of the described collaborations, varies markedly.

Currently, the highest evidence for effective collaborations between GPs and SWs is described in a longitudinal US cohort study published in 2019 which included 4,230 patients with 167 care professionals including both professional groups. Higher connectedness and higher access to other providers in the community significantly reduced inpatient hospitalizations and emergency department visits [31]. Also in the US, similar results were achieved by the 2014 adaption of the “Geriatric Resources for Assessment and Care of Elders (GRACE)” model [98], which increased patients' quality of life and decreased hospitalization rates [40].

Aiming at the best possible integrated care for various patient groups, many studies address the roles and interactions of the participating professionals [35, 48, 66, 89]. Schultz et al. emphasize the need to clearly define the roles of all professionals involved to ensure integrated care in the best possible way [64]. This requires appropriate interdisciplinary education [53, 66, 81, 84, 87]. Knowledge about each other creates an increased awareness of the importance of collaborative skill development which needs to be reflected in curricula for GP and SW education [99, 100]. Within and between institutions, and organizational learning culture is needed to support integrated care by multi-professional teams [101].

Our literature review showed that current collaborative models mainly target geriatric and psychiatric patients. However, social determinants of health (SDH) are much broader, and even highly prevalent problems such as functional health, loneliness, debts, family problems,

and violence have not been addressed in studies although these are known to negatively influence health outcomes [102–104].

Strengths and limitations

A detailed search and analysis of the heterogenous articles retrieved were carried out following the PRISMA_ScR guideline. Based on the P-C-C approach, a detailed view of various aspects of collaborations between general practitioners and social workers was presented. Various formats for collaborative, person-centered care processes are highlighted. Measurements allowing for the evaluation of collaborative models were outlined. Despite the systematic approach, a risk of bias in the appraisal of the data cannot be excluded.

Conclusion and Perspectives

This scoping review outlined models and strategies to improve SDH by collaborations between GPs and social workers. For transferability, the described best practice models need to be shaped for the respective health care system. Although a lack of rigorous research in this field was documented, there is profound evidence of benefits on behalf of patients, professionals, and health care systems by close collaborations between GPs and SWs. Future research needs to measure the impact of different forms of collaboration in health care systems.

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Availability of data and materials

The data collection is shared by the Institute of General and Family Medicine at the University of Bonn upon justified request.

Competing interests and funding

The authors declare that they have no competing interests. This study was not externally funded.

Patient consent for publication

Not applicable.

Ethics Approval

This study is a scoping literature review and did not involve participant data collection. Therefore, ethical approval was not required.

Authors' contributions

CL and BW developed the research question and study design. CL curated the data; CL and PM reviewed all records and analyzed the data. CL, PM, SS, and BW interpreted the data and results. BW supervised the process. All authors read and approved the final manuscript.

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Supplementary material

Supplementary Table 1: Study characteristics and content of all included articles, N=72

Appendices

- Appendix Table 1: “Wording”
- Appendix Table 2: “Keyword combination”

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Figure Legend

Figure 1: PRISMA flow diagram

Figure 2: Target groups of collaboration between general practitioners and social workers, n=46

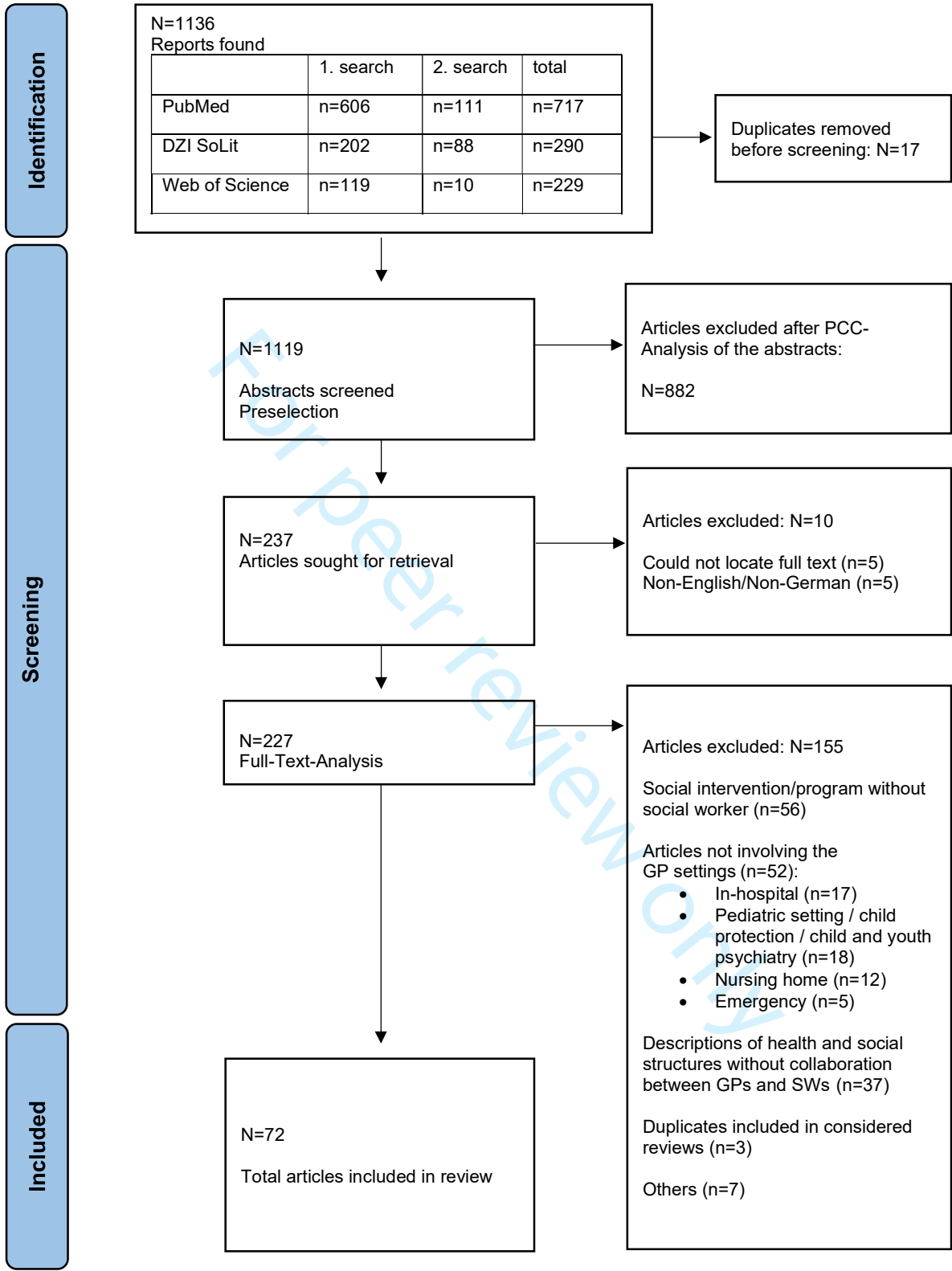


Figure 1: PRISMA flow diagram

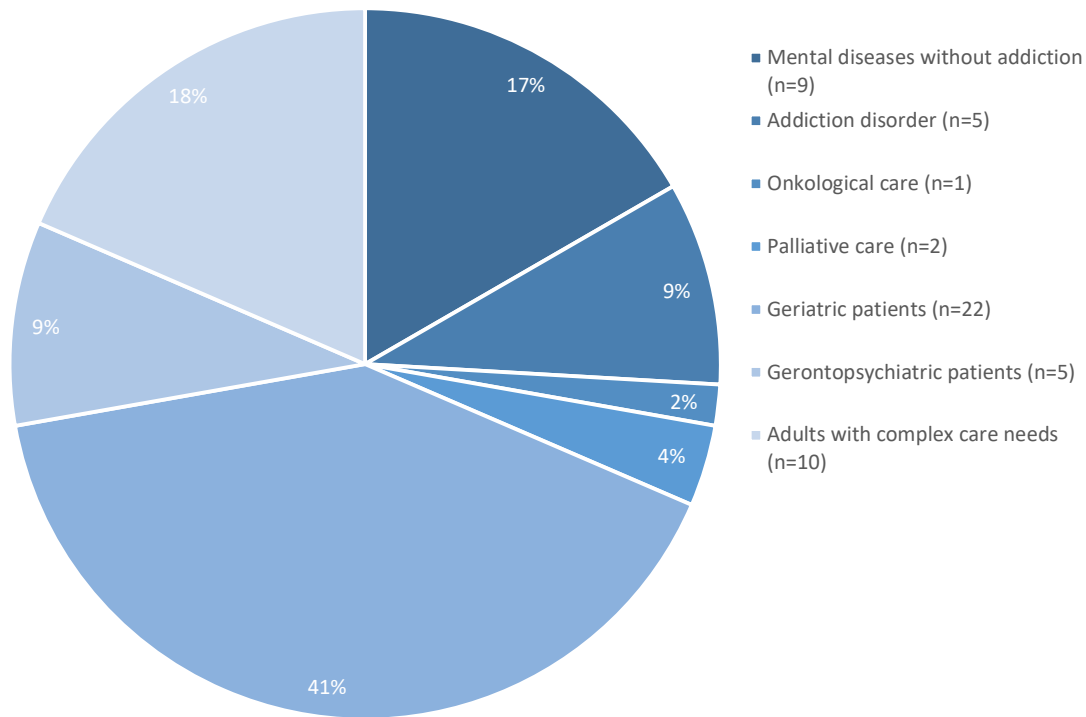


Figure 2: Target groups of collaboration between general practitioners and social workers, n=46

Supplementary Table 1
Study characteristics and content of all included articles, N=72

	Author (year of publication)	Country of origin	Study design	Setting	Professionals			Target group	Key term (processes)	Key term (context)	Refer- ence
					GP	SW	Nurse				
1	Ashcroft, R.; Kourgiantakis, T. et al. (2018)	Canada	Scoping review	Primary Mental Health Care	x	x	(x)	Mentally ill patients	Social workers practice	Interprofessional primary care health teams	[95]
2	Ashcroft, R., McMillan, C. et al. (2018)	Canada	Cross- sectional study	Primary Health Care	x	x	x	Mentally ill patients	Case management	Ontario Family Health Teams (FHT)	[81]
3	Batchelor, P. & Kingsland, J. (2020)	UK	Narrative review / expert opinion	Primary Care	x	x	x	Homeless people	Networking	Primary Care Network (PCN), National Health Service (NHS)	[78]
4	Bauer, D. et al. (2005)	USA	Project description	Primary Care	x	x	x	Patients with mental illness and/or low- income	Behavioral health therapeutic interventions	Primary Care Center (Pennsylvania)	[51]
5	Berner, B. & Floh, S. (2017)	Austria	Narrative review / expert opinion	Primary Care	x	x		Homeless people	Low-threshold integrated care	[Gesundheitliche Chancengleichheit]	[105]
6	Berrett-Abebe, J. et al. (2020)	USA	Cross- sectional study	Community Health	x	x	x	Frail elderly patients	Role of social workers in integrated care	Community health worker and social worker	[35]
7	Beushausen, J. & Caby, A. (2012)	Germany	Narrative review / expert opinion	Social Work	x	x		Vulnerable groups, especially patients with an addiction disorder	Role of social workers in primary care	-	[57]
8	Bower, P. et al. (2018)	UK	Mixed- methods study	Primary Care	x	x	x	Elderly patients	Implementation of joint up care	Salford Integrated Care Program (SICP)	[30]
9	Bowers, L. et al. (2003)	UK	Qualitative study with focus groups	Community Care	x	x	x	Mentally ill patients	Compulsory admission	Multidisciplinary community mental health teams	[74]
10	Buhr, G. et al. (2019)	USA	Feasibility study	Primary Care	x	x	x	Elderly patients with cognitive impairment	Geriatric assessment	Geriatric Resource Teams (GRT)	[52]
11	Burroughs, H. et al. (2019)	UK	Feasibility study	Community Care	x			Elderly patients with anxiety and depression	Community-based psychosocial intervention	Non-traditional support workers	[36]
12	Chan, B. et al. (2018)	USA	Study protocol	Primary Health Care		x	x	Complex patients	Ambulatory intensive care unit intervention	Streamlined unified meaningfully managed interdisciplinary team (SUMMIT)	[62]
13	Coleman, A. & Rummary, K. (2003)	UK	Mixed- methods study	Primary Care	x	x	x	Primary care patients	Social services representation	Primary Care Groups/ Trusts (PCG/PCT)	[75]

Supplementary Table 1

Study characteristics and content of all included articles, N=72

14	Dambha-Miller, H. et al. (2021)	UK	Qualitative interview study	Primary Care	x	x	x	Elderly patients with multimorbidity	Integrated care barriers and facilitators	e.g. social prescribing	[53]
15	Davey, B. et al. (2005)	UK	Feasibility study	Primary Care	x	x	x	Elderly patients with complex needs	Integrated care	Primary Care Groups/ Trusts PCG/PCT; National Health Service (NHS), Community Health Services Trust	[42]
16	Davidson, A. S. et al. (2020)	Denmark	Feasibility study	Mental Health Care	x	x		Patients with severe mental illness	Trans-sectoral treatment	Social psychiatry	[65]
17	Do Céu Barbieri-Figueiredo, M. et al. (2017)	Portugal	Description of a care model	Primary Health Care	x		x	Primary care patients	Role of nurses primary care	Family Health Nurse Specialist	[106]
18	Dongen van, J. J. J. et al. (2018)	Netherlands	Prospective project evaluation	Primary Care	x	x	x	Primary care patients	Multifaceted program to enhance team functioning	Interprofessional team (IPT)	[47]
19	Draper, B. et al. (2018)	Australia	Narrative review / expert opinion	Primary Care	x	x	x	Patients with dementia and other cognitive disorders	Integrated care	-	[91]
20	Drennan, V. et al. (2005)	UK	Feasibility study	Primary Care	x		x	'At risk' elderly patients	Health promotion	Specialist health and social care team	[41]
21	Ferrante, J. M. et al (2010)	USA	Qualitative cross-case comparative study	Primary Care	x	x		Elderly patients	Case management	Patient Navigator (PN)	[55]
22	Finker, S. (2017)	Austria	Narrative review / expert opinion	Social Work	x	x		Primary care patients	Role of social workers in integrated care	[Primärversorgungsgesetz]	[107]
23	Fraser, M. W. et al. (2018)	USA	Systematic review	Primary Care	x	x	x	Primary care patients	Role of social workers in integrated care	Interprofessional team (IPT)	[18]
24	Gadient, M. (2015)	Switzerland	Description of a care model	Primary Care	x	x		Patients with an addiction disorder	Addiction counseling	[Forum Suchtmedizin Ostschweiz (FOSUMOS)], [Ambulanter Strukturierter Alkoholzug Sargans (ASAES)]	[69]

Supplementary Table 1
Study characteristics and content of all included articles, N=72

25	García-Quinto, M. et al. (2021)	Spain	Qualitative interview study	Primary Health Care	x	x		Intimate partner violence cases	Case management	Primary health care centers (PHCC)	[61]
26	Grol, S. M. et al. (2018)	Netherlands	Qualitative study with focus groups	Primary Care	x	x	x	Elderly patients	Role of the general practitioner	Multidisciplinary teams	[66]
27	Hanratty, B. et al. (2014)	UK	Mixed-methods study	Primary Care	x	x	x	Elderly patients	Transitions at the end of life	-	[43]
28	Happell, B. et al. (2013)	Australia	Cross-sectional study	Mental Health Care	x	(x)	x	Patients with serious mental illness	Collaboration of Mental Health Nurses and Physical health care professionals	Mental Health Nurse Incentive Program (MHNIP)	[44]
29	Harris, M. et al. (2013)	UK	Qualitative study with case discussions	Health Care Services	x	x	x	Complex patients	Interdisciplinary communication	Multidisciplinary Group (MDG) meetings	[72]
30	Jego, M. et al. (2018)	France	Literature review	Primary Care	x	x	x	Homeless people	Health care management	Primary care programs	[108]
31	Jong de, F. J. et al. (2009)	Netherlands	Description of a care model	Primary Care	x	x	x	Patients with major depression disorder	Implementation of the collaborative care model	Depression Initiative; Care manager (CM)	[58]
32	Kassianos, A. P. et al. (2015)	UK	Qualitative interview study	Health Care Services	x	x		Elderly patients with diabetes	Multidisciplinary group meetings	North West London Integrated Care Pilot	[70]
33	Keefe, B. et al. (2009)	USA	Qualitative study with focus groups	Primary Care	x	x	x	Elderly patients	Integrated care	Primary care team	[89]
34	Kharicha, K. et al. (2004)	UK	Narrative review / expert opinion	Primary Care	x	x	x	Elderly patients	Process measures for evaluation of Collaborative working	Collaborative working (CW); Primary Care Trusts (PCT)	[90]
35	Lang, C. et al. (2019)	Germany	Qualitative interview study	Primary and Specialist Care	x			Elderly patients with multimorbidity and multi medication	Interprofessional collaboration	-	[92]
36	Leach, B. et al. (2017)	USA	Qualitative study with focus groups	Primary Care	x	(x)	x	Primary care patients	Integrated care	Primary care multidisciplinary team	[54]
37	Lee, L. et al. (2019)	Canada	Mixed-methods study	Primary Care	x	x	x	Patients with dementia	Integrated care	Primary Care Collaborative Memory Clinic (PCCMC)	[80]
38	Lesser, J. G. (2000)	USA	Description of a care model	Primary Care	x	x	(x)	Primary care patients	Interprofessional collaboration	Pioneer Valley Professionals (PVP)	[59]
39	Naqvi, D. et al. (2019)	UK	Qualitative interview study	Primary care	x	x		Primary care patients	Integrated care	London-based GP surgeries	[20]

Supplementary Table 1

Study characteristics and content of all included articles, N=72

40	Netting, F. E. & Williams, F. G. (2000)	USA	Qualitative interview study	Primary Care	x	x	x	Elderly patients	Case management	-	[76]
41	Ní Raghallaigh, M. et al. (2013)	Ireland	Cross-sectional study and focus group	Primary Care	x	x	x	Primary care patients	Generic role of social workers	Primary Care Social Work (PCSW)	[50]
42	Nielsen, H. W. (2002)	Germany	Description of a care model	Social Work	x	x		Patients with addiction disorders	Addiction counseling	-	[96]
43	Oliva, H. & Walter-Hamann, R. (2013)	Germany	Reference book	Social Work	x	x	x	Patients with addiction disorders	Addiction counseling	-	[71]
44	Ostovari, M. & Yu, D. (2019)	USA	Longitudinal cohort study	Health Care Services	x	x		Patients with diabetes, hypertension, and/or hyperlipidemia	Interprofessional collaboration impact on patient outcomes	Care provider network	[31]
45	Pollard, R. Q. et al. (2014)	USA	Descriptions of care models	Primary Care	x	x	x	Children with special needs, people with serious mental illness, refugees, and deaf people	Integrated care	Promoting Resources for Integrated Care and Recovery (PRICARe); Mental Health Center of Denver (MHCD)	[85]
46	Rayner, J. & Muldoon, L. (2017)	Canada	Cross-sectional study	Community Care	x	x	x	-	Integrated care	Community health center primary care team	[48]
47	Reckrey, J. M. et al. (2014)	USA	Project description	Home-based care	x	x	x	Home-bound patients	Role of social workers	Mount Sinai Visiting Doctors Program (MSVD); Home-Based Primary Care	[84]
48	Reckrey, J. M. et al. (2015)	USA	Interventional non-randomized cohort study	Home-based care	x	x	x	Home-bound patients	Case management	MSVD	[32]
49	Risi, L. et al. (2017)	UK	Longitudinal study	Community Care	x	x	x	Chronically ill patients	'Virtual Wards'	Interdisciplinary Teams (IDTs), Handy Approach	[49]
50	Riste, L. K. et al. (2018)	UK	Multiple qualitative study	Integrated care	x	x	x	Elderly patients	Person-centered care	Multidisciplinary Group (MDG)	[67]
51	Ritchie, C. et al. (2016)	USA	Retrospective implementation study	Primary Care	x	x	x	'High-risk' patients	Integrated care	Primary care team	[40]

Supplementary Table 1
Study characteristics and content of all included articles, N=72

52	Ross, H. et al. (2021)	USA	Retrospective comparative study	Home-based care	x	x	x	Adult patients discharged from hospital	Role of social workers	Hospital at Home (HaH) care delivery team	[34]
53	Saavedra, N. I. et al. (2019)	Mexico	Mixed-methods study	Primary Care	x	x	x	Mentally ill patients	Role of social workers	Primary care centers	[38]
54	Schepman, S. et al. (2015)	Netherlands	Systematic review	Primary Health Care	x	x	x	Diverse	Integrated care	-	[28]
55	Schouten, B. et al. (2019)	Belgium	Cross-sectional study	Cancer care	x	x	x	Patients with cancer	Management of psychosocial issues	-	[37]
56	Schultz, R. et al. (2021)	Denmark	Qualitative interview study	Health Care Services	x	x	x	Patients with chronic widespread pain	Case management	-	[64]
57	Shanske, S. et al. (2012)	USA	Case study	Social Care	x	x		Young adults	Case management	Transition Brokers	[88]
58	Sotomayor, C. R. & Gallagher, C. M. (2019)	USA	Case study	Primary Care	x	x	x	Diverse	Case management	Clinical Ethicist	[83]
59	Stampa de, M. et al. (2013)	Canada; France	Grounded theory	Primary Care	x	x	x	Frail elderly patients	Integrated care	System of Integrated Care for Older Patients (SIPA) and Coordination of Care for Older Patients (COPA)	[73]
60	Stokes, J. et al. (2015)	UK	Meta-analysis	Primary Care	x	x	x	Patients 'at risk' of hospitalization	Case management	Self-reported health status	[29]
61	Stokes, J. et al. (2018)	UK	Qualitative interview study	Integrated Primary and Acute Care	x	x		'High-risk' patients	Case management	Multidisciplinary team ; 'Integrated primary and acute care system' (PACS)	[94]
62	Stumm, J. et al. (2020)	Germany	Qualitative study with focus groups	Primary Care	x	x		Multimorbid patients	Cooperation of general practitioner and non-medical practitioner	-	[63]
63	Ulbricht, S. et al. (2007)	Germany	Cross-sectional study	Primary Care	x	x		Patients with an addiction disorder	Addiction counseling	[Schwerpunktpraxen „Sucht“]	[46]
64	Ulrich, L. R. et al. (2019)	Germany	Description of a care model	Primary Care	x	x	x	Focus on chronically ill patients	Integrated care	Ontario FHT	[56]
65	Vedel, I. et al. (2009)	Canada; France	Quasi-experimental study	Primary Care	x	x	x	Frail elderly patients	Integrated care	Coordination of Professional Care for the Elderly (COPA)	[33]
66	Vehko, T. et al. (2018)	Finland	Vignette study	Primary Health Care	x	x	x	Primary care patients	Integrated care	Finnish health centers	[60]

Supplementary Table 1

Study characteristics and content of all included articles, N=72

67	Wahler, E. A. & Sullivan, W. P. (2017)	USA	Description of a care model	Primary Care	x	x		Low-income substance abusers with comorbid health conditions	Case management	Chronic care model (CCM); Interdisciplinary Teams	[97]
68	Wang, X. M. & Agius, M. (2019)	UK	Description of a care model	Primary Care		x	x	Mentally ill patients	Case management	Care coordinators	[87]
69	Welti, F. (2008)	Germany	Narrative review / expert opinion	Medical Rehabilitation	x	x	x	Rehab patients	Interprofessional collaboration	-	[109]
70	White, J. M. et al. (2017)	UK	Qualitative interview study	Primary Health Care	x	(x)	x	Primary care patients	Social prescribing	Third sector practitioners	[68]
71	Williams, V. N. et al. (2021)	USA	Case study	Primary Care	x	x	x	Young families experiencing social and economic adversities	Interprofessional collaboration	Nurse home visitors in Nurse--Family Partnership (NFP)	[86]
72	Yeo, G. T. S. et al. (2021)	Singapore	Qualitative interview study	Community Care	x	x	x	Complex patients	Case management	Community case managers; Primary care team	[93]

Review Appendices

Appendix Table 1: “Wording”

Main Term	German	English
COLLABORATION	Kooperation, Zusammenarbeit, Interdisziplinär, Interdisziplinarität, Multidisziplinär, Multidisziplinarität, Interprofessionelle Zusammenarbeit, Interprofessionalität, Teamwork	cooperation, collaboration, interdisciplinary, interdisciplinarity, multidisciplinary, multidisciplinary, interprofessional collaboration, interprofessionalism, teamwork
PROFESSIONAL GROUP #1	Hausarzt*innen, Hausärztinnen, Hausärzte, Hausarzt, Hausarztmedizin, Allgemeinmedizin, Allgemeinmedizinerin, Allgemeinmediziner, Allgemeinarzt, Allgemeinärztin, Allgemein*ärztinnen, Allgemeinärzte	general practitioner, family physician, primary care, general practice
PROFESSIONAL GROUP #2	Fachkräfte Soziale Arbeit, Sozialarbeiterin, Sozialarbeiter, Sozialpädagogin, Sozialpädagogin	Social worker, social education worker, social pedagogue
DIMENSION / LOCATION	Gemeinwesenorientiert, Sozialraumbezogen	Community-oriented, social space-related
PROBLEM CENTERING	Psychosoziale Probleme, psychosoziale Belastung, psychosoziale Versorgung, soziale Versorgung	Psychosocial problem, psychosocial burden, psychosocial care, social care
KNOWN STRUCTURES	Multidisziplinäre Primärversorgungsteams, Sozialarbeiter-Sprechstunde, Integrierte Versorgung	Multidisciplinary primary care teams, social worker office hour, integrated care

Appendix Table 2: "Keyword combination"

German	English
„Kooperation“ ODER „Zusammenarbeit“ ODER „Teamwork“ ODER „Interdisziplinär“ ODER „Interdisziplinarität“ ODER „Multidisziplinär“ ODER „Multidisziplinarität“ ODER „Interprofessionelle Zusammenarbeit“ ODER „Interprofessionalität“ ODER „Interprofessionell“ ODER „Gemeinwesenorientiert“ ODER „Sozialraumbezogen“	„Cooperation“ OR „collaboration“ OR „teamwork“ OR „interdisciplinary“ OR „interdisciplinarity“ OR „multidisciplinary“ OR „multidisciplinarity“ OR „interprofessional collaboration“ OR „interprofessionality“ OR „interprofessional“ OR „Community-oriented“ OR „Social space related“
UND „Hausärzt*innen“ ODER „Hausärztinnen“ ODER „Hausärzte“ ODER „Hausarzt“ ODER „Hausarztmedizin“ ODER „Allgemeinmedizin“ ODER „Allgemeinmediziner“ ODER „Allgemeinmedizinerinnen“ ODER „Allgemeinmediziner*innen“ ODER „Allgemeinärzt*innen“ ODER „Allgemeinarzt“ ODER „Allgemeinärztin“ ODER „Allgemeinärzte“ ODER „Primärversorgung“ ODER „multidisziplinäre Primärversorgungsteam“	AND „general practitioner“ OR „general practice“ OR „family physician“ OR „primary care“ OR „multidisciplinary primary care team“
UND „Fachkräfte Soziale Arbeit“ ODER „Sozialarbeiterinnen“ ODER „Sozialarbeiter“ ODER „Sozialarbeiter*innen“ ODER „Sozialpädagoginnen“ ODER „Sozialpädagoge“ ODER „Sozialpädagog*innen“ ODER „Sozialarbeiter-Sprechstunde“ ODER „Psychosoziale Probleme“ ODER „psychosoziale Belastung“ ODER „soziale Versorgung“ ODER „psychosoziale Versorgung“ ODER „integrierte Versorgung“	AND „Social worker“ OR „social education worker“ OR „social pedagogue“ OR „social worker office hour“ OR „psycho-social problems“ OR „psychosocial burden“ OR „social care“ OR „psychosocial care“ OR „integrated care“

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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for
Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	



SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: 10.7326/M18-0850.

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Collaboration between general practitioners and social workers: A scoping review

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1 Collaboration between general practitioners and social workers:

2 A scoping review

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Abstract

Objectives: Aim of the study is to present an overview of collaboration structures and processes between general practitioners and social workers, the target groups addressed as well the quality of available scientific literature.

Design: A scoping review following the guidelines of the PRISMA Statement, ScR Extension.

Included sources and articles: According to a pre-published protocol, three databases (PubMed, Web of Science, DZI SoLit) were searched using the participant-concept-context framework. The searches were performed on January 21st and on August 10th, 2021. Literature written in English and German since the year 2000 was included. Two independent researchers screened all abstracts for collaboration between general practitioners and social workers. Articles selected were analyzed regarding structures, processes, outcomes, effectiveness, and patient target groups.

Results: A total of 72 articles from 17 countries were identified. Collaborative structures and their routine differ markedly between health care systems: 36 publications present collaboration structures, 33 articles allow an insight into the processual routines. For all quantitative studies, a level of evidence was assigned. Various measurements are used to determine the effectiveness of collaborations, e.g. hospital admissions and professionals' job satisfaction. Case management as person-centered care for defined patient groups is a central aspect of all identified collaborations between general practitioners and social workers.

Conclusion: This scoping review showed evidence for benefits on behalf of patients, professionals, and health care systems by collaborations between general practitioners and social workers, yet more rigorous research is needed to better understand the impact of these collaborations.

Registration details: Open Science Framework: www.osf.io/w673q

Strengths and limitations of the study:

- Using the PRISMA Extension for Scoping Reviews, this study provides a detailed view of interprofessional collaborations between general practitioners and social workers.
- Measurements allowing for the evaluation of collaborative models are outlined.
- Articles included refer to the involvement of social workers in care processes for patients together with GPs without addressing social work from a bigger perspective.
- Despite the systematic approach, a risk of bias in the appraisal of the data cannot be fully excluded.

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Introduction

A 2021 bulletin of the World Health Organization (WHO) attributes 30 to 55% of health outcomes to social determinants of health (SDH) [1]. Social factors are relevant as risk and protective factors. For example, longitudinal data associated with the German Socio-Economic Panel Study (GSOEP) from 1995 till 2005 including 31,800 adults showed a remarkably lower healthy life expectancy for low compared to high income: stratified by gender a reduction of ten years for women and more than 14 years for men is described [2]. The 2008 Japan Public Health Center-based Prospective Study (JPHC Study) with 44,152 individuals demonstrated a 1.45-fold higher risk of stroke mortality for socially isolated men and women [3]. All social stressors enhance the risk of strain-related diseases [4]. Thus, the appropriate address of SDH is fundamental for improving health and reducing inequities that require collaborative action through all sectors [1].

General practitioners (GPs) treat patients with various social issues and different social contexts [5]. Cross-sectional studies outlined common psychosocial problems that are frequent in general practice: e.g., job problems, unemployment, intrafamilial problems, or loneliness [6]. GPs report that patients with SDH require higher consultation times [6, 7]. In recent qualitative research, German GPs reported feeling helpless when confronted with SDH which results in unmet care needs [8, 9]. In the last years, cooperation structures between general practitioners and social care professionals are emerging and range from pilot projects to routine implementations in selected countries or districts [10–13].

Collaborations between GPs and social workers are especially promising as both professions provide low-threshold, person-centered support. Like medicine, social work is based on the interaction of individuals and organizations dedicated to welfare in the state and society [14]. As human rights profession, it has a political and anti-discriminatory function that can strengthen social justice [15]. Social work professionals have a long tradition of cooperation with the medical profession in various health care institutions, e.g. hospitals [16, 17].

A 2018 systematic review by Fraser outlined the potential of collaborations between social workers (SW) and GPs based on 26 randomized control trials: integrated care improved patients' behavioral health outcomes and care processes significantly compared to routine primary care services without SW [18]. According to a 2017/18 survey of 80 German SWs, SWs believe that their patient-related work will be improved by collaborations with GPs [19]. Similarly, GPs are interested in cooperations with SWs, but various barriers exist [20]. Internationally, different forms of collaborations between SWs and GPs exist, yet no review is available. This scoping review addresses collaborations between general practitioners and social workers, focusing on their structures, processes, patient target groups, and effectiveness.

Methods

This scoping review followed the Joanna Briggs Institute (JBI) methodology for reviews [21–23] and the PRISMA Extension ScR [24]. The format of a scoping review was chosen because the available literature is heterogenous regarding content and methodologies, which does not allow for a systematic review or meta-analysis.

Protocol and registration

A protocol was registered prior to the review: www.osf.io/w673q

Eligibility criteria

This review aims at the wide range of interprofessional cooperation between GPs and SWs. Therefore, all study types published in English and German since 2000 were included.

Information sources and search strategy

Search parameters were defined based on the 'P-C-C'-approach (Population – Concept – Context) [21, 24]. The following search terms were selected on a meta-level:

(1) Population:

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3106a. Professional group #1: general practitioners
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5107b. Professional group #2: social worker
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7108(2) Concept:
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9109a. Collaboration
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11110(3) Context:
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13111a. Dimension, e.g. setting, community
14
15112b. Known structures, e.g., integrated care.
16
17
18113A combination of keywords was selected to link both professions or contexts to the concept.
19
20114The details on keywords and their combinations are provided as supplementary material
21
22115(Search strategy). Three well-known databases were searched: PubMed, DZI SoLit, and Web
23
24116of Science. PubMed was chosen as one of the most important databases for medicine
25
26117worldwide. DZI SoLit is one of the most important libraries for social work in German-speaking
27
28118countries and is curated by the German Central Institute for Social Issues (DZI) in Berlin. In
29
30119the Web of Science Core Collection, the “Social Work” category was searched to identify
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32120international evidence in the area of social work practice. A pilot search in the database
33
34121PubMed provided an enormous data volume; therefore we changed from a “MesH Terms” to
35
36122a “Title/Abstract” search. The same key term combination was applied in the Web of Science.
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39123In the German Central Institute for Social Issues, a librarian searched the internal database
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41124according to our keyword combinations. The search was piloted on January 21st, 2021, the
42
43125final search was conducted on August 10th, 2021.
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46126**Study selection, data charting, and methodological quality appraisal**
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49127After removing duplicates, two reviewers jointly developed a template for preselection: all
50
51128abstracts were screened using the P-C-C criteria: population, collaboration concept, context.
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53129The two reviewers charted the data independently and discussed the results thereafter.
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55130Following the study protocol, all selected articles were analyzed in full-text and categorized
56
57131regarding the following five aspects:
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59132

- Collaboration structure/ model

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- 133 • Patient population addressed (target group)
- 134 • (Functional) Impairment of patients
- 135 • Setting/ Country
- 136 • Measurements used to describe a collaboration's effectiveness [25].

137 Classifications of all articles were documented using a literature management program (QSR
138 CITAVI 6.10). All quantitative studies were rated for their methodology using the AHCPR levels
139 of evidence [26] by two researchers with a final review of a senior researcher.

140 **Summarizing and reporting the results**

141 Our qualitative content analysis clustered every source regarding 'structure' (e.g., general
142 practice, primary care center), 'process' (e.g., collaboration frame, roles, responsibilities), and
143 'target groups' (e.g., vulnerable groups, functional health). This summary allows for a
144 correlative view of single articles and thematic clusters.

145 **Risk of bias assessment**

146 This scoping review does not intend to appraise the risk of bias of the studies analyzed [27].

147 **Patient and public involvement**

148 No patient involved.

149

150 **Results**

151 **Selection of sources of evidence, exclusion criteria, and study characteristics**

152 The searches retrieved 1136 references. After removing duplicates, 1119 references remained
153 for preselection of which 882 were excluded for the following reasons (exclusion criteria):

- 154 1. References addressing diseases or temporary life circumstances that typically do not
155 require social work intervention (e.g., maternity care, COPD);

2. References describing interprofessional collaboration on a metalevel without addressing GPs and SWs specifically;
3. References about social worker practices without collaborations with GPs, and
4. References from patients' perspective not addressing collaborations.

The remaining 227 articles were imported into a literature management program for full-text analysis. During this process, all articles beyond the focus of this scoping review also were excluded:

5. Articles that describe social interventions without social workers (n=56),
6. Descriptions of health and social structures without collaboration between GPs and SWs (n=37),
7. Articles not involving the GP settings: in-hospital setting (n=17), pediatric setting, including child protection and child/youth psychiatry (n=18), emergency setting (n=5), and nursing homes (n=12).

The flow chart (Figure 1) summarizes the process of article selection.

72 articles from 17 countries were included in the review. 37.5% of the articles originated from North America (n=27), 26.4% from the UK (n=19), and 15.3 % from German-speaking countries (n=11). In descending order, the article types were: qualitative studies (n=24, 33.3%); program/project descriptions (n=11, 15.3%), mixed-methods studies (n=10, 13.9%), quantitative studies (n=8, 11.1%), narrative reviews/expert opinion (n=7, 9.7%), feasibility studies (n=5, 6.9%), systematic or scoping reviews (n=5; 6.9%), one reference books and study protocol. Nearly half of all articles were published since 2018. The study characteristics are outlined in Supplementary Table 1.

Levels of evidence (AHCPR) and measurements

An evidence level was assigned to 25 studies and three systematic reviews. The latter showed a level Ia evidence [18, 28, 29]. Additional four studies had high levels of evidence: a randomized controlled trial with mixed-methods design [30] was marked with level Ib. A level

1lb was assigned three times: for a longitudinal cohort study [31], an interventional non-randomized cohort study [32], and a quasi-experimental study [33]. For the remaining 44 articles, the level of evidence grading was not applicable.

Overall, studies used different measurements. In 23 studies, instruments to measure processes and/or outcomes were mentioned. Nine of 12 studies used standardized instruments to measure patients' psychosocial needs and/or physical functioning [30, 33–42], while the remaining three studies did not specify the instruments used. Eight studies measured patients' health care utilization including hospital (re-)admissions and the frequencies of emergency department visits [30–33, 37, 40, 43, 44]. In addition, characteristics of collaborative processes were measured, e.g., the number of referrals [37, 41, 45, 46], team climate, team development [32, 47–49], and professionals' job satisfaction [31–33, 38, 48, 50]. Cost-effectiveness measurements were addressed in three studies [30, 47, 51].

Collaboration structures and the degree of implementation

Collaborations between SWs and GPs differ markedly between health care systems. We categorized collaborations in: collaboration within the same practice/ institution (e.g. community health center, interprofessional practice) (n=17) [35, 38, 40, 42, 48, 51–62] and collaboration of GPs and SWs from separate institutions (e.g. GPs from a practice collaborating with SWs employed by a public institution) (n=21) [20, 35, 43, 44, 46, 47, 53, 63–76].

The degree of routine implementation of the several collaborations varies between health care systems. The two most advanced collaborations are realized in the UK and Canada. Routine enactment is implemented in the UK, in particular established with social prescribing [68, 77] and Primary Care Networks (PCN) [78] embedded in the National Health Service (NHS) Long Term Plan [79][79]. In Ontario, Canada, Family Health Teams (FHT) provide community-oriented primary health services [56, 80, 81]. In Germany, general practitioners and social workers collaborate in specialized practices, e.g., for patients with addiction disorders including alcohol dependency [46, 71], yet there are no routine collaborations between GPs and SWs.

Regional models for special patient groups like patients with addiction are also emerging in Switzerland [69]. Primary Care Social Work (PCSW) as part of primary health care teams is also described from Ireland [50] as a community-oriented implementation [82]. Table 1 outlines the details for the respective publications.

Categories		Method	Level of evidence (AHCPR)	Publication year	Country of origin	Ref.
General practitioners and social workers/ social care professionals in the same practice/ institution, n=17	Interprofessional collaboration in practices, n=10	Mixed-methods study	III	2005	UK	[42]
		Quantitative study	III	2020	USA	[35]
		Quantitative study	III	2019	USA	[52]
		Qualitative study	n.a.	2021	UK	[53]
		Qualitative study	n.a.	2017	USA	[54]
		Qualitative study	n.a.	2010	USA	[55]
		Description of a care model	n.a.	2019	Germany	[56]
		Narrative review	n.a.	2012	Germany	[57]
		Description of a care model	n.a.	2009	Netherlands	[58]
		Description of a care model	n..a.	2000	USA	[59]
	Primary Care Centers/ Community Health Centers, n=7	Mixed-methods study	III	2019	Mexico	[38]
		Quantitative study	III	2017	Canada	[48]
		Quantitative study	III	2016	USA	[40]
		Quantitative study	IV	2018	Finland	[60]
		Qualitative study	n.a.	2021	Spain	[61]
		Study protocol	n.a.	2018	USA	[62]
		Program description	n.a.	2005	USA	[51]
Collaboration of general practitioners in practice and social workers/ social care professionals in separate institutions, n=21		Mixed-methods study	III	2018	Netherlands	[47]
		Mixed-methods study	III	2014	UK	[43]
		Mixed-methods study	IV	2003	UK	[75]
		Quantitative study	III	2020	USA	[35]
		Quantitative study	III	2007	Germany	[46]
		Quantitative study	IV	2013	Australia	[44]
		Qualitative study	n.a.	2021	Denmark	[64]
		Qualitative study	n.a.	2021	UK	[53]
		Qualitative study	n.a.	2020	Denmark	[65]
		Qualitative study	n.a.	2020	Germany	[63]

	Qualitative study	n.a.	2019	UK	[20]
	Qualitative study	n.a.	2018	Netherlands	[66]
	Qualitative study	n.a.	2018	UK	[67]
	Qualitative study	n.a.	2017	UK	[68]
	Qualitative study	n.a.	2015	UK	[70]
	Qualitative study	n.a.	2013	UK	[72]
	Qualitative study	n.a.	2013	Canada	[73]
	Qualitative study	n.a.	2003	UK	[74]
	Qualitative study	n.a.	2000	USA	[76]
	Description of a care model	n.a.	2015	Switzerland	[69]
	Reference book	n.a.	2013	Germany	[71]

Table 1: Structures of collaboration between general practitioners and social workers, n=36

n.a.= not applicable, Ref. = Reference

Processes of collaboration

All collaborations between GPs and SWs target special patient groups in form of the case- and care management which were described in more detail in 49 of these 72 articles.

Specific formats of collaborations were identified in 33 articles:

- 1.) Joint discussions, e.g., round tables and team meetings (n=21) [18, 28, 30, 32, 40, 44, 47, 49, 53, 59, 61, 67, 69, 72–74, 76, 80, 83–85];
- 2.) Referrals from GP practice or interprofessional groups to social workers (n=11) [32, 43, 46, 53, 55, 59, 60, 68, 71, 84, 86], which sometimes is phrased as ‘social prescribing’ in the literature;
- 3.) Vice versa, referral from social workers to the primary care setting/ GP practice (n=5) [34, 52, 65, 87, 88].

Surprisingly, these processes are already implemented routinely in some countries, e.g., the United Kingdom. Details are presented in Table 2.

Categories	Method	Level of evidence (AHCPR)	Publication year	Country of origin	Process routine		Ref.
					Pilot projects	Established practice	
Joint discussions, e.g. team meetings, round tables, n=21	Systematic review	Ia	2018	USA		X	[18]
	Systematic review	Ia	2015	Netherlands		X	[28]
	Mixed-methods study	Ib	2018	UK	X*		[30]
	Quantitative study	IIa	2015	USA		X	[32]
	Mixed-methods study	III	2019	Canada	X		[80]
	Mixed-methods study	III	2018	Netherlands	X		[47]
	Quantitative study	III	2016	USA	X		[40]
	Mixed-methods study	III	2013	Australia		X	[44]
	Quantitative study	IV	2017	UK	X		[49]
	Qualitative study	n.a.	2021	UK		X*	[53]
	Qualitative study	n.a.	2021	Spain		X	[61]
	Qualitative study	n.a.	2019	USA	X		[83]
	Qualitative study	n.a.	2018	UK		X	[67]
	Qualitative study	n.a.	2013	Canada		X	[73]
	Qualitative study	n.a.	2013	UK		X	[72]
	Qualitative study	n.a.	2003	UK		X	[74]
	Qualitative study	n.a.	2000	USA	X		[76]
	Narrative review	n.a.	2015	Switzerland		X	[69]
	Narrative review	n.a.	2014	USA		X	[84]
	Narrative review	n.a.	2014	USA	X		[85]
	Narrative review	n.a.	2000	USA		X	[59]
Referral from general practice or interprofessional groups to a social worker, n=11	Quantitative study	IIa	2015	USA		X	[32]
	Mixed-methods study	III	2014	UK		X	[43]
	Quantitative study	III	2007	Germany		X	[46]
	Quantitative study	IV	2018	Finland		X	[60]
	Qualitative study	n.a.	2021	USA		X	[86]
	Qualitative study	n.a.	2021	UK		X*	[53]
	Qualitative study	n.a.	2017	UK		X*	[68]
	Qualitative study	n.a.	2010	USA	X		[55]
	Reference book	n.a.	2013	Germany	X	X	[71]

	Narrative review	n.a.	2014	USA		X	[84]
	Narrative review	n.a.	2000	USA		X	[59]
Referral from social worker to general practice or interprofessional groups, n=5	Mixed-methods study	III	2021	USA	X		[34]
	Quantitative study	III	2019	USA		X	[52]
	Qualitative study	n.a.	2020	Denmark		X	[65]
	Qualitative study	n.a.	2012	USA		X	[88]
	Narrative review	n.a.	2019	UK		X	[87]

Table 2: Processes of collaboration between general practitioners and social workers, n=33

n.a. = not applicable, Ref. = Reference

*social prescribing

It is remarkable that the majority of articles from the category “referral from social worker to general practice or interprofessional groups” were published since 2019. We used the term „referral“ to describe any recommendation to contact and/or interact with another health care professional. In some settings, the term “social prescribing” is used instead. For example, social prescribing is a key component of universal personalized care in the NHS [11] and a prime example of collaboration between GPs and SWs. Also, different terms are used to describe the roles of SWs, e.g., ‘informal broker’ [88] or ‘accompaniment’ [65].

Target groups

According to our synthesis, collaborative care is targeting special patient groups with high needs, such as geriatric patients and those with mental health problems. The frequencies of the various target groups addressed are presented in Figure 2 based on a total of 46 articles. In five of these publications, several target groups are addressed. Geriatric patients are focused in 22 articles [28–30, 32, 33, 35, 40–42, 52, 53, 55, 63, 66, 67, 70, 72, 73, 76, 84, 89, 90] with additional five articles specifically addressing geropsychiatric patients [36, 47, 80, 87, 91]. Other risk groups are adults with complex care needs (n=10) [40, 52, 53, 60, 62, 64, 81, 92–94] as well as those requiring palliative (n=2) [34, 43] and oncological (n=1) care [37]. Mental diseases are addressed in nine articles [36, 38, 44, 51, 65, 74, 85, 87, 95], while an additional five articles detail collaboration issues for patients affected by addiction [46, 62, 69, 71, 96, 97].

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Discussion

Our scoping review showed that patient-centered case management is central in professional collaborations between GPs and SWs from various countries. However, otherwise, such collaborations differ by structure, process, and patient target groups. Also, the degree of scientific evaluation and evidence of the effectiveness, as well as the routine implementation of the described collaborations, varies markedly.

Currently, the highest evidence for effective collaborations between GPs and SWs is described in a longitudinal US cohort study published in 2019 which included 4,230 patients with 167 care professionals including both professional groups. Higher connectedness and higher access to other providers in the community significantly reduced inpatient hospitalizations and emergency department visits [31]. Also in the US, similar results were achieved by the 2014 adaption of the “Geriatric Resources for Assessment and Care of Elders (GRACE)” model [98], which increased patients' quality of life and decreased hospitalization rates [40].

Aiming at the best possible integrated care for various patient groups, many studies address the roles and interactions of the participating professionals [35, 48, 66, 89]. Schultz et al. emphasize the need to clearly define the roles of all professionals involved to ensure integrated care in the best possible way [64]. This requires appropriate interprofessionaleducation [53, 66, 81, 84, 87]. Knowledge about each other creates an increased awareness of the importance of collaborative skill development which needs to be reflected in curricula for GP and SW education [99, 100]. Within and between institutions, and organizational learning culture is needed to support integrated care by interprofessional teams [101].

Our literature review showed that current collaborative models mainly target geriatric and psychiatric patients. However, social determinants of health (SDH) are much broader, and even highly prevalent problems such as functional health, loneliness, debts, family problems,

and violence have not been addressed in studies although these are known to negatively influence health outcomes [102–104].

Strengths and limitations

A detailed search and analysis of the heterogenous articles retrieved were carried out following the PRISMA_ScR guideline. Based on the P-C-C approach, a detailed view of various aspects of collaborations between general practitioners and social workers was presented. Various formats for collaborative, person-centered care processes were highlighted. Measurements allowing for the evaluation of collaborative models were outlined. Articles included refer to the involvement of social workers in care processes for patients together with GPs without addressing social work from a bigger perspective. Despite the systematic approach, a risk of bias in the appraisal of the data cannot be fully excluded.

Conclusion and perspectives

This scoping review outlined models and strategies to improve SDH by collaborations between GPs and social workers. For transferability, the described best practice models need to be shaped for the respective health care system. Although a lack of rigorous research in this field was documented, there is profound evidence of benefits on behalf of patients, professionals, and health care systems by close collaborations between GPs and SWs. Future research needs to measure the impact of different forms of collaboration in health care systems.

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Patient consent for publication

Not applicable.

Ethics approval

This study is a scoping literature review and did not involve participant data collection. Therefore, ethical approval was not required.

Contributorship statement

CL and BW developed the research question and study design. CL curated the data; CL and PM reviewed all records and analyzed the data. CL, PM, SS, and BW interpreted the data and results. BW supervised the process. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

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Data sharing statement

No additional data available.

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Supplementary material

Supplementary Table 1: Study characteristics and content of all included articles, N=72
Supplementary material: Search strategy

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638 **Figure legend**

639 Figure 1: PRISMA flow diagram

640 Figure 2: Target groups of collaboration between general practitioners and social workers,
641 n=46

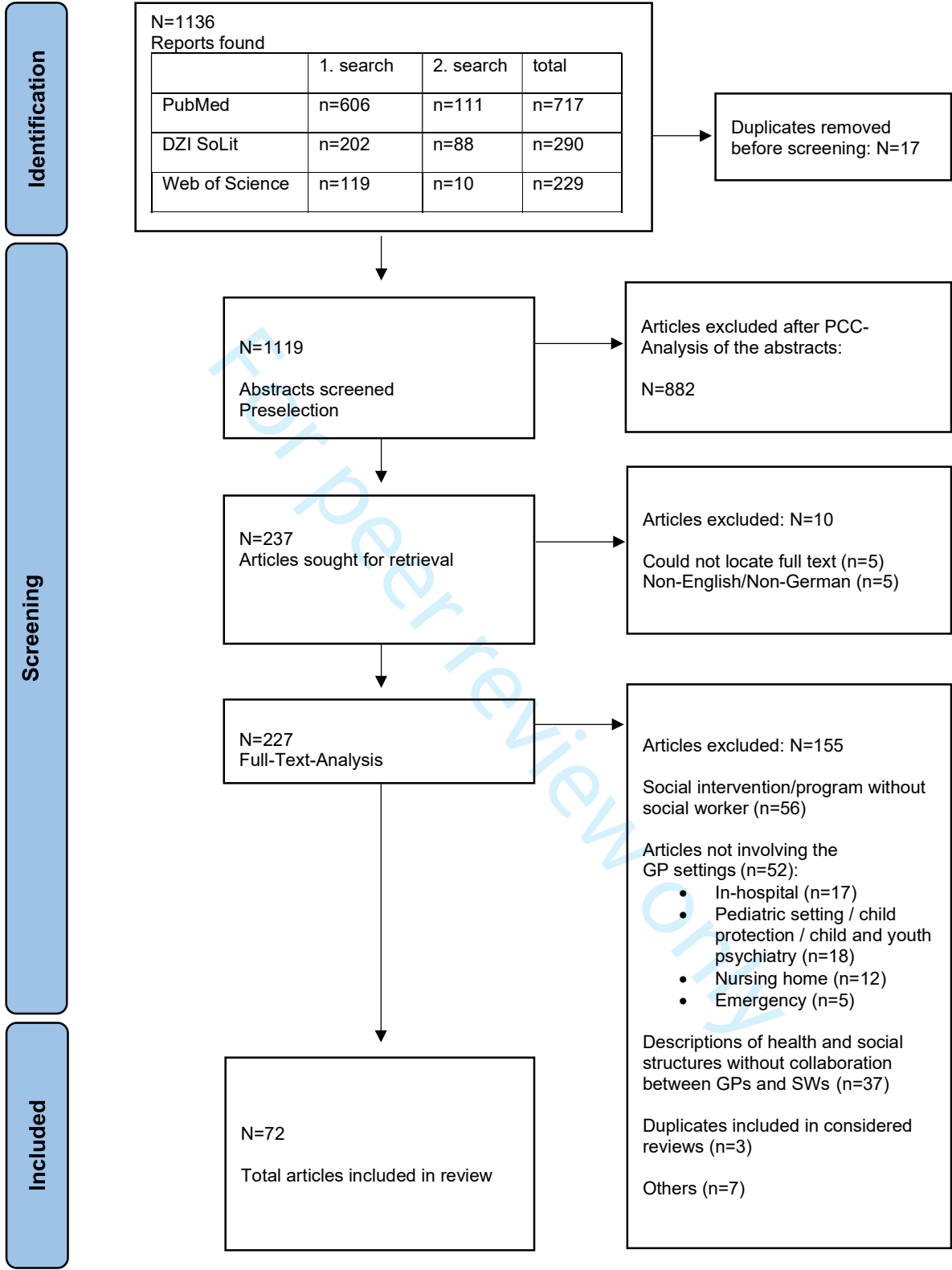


Figure 1: PRISMA flow diagram

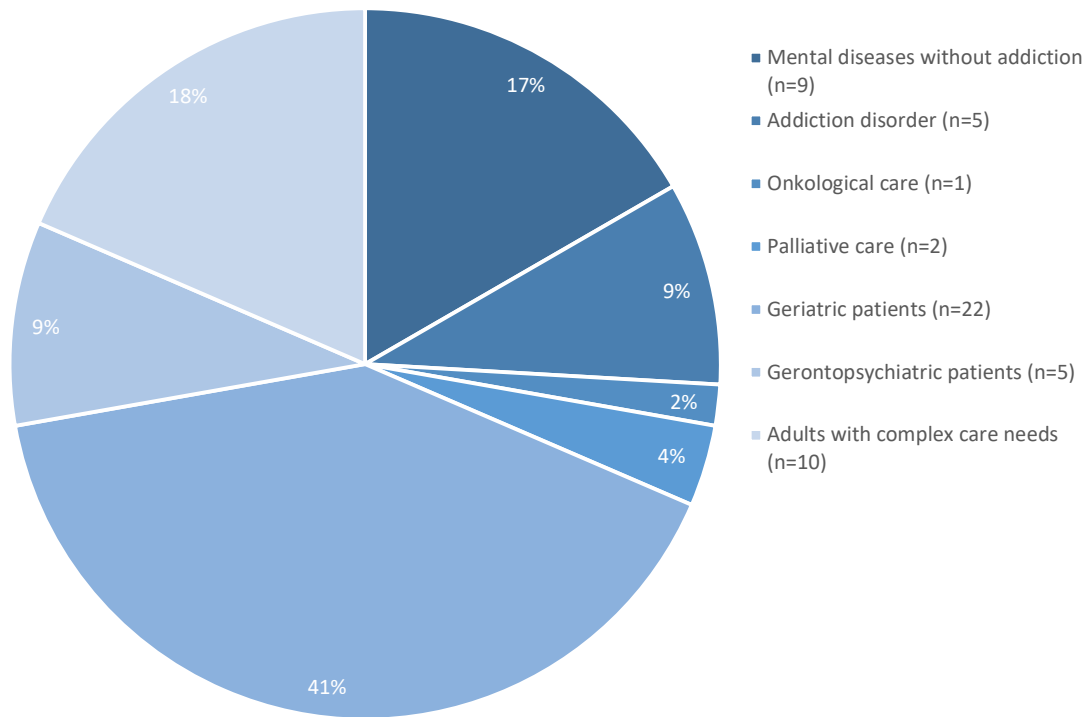


Figure 2: Target groups of collaboration between general practitioners and social workers, n=46

Supplementary Material
Search Strategy

Database	PubMed	DZI SoLit	Web of Science
Web	https://pubmed.ncbi.nlm.nih.gov/advanced/	https://www.dzi.de/soziale-literatur/bibliothek/rechercheauftrag/	https://www.webofscience.com/wos/woscc/advanced-search
Dates of search	2021-21-01 and 2021-10-08		
Searchers	Authors	Librarian	Authors
Selected Field	Title/Abstract	All Fields	Topic / Category "Social Work"
Query	((„Kooperation" OR „Zusammenarbeit" OR „Teamwork" OR „Interdisziplinär" OR „Interdisziplinarität" OR „Multidisziplinär" OR „Multidisziplinarität" OR „Interprofessionelle Zusammenarbeit" OR „Interprofessionalität" OR „Interprofessionell" OR „Gemeinwesenorientiert" OR „Sozialraumbezogen" OR „Cooperation" OR „collaboration" OR „teamwork" OR „interdisciplinary" OR „interdisciplinarity" OR „multidisciplinary" OR „multidisziplinarität" OR „interprofessional collaboration" OR „interprofessionalität" OR „interprofessional" OR „Community-oriented" OR „Social space related") AND („Hausärzt*innen" OR „Hausärztinnen" OR „Hausärzte" OR „Hausarzt" OR „Hausarztmedizin" OR „Allgemeinmedizin" OR „Allgemeinmediziner" OR „Allgemeinmedizinerinnen" OR „Allgemeinmediziner*innen" OR „Allgemeinärzt*innen" OR „Allgemeinarzt" OR „Allgemeinärztin" OR „Allgemeinärzte" OR „Primärversorgung" OR „multidisziplinäre Primärversorgungsteam" OR „general practitioner" OR „general practice" OR „family physician" OR „primary care" OR „multidisciplinary primary care team") AND („Fachkräfte Soziale Arbeit" OR „Sozialarbeiterinnen" OR „Sozialarbeiter" OR „Sozialarbeiter*innen" OR „Sozialpädagoginnen" OR „Sozialpädagoge" OR „Sozialpädagog*innen" OR „Sozialarbeiter-Sprechstunde" OR „Psychosoziale Probleme" OR „psychosoziale Belastung" OR „soziale Versorgung" OR „psychosoziale Versorgung" OR „integrierte Versorgung" OR „Social worker" OR „social education worker" OR „social pedagog" OR „social worker office hour" OR „psycho-social problems" OR „psycho-social burden" OR „social care" OR „psycho-social care" OR „integrated care"))	((„Kooperation" ODER „Zusammenarbeit" ODER „Teamwork" ODER „Interdisziplinär" ODER „Interdisziplinarität" ODER „Multidisziplinär" ODER „Multidisziplinarität" ODER „Interprofessionelle Zusammenarbeit" ODER „Interprofessionalität" ODER „Interprofessionell" ODER „Gemeinwesenorientiert" ODER „Sozialraumbezogen" ODER „Cooperation" ODER „collaboration" ODER „teamwork" ODER „interdisciplinary" ODER „interdisciplinarity" ODER „multidisciplinary" ODER „multidisziplinarität" ODER „interprofessional collaboration" ODER „interprofessionalität" ODER „interprofessional" ODER „Community-oriented" ODER „Social space related") UND („Hausärzt*innen" ODER „Hausärztinnen" ODER „Hausärzte" ODER „Hausarzt" ODER „Hausarztmedizin" ODER „Allgemeinmedizin" ODER „Allgemeinmediziner" ODER „Allgemeinmedizinerinnen" ODER „Allgemeinmediziner*innen" ODER „Allgemeinärzt*innen" ODER „Allgemeinarzt" ODER „Allgemeinärztin" ODER „Allgemeinärzte" ODER „Primärversorgung" ODER „multidisziplinäre Primärversorgungsteam" ODER „general practitioner" ODER „general practice" ODER „family physician" ODER „primary care" ODER „multidisciplinary primary care team") UND („Fachkräfte Soziale Arbeit" ODER „Sozialarbeiterinnen" ODER „Sozialarbeiter" ODER „Sozialarbeiter*innen" ODER „Sozialpädagoginnen" ODER „Sozialpädagoge" ODER „Sozialpädagog*innen" ODER „Sozialarbeiter-Sprechstunde" ODER „Psychosoziale Probleme" ODER „psychosoziale Belastung" ODER „soziale Versorgung" ODER „psychosoziale Versorgung" ODER „integrierte Versorgung" ODER „Social worker" ODER „social education worker" ODER „social pedagog" ODER „social worker office hour" ODER „psycho-social problems" ODER „psycho-social burden" ODER „social care" ODER „psycho-social care" ODER „integrated care"))	TS=(Cooperation OR collaboration OR teamwork OR interdisciplinary OR interdisciplinarity OR multidisciplinary OR multidisziplinarität OR interprofessional collaboration OR interprofessionalität OR interprofessional OR Community-oriented OR social space related) AND TS=(general practitioner OR general practice OR family physician OR primary care OR multidisciplinary primary care team) AND TS=(Social worker OR social education worker OR social pedagog OR social worker office hour OR psycho-social problems OR psycho-social burden OR social care OR psycho-social care OR integrated care)

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Supplementary Table 1
Study characteristics and content of all included articles, N=72

	Author (year of publication)	Country of origin	Study design	Setting	Professionals			Target group	Key term (processes)	Key term (context)	Ref- erence
					GP	SW	Nurse				
1	Ashcroft, R.; Kourgiantakis, T. et al. (2018)	Canada	Scoping review	Primary Mental Health Care	x	x	(x)	Mentally ill patients	Social workers in practice	Interprofessional primary care health teams	[1]
2	Ashcroft, R., McMillan, C. et al. (2018)	Canada	Cross-sectional study	Primary Health Care	x	x	x	Mentally ill patients	Case management	Ontario Family Health Teams (FHT)	[2]
3	Batchelor, P. & Kingsland, J. (2020)	UK	Narrative review / expert opinion	Primary Care	x	x	x	Homeless people	Networking	Primary Care Network (PCN), National Health Service (NHS)	[3]
4	Bauer, D. et al. (2005)	USA	Project description	Primary Care	x	x	x	Patients with mental illness and/or low-income	Behavioral health therapeutic interventions	Primary Care Center (Pennsylvania)	[4]
5	Berner, B. & Floh, S. (2017)	Austria	Narrative review / expert opinion	Primary Care	x	x		Homeless people	Low-threshold integrated care	[Gesundheitliche Chancengleichheit]	[5]
6	Berrett-Abebe, J. et al. (2020)	USA	Cross-sectional study	Community Health	x	x	x	Frail elderly patients	Role of social workers in integrated care	Community health worker and social worker	[6]
7	Beushausen, J. & Caby, A. (2012)	Germany	Narrative review / expert opinion	Social Work	x	x		Vulnerable groups, especially patients with an addiction disorder	Role of social workers in primary care	-	[7]
8	Bower, P. et al. (2018)	UK	Mixed-methods study	Primary Care	x	x	x	Elderly patients	Implementation of joint up care	Salford Integrated Care Program (SICP)	[8]
9	Bowers, L. et al. (2003)	UK	Qualitative study with focus groups	Community Care	x	x	x	Mentally ill patients	Compulsory admission	Multidisciplinary community mental health teams	[9]
10	Buhr, G. et al. (2019)	USA	Feasibility study	Primary Care	x	x	x	Elderly patients with cognitive impairment	Geriatric assessment	Geriatric Resource Teams (GRT)	[10]
11	Burroughs, H. et al. (2019)	UK	Feasibility study	Community Care	x			Elderly patients with anxiety and depression	Community-based psychosocial intervention	Non-traditional support workers	[11]
12	Chan, B. et al. (2018)	USA	Study protocol	Primary Health Care		x	x	Complex patients	Ambulatory intensive care unit intervention	Streamlined unified meaningfully managed interdisciplinary team (SUMMIT)	[12]
13	Coleman, A. & Rummary, K. (2003)	UK	Mixed-methods study	Primary Care	x	x	x	Primary care patients	Social services representation	Primary Care Groups/ Trusts (PCG/PCT)	[13]

Supplementary Table 1
Study characteristics and content of all included articles, N=72

14	Dambha-Miller, H. et al. (2021)	UK	Qualitative interview study	Primary Care	x	x	x	Elderly patients with multimorbidity	Integrated care barriers and facilitators	e.g. social prescribing	[14]
15	Davey, B. et al. (2005)	UK	Feasibility study	Primary Care	x	x	x	Elderly patients with complex needs	Integrated care	Primary Care Groups/ Trusts PCG/PCT; National Health Service (NHS), Community Health Services Trust	[15]
16	Davidsen, A. S. et al. (2020)	Denmark	Feasibility study	Mental Health Care	x	x		Patients with severe mental illness	Trans-sectoral treatment	Social psychiatry	[16]
17	Do Céu Barbieri-Figueiredo, M. et al. (2017)	Portugal	Description of a care model	Primary Health Care	x		x	Primary care patients	Role of nurses primary care	Family Health Nurse Specialist	[17]
18	Dongen van, J. J. J. et al. (2018)	Netherlands	Prospective project evaluation	Primary Care	x	x	x	Primary care patients	Multifaceted program to enhance team functioning	Interprofessional team (IPT)	[18]
19	Draper, B. et al. (2018)	Australia	Narrative review / expert opinion	Primary Care	x	x	x	Patients with dementia and other cognitive disorders	Integrated care	-	[19]
20	Drennan, V. et al. (2005)	UK	Feasibility study	Primary Care	x		x	'At risk' elderly patients	Health promotion	Specialist health and social care team	[20]
21	Ferrante, J. M. et al (2010)	USA	Qualitative cross-case comparative study	Primary Care	x	x		Elderly patients	Case management	Patient Navigator (PN)	[21]
22	Finker, S. (2017)	Austria	Narrative review / expert opinion	Social Work	x	x		Primary care patients	Role of social workers in integrated care	[Primärversorgungs-gesetz]	[22]
23	Fraser, M. W. et al. (2018)	USA	Systematic review	Primary Care	x	x	x	Primary care patients	Role of social workers in integrated care	Interprofessional team (IPT)	[23]
24	Gadient, M. (2015)	Switzerland	Description of a care model	Primary Care	x	x		Patients with an addiction disorder	Addiction counseling	[Forum Suchtmedizin Ostschweiz (FOSUMOS)], [Ambulanter Strukturierter Alkoholentzug Sargans (ASAES)]	[24]

Supplementary Table 1

Study characteristics and content of all included articles, N=72

25	García-Quinto, M. et al. (2021)	Spain	Qualitative interview study	Primary Health Care	x	x		Intimate partner violence cases	Case management	Primary health care centers (PHCC)	[25]
26	Grol, S. M. et al. (2018)	Netherlands	Qualitative study with focus groups	Primary Care	x	x	x	Elderly patients	Role of the general practitioner	Multidisciplinary teams	[26]
27	Hanratty, B. et al. (2014)	UK	Mixed-methods study	Primary Care	x	x	x	Elderly patients	Transitions at the end of life	-	[27]
28	Happell, B. et al. (2013)	Australia	Cross-sectional study	Mental Health Care	x	(x)	x	Patients with serious mental illness	Collaboration of Mental Health Nurses and Physical health care professionals	Mental Health Nurse Incentive Program (MHNIP)	[28]
29	Harris, M. et al. (2013)	UK	Qualitative study with case discussions	Health Care Services	x	x	x	Complex patients	Interdisciplinary communication	Multidisciplinary Group (MDG) meetings	[29]
30	Jego, M. et al. (2018)	France	Literature review	Primary Care	x	x	x	Homeless people	Health care management	Primary care programs	[30]
31	Jong de, F. J. et al. (2009)	Netherlands	Description of a care model	Primary Care	x	x	x	Patients with major depression disorder	Implementation of the collaborative care model	Depression Initiative; Care manager (CM)	[31]
32	Kassianos, A. P. et al. (2015)	UK	Qualitative interview study	Health Care Services	x	x		Elderly patients with diabetes	Multidisciplinary group meetings	North West London Integrated Care Pilot	[32]
33	Keefe, B. et al. (2009)	USA	Qualitative study with focus groups	Primary Care	x	x	x	Elderly patients	Integrated care	Primary care team	[33]
34	Kharicha, K. et al. (2004)	UK	Narrative review / expert opinion	Primary Care	x	x	x	Elderly patients	Process measures for evaluation of Collaborative working	Collaborative working (CW); Primary Care Trusts (PCT)	[34]
35	Lang, C. et al. (2019)	Germany	Qualitative interview study	Primary and Specialist Care	x			Elderly patients with multimorbidity and multi medication	Interprofessional collaboration	-	[35]
36	Leach, B. et al. (2017)	USA	Qualitative study with focus groups	Primary Care	x	(x)	x	Primary care patients	Integrated care	Primary care multidisciplinary team	[36]
37	Lee, L. et al. (2019)	Canada	Mixed-methods study	Primary Care	x	x	x	Patients with dementia	Integrated care	Primary Care Collaborative Memory Clinic (PCCMC)	[37]
38	Lesser, J. G. (2000)	USA	Description of a care model	Primary Care	x	x	(x)	Primary care patients	Interprofessional collaboration	Pioneer Valley Professionals (PVP)	[38]
39	Naqvi, D. et al. (2019)	UK	Qualitative interview study	Primary care	x	x		Primary care patients	Integrated care	London-based GP surgeries	[39]

Supplementary Table 1
Study characteristics and content of all included articles, N=72

40	Netting, F. E. & Williams, F. G. (2000)	USA	Qualitative interview study	Primary Care	x	x	x	Elderly patients	Case management	-	[40]
41	Ní Raghallaigh, M. et al. (2013)	Ireland	Cross-sectional study and focus group	Primary Care	x	x	x	Primary care patients	Generic role of social workers	Primary Care Social Work (PCSW)	[41]
42	Nielsen, H. W. (2002)	Germany	Description of a care model	Social Work	x	x		Patients with addiction disorders	Addiction counseling	-	[42]
43	Oliva, H. & Walter-Hamann, R. (2013)	Germany	Reference book	Social Work	x	x	x	Patients with addiction disorders	Addiction counseling	-	[43]
44	Ostovari, M. & Yu, D. (2019)	USA	Longitudinal cohort study	Health Care Services	x	x		Patients with diabetes, hypertension, and/or hyperlipidemia	Interprofessional collaboration impact on patient outcomes	Care provider network	[44]
45	Pollard, R. Q. et al. (2014)	USA	Descriptions of care models	Primary Care	x	x	x	Children with special needs, people with serious mental illness, refugees, and deaf people	Integrated care	Promoting Resources for Integrated Care and Recovery (PRICARe); Mental Health Center of Denver (MHCD)	[45]
46	Rayner, J. & Muldoon, L. (2017)	Canada	Cross-sectional study	Community Care	x	x	x	-	Integrated care	Community health center primary care team	[46]
47	Reckrey, J. M. et al. (2014)	USA	Project description	Home-based care	x	x	x	Home-bound patients	Role of social workers	Mount Sinai Visiting Doctors Program (MSVD); Home-Based Primary Care	[47]
48	Reckrey, J. M. et al. (2015)	USA	Interventional non-randomized cohort study	Home-based care	x	x	x	Home-bound patients	Case management	MSVD	[48]
49	Risi, L. et al. (2017)	UK	Longitudinal study	Community Care	x	x	x	Chronically ill patients	'Virtual Wards'	Interdisciplinary Teams (IDTs), Handy Approach	[49]
50	Riste, L. K. et al. (2018)	UK	Multiple qualitative study	Integrated care	x	x	x	Elderly patients	Person-centered care	Multidisciplinary Group (MDG)	[50]
51	Ritchie, C. et al. (2016)	USA	Retrospective implementation study	Primary Care	x	x	x	'High-risk' patients	Integrated care	Primary care team	[51]

Supplementary Table 1

Study characteristics and content of all included articles, N=72

52	Ross, H. et al. (2021)	USA	Retrospective comparative study	Home-based care	x	x	x	Adult patients discharged from hospital	Role of social workers	Hospital at Home (HaH) care delivery team	[52]
53	Saavedra, N. I. et al. (2019)	Mexico	Mixed-methods study	Primary Care	x	x	x	Mentally ill patients	Role of social workers	Primary care centers	[53]
54	Schepman, S. et al. (2015)	Netherlands	Systematic review	Primary Health Care	x	x	x	Diverse	Integrated care	-	[54]
55	Schouten, B. et al. (2019)	Belgium	Cross-sectional study	Cancer care	x	x	x	Patients with cancer	Management of psychosocial issues	-	[55]
56	Schultz, R. et al. (2021)	Denmark	Qualitative interview study	Health Care Services	x	x	x	Patients with chronic widespread pain	Case management	-	[56]
57	Shanske, S. et al. (2012)	USA	Case study	Social Care	x	x		Young adults	Case management	Transition Brokers	[57]
58	Sotomayor, C. R. & Gallagher, C. M. (2019)	USA	Case study	Primary Care	x	x	x	Diverse	Case management	Clinical Ethicist	[58]
59	Stampa de, M. et al. (2013)	Canada; France	Grounded theory	Primary Care	x	x	x	Frail elderly patients	Integrated care	System of Integrated Care for Older Patients (SIPA) and Coordination of Care for Older Patients (COPA)	[59]
60	Stokes, J. et al. (2015)	UK	Meta-analysis	Primary Care	x	x	x	Patients 'at risk' of hospitalization	Case management	Self-reported health status	[60]
61	Stokes, J. et al. (2018)	UK	Qualitative interview study	Integrated Primary and Acute Care	x	x		'High-risk' patients	Case management	Multidisciplinary team ; 'Integrated primary and acute care system' (PACS)	[61]
62	Stumm, J. et al. (2020)	Germany	Qualitative study with focus groups	Primary Care	x	x		Multimorbid patients	Cooperation of general practitioner and non-medical practitioner	-	[62]
63	Ulbricht, S. et al. (2007)	Germany	Cross-sectional study	Primary Care	x	x		Patients with an addiction disorder	Addiction counseling	[Schwerpunktpraxen „Sucht“]	[63]
64	Ulrich, L. R. et al. (2019)	Germany	Description of a care model	Primary Care	x	x	x	Focus on chronically ill patients	Integrated care	Ontario FHT	[64]
65	Vedel, I. et al. (2009)	Canada; France	Quasi-experimental study	Primary Care	x	x	x	Frail elderly patients	Integrated care	Coordination of Professional Care for the Elderly (COPA)	[65]
66	Vehko, T. et al. (2018)	Finland	Vignette study	Primary Health Care	x	x	x	Primary care patients	Integrated care	Finnish health centers	[66]

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Supplementary Table 1
Study characteristics and content of all included articles, N=72

67	Wahler, E. A. & Sullivan, W. P. (2017)	USA	Description of a care model	Primary Care	x	x		Low-income substance abusers with comorbid health conditions	Case management	Chronic care model (CCM); Interdisciplinary Teams	[67]
68	Wang, X. M. & Agius, M. (2019)	UK	Description of a care model	Primary Care		x	x	Mentally ill patients	Case management	Care coordinators	[68]
69	Welti, F. (2008)	Germany	Narrative review / expert opinion	Medical Rehabilitation	x	x	x	Rehab patients	Interprofessional collaboration	-	[69]
70	White, J. M. et al. (2017)	UK	Qualitative interview study	Primary Health Care	x	(x)	x	Primary care patients	Social prescribing	Third sector practitioners	[70]
71	Williams, V. N. et al. (2021)	USA	Case study	Primary Care	x	x	x	Young families experiencing social and economic adversities	Interprofessional collaboration	Nurse home visitors in Nurse--Family Partnership (NFP)	[71]
72	Yeo, G. T. S. et al. (2021)	Singapore	Qualitative interview study	Community Care	x	x	x	Complex patients	Case management	Community case managers; Primary care team	[72]

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Supplementary Table 1

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Supplementary Table 1
Study characteristics and content of all included articles, N=72

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Supplementary Table 1

Study characteristics and content of all included articles, N=72

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Supplementary Table 1
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Supplementary Table 1

Study characteristics and content of all included articles, N=72

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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for
Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	



SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med*. 2018;169:467–473. doi: 10.7326/M18-0850.