Supplemental material

Study ID	HRQOL Allocation concealment	Baseline outcome measuremen ts similar	Baseline characteristi cs similar	Incomplete outcome data	Knowledge of the allocated intervention s adequately prevented during the study	Protection against contaminati on	Selective outcome reporting	Other risks of bias	Overall Judgement per study	Overall judgement for outcome
Kangovi et al. 2018, RCT, SF-12	Low risk: centralised randomisatio n scheme	Low risk: Baseline outcome measures were similar	Low risk: there were slighly more participants of hispanic ethnicity in one arm-0 vs 3.7%	Low risk: 79% ad 81% f/up in int and control and multiple imputation techniques used for missing data	Unclear risk: not possible to blind to intervention and outcome was patient reported, although RAs collecting data were blinded	Unclear risk: randomisation was at the patient level, however unlikely controls received the intervention, but not explicitedly stated whether intervention was avaiable outside the trial setting	Low risk: all outcomes are reporoted	Unclear:The authors offer commerical consulting services on setting up similar CHW interventions since 2018 after this publication	Low risk: low risk of bias in 6/9 areas, and other areas unlikely to have significant impact on ROB. While the paper is at risk of overly presenting positive fidnings all outcomes are reported along with statistical significance.	
Kangovi et al, 2017, RCT, SF-12	Low risk: centralised randomisatio n scheme	Low risk: Baseline outcome measures were similar	Low risk: Intervention group were more likely to be empolyed 20% vs 8%	Low risk: 88% and 87% complete data, multiple imputation	Unclear risk: not possible to blind to intervention and outcome was patient reported,	Unclear risk: randomisatio n was at the patient level, however unlikely they received	Low risk: all outcomes are reported	Unclear-The authors offer commerical consulting services on setting up	Low risk: low risk of bias in 6/9 areas, and other areas unlikely to have	Summary Judgement RCTs: Low risk of bias

					although RAs collecting data were blinded	controls received the intervention, so not a major factor for overall ROB		similar CHW interventions	significant impact on ROB. While the paper is at risk of overly presenting positive fidnings all outcomes are reported along with statistical significance.
Dickens et al, 2011, CBA, SF-12	High risk: CBA and evidence of selection bias with those from more deprived backgrounds not being offered entry	Low risk: significant differences in baseline scores, although linear regression model used which would have corrected for baseline scores	High risk: differences in basleine characteristic s although these were adjusted for in analysis	Low risk: low rates of missing data, 84% follow up intervention and 93% control and did separate paired and unpaired analysis	Unclear risk- unclear how follow up assessments were done, by whom and if blinded	Low risk: the service was not available in areas where the control lived	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by NHS Devon, no competing interests declared.	High risk: high risk or unclear risk in 4 of 9 areas
Dickens et al, 2011, CBA, EQ-5D-3L	High risk: CBA and evidence of selection bias with those from more deprived backgrounds not being offered entry	Low risk: significant differences in baseline scores, although linear regression model used which would	High risk: differences in basleine characteristic s although these were adjusted for in analysis	Low risk: low rates of missing data, 84% follow up intervention and 96% control	Unclear risk- unclear how follow up assessments were done, by whom and if blinded	Low risk: the service was not available in areas where the control lived	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by NHS Devon, no competing interests declared.	High risk: high risk or unclear risk in 4 of 9 areas

		have corrected for baseline scores								
Mercer et al,										Summary
2019, CBA,										Judgement
EQ-5D-5L								Low risk: No		NRCTS: High
			High risk:		High risk:			other risks		risk of Bias
		Low risk:	differences		due to the			identified.		due to non
	Unclear risk:	significant	in baseline		nature of the	Low risk: the		Funded by		randomised
	practices	differences	characteristic	Low risk:	intervention	service was		NHS		design and
	randomly	in baseline-	s although	76% follow	not possible	not available	Low risk: all	Scotland, no	Unclear or	challenge of
	assigned but	explicitly	these were	up int, 92%	to assess	in areas	outcomes	competing	High risk of	finding
	how not	corrected for	adjusted for	control, ITT	outcomes	where the	were	interests	bias in 4 of 9	suitable
	stated	in analysis	in analysis	analysis	blindly	control lived	reported	declared.	areas	controls.

## Mental Health

Study ID	Allocation concealmen t	Baseline outcome measureme nts similar	Baseline characterist ics similar	Incomplete outcome data	Knowledge of the allocated interventio ns adequately prevented during the study	Protection against contaminati on	Selective outcome reporting	Other risks of bias	Overall Judgement per study	Overall judgement for outcome
Grant et al,			low risk:	Low risk:	High risk:	Unclear risk:			Low risk:	
2000, RCT,	Low risk:		control	similar	due to the	randomisati		Low risk: No	low risk in 7	
HADS A and	sealed		were	amounts of	nature of	on was at		other risks	of 9 areas,	
HADS D	opaque	Low risk: no	slighlty	missing	the	the patient		identified.	blinding	
	envelopes,	important	more likely	data in both	intervention	level within		Funded by	very	
	while there	differences	to be male	arms, at	not possible	practices,		Avon health	challenging	
	was an early	and	and	67%,	to blind	unclear if		autothirty,	given	
	error- this	baseline	younger but	however	participants	the	Low risk: all	no	nature of	Summary
	was	scores were	otherwise	this reduced	and self	intervention	outcomes	competing	intervention	Judgement
	identifed	adjusted for	comparable	power to	reported	was availale	were	interests	and were	RCTs: low
	and those	in analysis	, this had no	detect a	outcome	outside the	reported	declared.	using	risk of bias

						trial- suggestion it was already running, so people may have received it before entering the trial			validated PROMs	
Carnes et al,			_							
2017, CBA, HADS A and			significant differences							
HADS D			in living							
		Low risk:	arrnagemen							
		significant	t,	High risk:						
		differences	education,	control	ritale state.			Lavoratalo Na		
		in baseline scores,	work status, adjustments	follow up 43%, int	High risk: due to the			Low risk: No other risks		
		althouhg	for same did	35%, no	nature of			identified.		
		linear	not	data on	the			Funded by		
		regression	significantly	whether	intervention	Low risk:		DoH,		
		model used	alter	those LTFup	not possible	the service		independen		
		which would have	results,	had different	to assess outcomes	was not available in	Low risk: all	t research		
		corrected	suggesting other	baseline	blindly and	areas where	outcomes	group, no competing	High risk:	
	High risk:	for baseline	unknown	characteristi	patients self	the control	were	interests	high risk in	
	CBA	scores	imbalances	CS	reported	lived	reported	declared.	5 of 9 areas	
Dickens et	High risk:	Low risk:			Unclear risk:					
al, 2011,	CBA and	significant	High risk:	Low risk:	due to the	l a wiala		Low risk: No		
CBA, GDS	evidence of selection	differences in baseline	differences in baseline	low rates of missing	nature of the	Low risk: the service		other risks identified.		
	bias with	scores,	characteristi	data, 84%	intervention	was not		Funded by	High risk:	
	those from	although	cs although	follow up	not possible	available in	Low risk: all	NHS	high risk or	
	more	linear	these were	intervention	to blind	areas where	outcomes	Hackney	unclear risk	
	deprived	regression	adjusted for	and 96%	participants	the control	were	CCG, no	in 4 of 9	
	background	model used	in analysis	control	and unclear	lived	reported	competing	areas	l

o	not being offered entry	which would have corrected for baseline scores			how follow up collected			interests declared.		
Mercer et					High risk:					
al, 2019,					due to the					
CBA, HADS					nature of					
A and HADS					the					
D					intervention					
					not possible			Low risk: No		
		Low risk:	High risk:		to assess			other risks		
		significant	differences		outcomes	Low risk:		identified.		
U	Jnclear risk:	differences	in baseline		blindly and	the service		Funded by		
р	oractices	in baseline-	characteristi		patients self	was not		NHS		
ra	andomly	explicitly	cs although	Low risk:	reported,	available in	Low risk: all	Scotland, no	High or	
a	assigned	corrected	these were	76% follow	statisticians	areas where	outcomes	competing	unclear risk	
b	out how not	for in	adjusted for	up int, 92%	were	the control	were	interests	of bias in 4	
S	stated	analysis	in analysis	control	blinded	lived	reported	declared.	of 9 areas	

Summary Judgement nRCTS: high risk of bias due to difficulty in concealing allocation, baseline differences in control groups, non randomisied design

## **Social Contacts**

Clarke et	Unclear			High risk-			Low risk-			Low risk-	
al, RCT	risk-			characteris		Unclear	while			while some	
	register of			itics such		risk-	randomise			areas	
	all >75s			as age,		participant	d at	Low risk-		unclear	
	living alone		Low risk-	gender,		s would be	patient	all		due to lack	
	compiled	Unclear	reported	education	Low risk-	aware of	level it	outcomes	Low risk-	of	
	and	risk-	and no	etc not	similar loss	their	seems very	reporte din	pulicly	reporting,	
	arranged	Method of	signficant	reported,	to follow	allocation,	unlikely	baseline	funded, no	unlikely to	
	into deciles	randomisat	differences	only	up in both	although	control	were	competing	affect	
	by social	ion not	in baseline	baseline	arms, with	interview	group	reported at	interests	outcome,	
	contact	sepcified	outcomes	outcome	reasons	assesors	would	follow up	declared	low risk in	

	score and randomly allocated into control and experimen tal armshow randomise d not specified			measures referred to as characteris tics		were blinded	have recived intervention as it was not available other than through the trial			5 of 9 areas	
Grant et al 2000, RCT, Dukes UNC score	Low risk: Sequenced numbered envelopes prepared by research team, block randomisat ion	Low risk: sealed opaque envelopes, howevere reported that there were isssues in ealr y stages and some patients excluded	Low risk: no important differences and baseline scores were adjusted for in analysis	low risk: control were slighlty more likely to be male and younger but otherwise comparabl e, this had no impact on reuslts when adjusted for in analysis	Low risk: similar amounts of missing data in both arms, at 67%, however this reduced power to detect a difference as required sample size was 161	High risk: due to the nature of the interventio n not possible to assess outcomes blindly and patients self reported	Unclear risk: randomisat ion was at the patient level within practices, unclear if the interventio n was running in the local area so possible patients could have accessed it outside the trial	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by Avon health autothirty, no competing interests declared.	Low risk: low risk in 7 of 9 areas	Low risk: Both RCTs mainly low risk- risks arise from poor reporting and nature of interventio n
Dickens et al, 2011, CBA, MOS- 6	High risk: controlled before after study	High risk: CBA and evidence of selection	Low risk: significant differences in baseline scores,	High risk: differences in basleine characteris tics	Low risk: low rates of missing data, 84% follow up	Unclear risk: due to the nature of the interventio	Low risk: the service was not available in areas	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by	High risk: high or unclear risk in 4 of 9 areas	High risk: only one CBA and it is at high risk of bias

bias with	although	although	interventio	n cannot	where the	NHS	
those from	linear	these were	n and 96%	blind	control	Scotland,	
more	regression	adjusted	control	participant	lived	no	
deprived	model	for in		s and not		competing	
backgroun	used which	analysis		stated how		interests	
ds not	would			outcomes		declared.	
being	have			were			
offered	corrected			assessed			
entry	for						
	baseline						
	scores						
Overall:							

Low risk: Evidence from two RCTs

## Physical Activity

Clarke et al, RCT, ADLs	Unclear risk- register of all >75s living alone compiled and arranged into deciles by social contact score and randomly allocated into control and experiment al arms- how randomise d not	Unclear risk- Method of randomisat ion not	Low risk- reported and no signficant differences in baseline	High risk-characterisi tics such as age, education etc not reported, only baseline outcome measures referred to as characterist	Low risk- similar loss to follow up in both arms, with	Unclear risk-participant s would be aware of their allocation, although interview assesors were	Low risk-while randomise d at patient level it seems very unlikely control group would have recived intervention as it was not available other than through	Low risk- all outcomes reporte din baseline were reported at	Low risk- pulicly funded, no competing interests	Low risk- while some areas unclear due to lack of reporting, unlikely to affect outcome, low risk in	
	d not specified	sepcified	outcomes	ics characterist	reasons	were blinded	through the trial	reported at follow up	declared	5 of 9 areas	

Grant et al 2000, RCT, COOP Wonca Daily Activities	Low risk: Sequenced numbered envelopes prepared by research team, block randomisat ion	Low risk: sealed opaque envelopes	Low risk: no important differences and baseline scores were adjusted for in analysis	low risk: control were slighlty more likely to be male and younger but otherwise comparabl e, this had no impact on reuslts when adjusted for in analysis	Low risk: similar amounts of missing data in both arms, at 67%, however this reduced power to detect a difference as required sample size was 161	Unclear risk: due to the nature of the interventio n not possible to blind participant s but assessors blinded	Unclear risk: randomisat ion was at the patient level within practices, unclear if it participant s could self refer to the project which was running in the local area	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by Avon health autothirty, no competing interests declared.	Low risk: low risk in 7 of 9 areas	Overall RCTs:Low risk, most evidence comes from RCTs at low risk of bias
Carnes et al, 2017, CBA, Number regular activities	High risk: controlled before after study	High risk: CBA	low risk: significant differences in baseline scores, althoung linear regression model used which would have corrected for baseline scores	High risk: significant differences in living arrangeme nt, education, work status, adjustment s for same did not significantl y alter results, suggesting other unknown imbalances	High risk: control follow up 43%, int 35%, no data on whether those LTFup had different baseline characterist ics	High risk: due to the nature of the interventio n not possible to assess outcomes blindly and patients self reported	Low risk: the service was not available in areas where the control lived	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by DoH, independe nt research group, no competing interests declared.	High risk: high risk in 5 of 9 areas	

Mercer et					High risk:					
al, 2019,					due to the					
CBA,					nature of			Low risk:		
Physical			High risk:		the			No other		
activity			differences		interventio			risks		Overall
		Low risk:	in baseline		n not	Low risk:		identified.		nRCTs: High
	Unclear	significant	characterist		possible to	the service		Funded by		Risk: One
	risk:	differences	ics		assess	was not		NHS		study at
	practices	in baseline-	although		outcomes	available in		Hackney	High risk:	very high
High risk:	randomly	explicitly	these were	Low risk:	blindly and	areas	Low risk: all	CCG, no	High or	risk of bias
controlled	assigned	corrected	adjusted	76% follow	patients	where the	outcomes	competing	unclear risk	and one at
before	but how	for in	for in	up int, 92%	self	control	were	interests	in 4 of 9	high risk of
after study	not stated	analysis	analysis	control	reported	lived	reported	declared.	areas	bias

Overall: High risk due to inclusion of CBAs, without these low risk, although some concerns about allocation concealment that is inherent to the intervention

## Health Care Utilisation

Clarke et al,	Unclear									
RCT,	risk-						Low risk-			
Primary	register of			High risk-		Low risk-	while			
care visits	all >75s			characterisi		participants	randomised			
	living alone			tics such as		would be	at patient			
	compiled			age,		aware of	level it			
	and			education		their	seems very			Low risk-
	arranged			etc not		allocation,	unlikely			while some
	into deciles			reported,		although	control			areas
	by cosial			only		interview	group			unclear due
	contact		Low risk-	baseline		assesors	would have	Low risk- all		to lack of
	score and	Unclear	reported	outcome	Low risk-	were	recived	outcomes	Low risk-	reporting,
	randomly	risk-	and no	measures	similar loss	blinded.	interventio	reporte din	pulicly	unlikely to
	allocated	Method of	signficant	referred to	to follow	HCU was	n as it was	baseline	funded, no	affect
	into control	randomisat	differences	as	up in both	self	not	were	competing	outcome,
	and	ion not	in baseline	characterist	arms, with	reported to	available	reported at	interests	low risk in 5
	experiment	sepcified	outcomes	ics	reasons	assessors	other than	follow up	declared	of 9 areas

	al arms- how randomised not specified			through the trial							
Grant et al 2000, RCT, PC visits, referrals, medication s	Low risk: Sequenced numbered envelopes prepared by research team, block randomisat ion	Low risk: sealed opaque envelopes	Low risk: no important differences and baseline scores were adjusted for in analysis	low risk: control were slighlty more likely to be male and younger but otherwise comparable , this had no impact on results when adjusted for in analysis	Low risk: similar amounts of missing data in both arms, data on HCU available for 157	Unclear risk: not reported if outcome assessors were blinded or how health care utilisation data was obtained	Unclear risk: randomisat ion was at the patient level within practices. GPs were more interested in social interventions	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by Avon health authority, no competing interests declared.	Low risk: low risk in 7 of 9 areas	
Kangovi et al, 2018, RCT, All cause hospital admissions 9 months	Low risk: computeris ed generated algorithm with blocks, performed by study team member not assocaited with	Low risk: centralised randomisat ion scheme	Low risk: Baseline outcome measures were similar	Low risk: there were slightly more participants of hispanic ethnicity in one arm-0 vs 3.7%	Low risk: 100% data available for health care utilisation	Low risk- Hospitalisat ion data from routine sources and assessors/s tatisticians were blinded.	Low risk: randomisat ion was at the patient level, however unlikely they received controls received the interventio n, so not a	Low risk: all outcomes are reporoted	The authors offer commerical consulting services on setting up similar CHW interventions	Low risk: low risk of bias in 7/9 areas, and other areas unlikely to have significant impact on ROB. While the paper is at risk of overly presenting	

Supplemental material

	outcomes assessment						major factor for overall ROB			positive fidnings all outcomes are reported along with statistical significance	
Kangovi et al, 2017, RCT, SF-12, all cause hospitalisat ions 1 year	Low risk: conputerise d generated algorithm with blocks, performed by study team member not assocaited with outcomes assessment	Low risk: centralised randomisat ion scheme	Low risk: Baseline outcome measures were similar	Low risk: Interventio n group were more likely to be empolyed 20% vs 8%	Low risk: 100% data available for health care utilisation	Low risk- Hospitalisat ion data from routine sources and assessors/s tatisticians were blinded.	High risk: randomisat ion was at the patient level, however unlikely they received controls received the interventio n, so not a major factor for overall ROB	Low risk: all outcomes are reporoted	The authors offer commerical consulting services on setting up similar CHW interventions	Low risk- low risk 7/9 areas and other domains such as allocation inherent to nature of interventio n or contaminat ion due to patient level randomisat ion	Overall RCTs: Low risk of bias
Carnes et al, 2017, CBA, PC visits	High risk: controlled before after study	High risk: CBA	High risk: significant differences in baseline scores, and controls were drawn from same practice population , but not	High risk: significant differences in living arrnageme nt, education, work status, adjustment s for same did not	Low risk: use of anonymise d GP data meant no missing data	Low risk- anonymise d data frm GP records	Low risk: the service was not available in areas where the control lived	Low risk: all outcomes were reported	Low risk: No other risks identified. Funded by DoH, independe nt research group, no competing interests declared.	High risk: high risk in 4 of 9 areas	Overall nRCTs: High risk of bias due to control mismatch in particular

		deemed suitable for referral (different to controls for other outcomes)	significantly alter results, suggesting other unknown imbalances							
"Heisler et al, US 2022 RCT "	Low risk	Low risk	low risk	Low risk- use of routine data	Low risk- HCU data from routine sources and statisticians blinded	Low risk- patient level randomisat ion	Low risk: all outcomes were reported	Low risk. No COI, variety of funding sources, but no input into conduct of study	Low risk	

Overall: Low risk of bias for RCTs, only 1 CBA at high risk