Data supplement to Woodhead et al. Impact of co-located welfare advice in healthcare settings: prospective quasi-experimental controlled study**.** Br J Psychiatry doi: 10.1192/bjp.bp.117.202713

Supplement DS1

Methodological details

Study design

Our study utilised a quasi-experimental design. This decision was based on two key reasons:

1. In the areas under study, which were selected as commissioners requested an independent evaluation, co-located welfare advice services had already been established. It would therefore not have been appropriate to take away services from certain settings in order to randomly allocate practices to intervention and control arms.

2. Due to concerns about the generalisability of a randomised controlled trial. External validity would likely have been limited by recruitment of atypical participants, engagement by atypical GPs/practice staff and low recruitment rates. (1) For example, this was borne out by findings from our linked qualitative study (2) which indicated a range of barriers to referring patients to co-located advice services among GPs which was influenced by macro, meso and micro level contextual factors; thus, the implementation in practice may not reflect that occurring within an experimental environment. Further, recruitment to a trial in which individuals must agree to randomly receive advice at their practice or not have access to such advice would be both impracticable and unethical, and would likely lead to recruitment of a sample unrepresentative of the wider population in need of advice.

By including a propensity score weighted comparison group, and assessing impact through comparing change in two groups over time, our design was able to assess the impact of advice through comparison with a counterfactual. The propensity score weighting minimised differences between the two groups in terms of observed variables (see below), while comparing change over time in the two groups (rather than absolute differences before and after) mitigated the impact of selection bias.

Sample size calculations

The intervention group size was limited by the number of individuals that the services had the capacity to support per week and time constraints linked to deadlines for subsequent commissioning decisions. We based the sample size calculation on a significance level of α=0.05 (two tailed); an allocation ratio of 1:2 (intervention:control); a within-GP practice intra-class correlation of 0.10; a Variance Inflation Factor for adjusting for confounders of 1.33 (assuming a correlation of 0.5); (3, 4) and a retention rate of 75% (based on advice from an experienced contract research company). The target sample size (n=816, 204 intervention group and 612 controls) therefore included a larger comparison group to increase the power of analyses. Sample size was calculated to detect a moderate effect size (d) of 0.4 (5) with

90% power and was more than sufficient to detect smaller effect sizes (d=0.35) with 80% power

Comparator group sampling

We contacted potentially eligible comparator participants using three methods. In all three methods, no identifiable data were disclosed to the research team before individuals provided informed consent. First, we identified nine local GP practices based in areas with similar levels of social disadvantage as co-located practices (using the Index of Multiple Deprivation (IMD) 2015), (6) but which did not host advice services. Comparator patients within each of these nine practices were identified by an NHS Primary Care Research Support Service who ran practice list searches to identify patients of similar age group, ethnicity and gender. The Support Service then randomly selected records within each demographic group so that those selected were representative of the profile of individuals who used the co-located advice service in the 12 months prior to study data collection. This demographic information had been elicited using past-year data from the Citizens Advice (CA) IT platform. Primary care research colleagues advised us to anticipate a patient response rate of 10%. We therefore identified 500-700 patients from each practice, i.e., 5419 in total from the nine practices. Practices securely uploaded comparator patients' contact details to a secure print and mailing company which posted recruitment packs to the patients on behalf of their GP practice. We expected that those responding to the contact attempts may be different to advice group members. Therefore, we also worked with a local housing association to contact 490 tenants who were comparable in terms of age group, gender and ethnicity to patients receiving welfare advice. Finally, as Black African and Black Caribbean individuals were underrepresented within the returns from the GP-based sampling, and to achieve the required sample size, we carried out further sampling locally. We worked with community organisations to advertise the study, particularly among individuals who were under-represented in the GP-based returns.

Survey piloting

We piloted the materials since we anticipated that English would not be a first language and/or that literacy levels may be low for some study participants. 40 CA clients accessing (non-co-located) services locally and eight individuals from a local tenant's association group read all recruitment pack materials and tested the baseline survey to check for acceptability and understandability. Materials were refined and revised based on feedback from the pilot.

Propensity score weighting

Propensity scores could be used to either match advice group members to one or more comparison group members with similar scores, or to weight comparison group members. Matching may result in loss of information if some comparison group members are unmatched, and/or lead to bias if a nearest match to an advice recipient has a largely different propensity score. As sample size was important, we used a weighting rather than a matching strategy to retain information from all comparison group members, reducing bias by assigning more weight to those whose propensity scores were closer to advice recipient scores. (7) Propensity scores were calculated with logit regression, with advice group

membership as the dependent variable. (8, 9) The sample was divided into blocks of observations with similar propensity scores, t-tests were run to check for propensity score balance across each group within each block, and for covariates within each block across the two groups. Data were then kernel weighted (10) and post-estimation analyses assessed the extent to which the distribution of propensity scores in the advice and comparison groups overlapped ('common support'), those outside the range of common support were excluded.

Additional references

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Supplement DS2

Coping and help-seeking behaviour items

What would you do if your income did not cover your costs? PLEASE TICK ALL THAT APPLY (1)

☐Draw money from savings ☐Borrow money/take out loan
☐Use credit card/overdraft ☐Miss payments
☐Sell something ☐Do nothing
☐Cut back on spending ☐Seek advice
☐Work extra hours ☐Other

If you ever had a problem linked to being behind and unable to pay, for example:

- Credit or store cards, or Hire Purchase/credit purchases
- Personal loans/owed money
- Utility bills (e.g. electricity) or TV licence, or council tax/income tax
- Court fines
- Other payments

Or in terms of your entitlement to/how any of these were being dealt with:

- Welfare benefits or tax credits
- State pension/Pension credits
- Student loans or grants

What would you do? PLEASE TICK ALL THAT APPLY

☐Do nothing ☐No one to talk to about these issues
☐Talk to GP/other health professional ☐Talk to Citizens Advice/other adviser
☐Talk to faith leader/member of religious organisation ☐Other
☐Talk to friends or family ☐Don't know

If you have had any of the financial issues listed above (or similar), did you experience any of the following as a result? PLEASE TICK ALL THAT APPLY (2)

☐Physical ill health ☐Loss of confidence
☐Stress related ill health ☐Fear
☐Other mental ill health ☐Problems sleeping
☐Drinking more alcohol ☐None of these
☐Using drugs

If you were to experience any of the above issues (e.g. ill health, loss of confidence etc.) as a result of your financial situation or benefits, what would you do? PLEASE TICK ALL THAT APPLY

☐Do nothing ☐No one to talk to about these issues
☐Talk to GP/other health professional ☐Talk to Citizens Advice/other adviser
☐Talk to faith leader /member of religious organisation ☐Other
☐Talk to friends or family ☐Don't know

Additional references

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Table DS1 Accessing the advice service

	Advice group (n=278)	
	n	%
How did you hear above the advice service here?		
My GP/the GP practice	114	41.2
Word of mouth	45	16.3
CAB/Other information & advice service	90	32.5
Other	28	10.1
If the advice service were not available here, where would you go?		
GP/GP practice staff	44	15.8
Other information & advice service	160	57.6
Would not have sought advice/don't know	86	31.5
If you had a choice, would you rather see a welfare adviser at a GP practice or somewhere else?		
GP practice	249	92.9
Somewhere else	19	7.1
Why (coded from open ended question)?		
More accessible/more convenient	129	54.7
Familiar/safer environment	42	17.8
More chance of being seen	15	6.4
Adviser/advice is better	14	5.9
Will have access to health records	13	5.5
Trust GP, GP understands my problem	12	5.1
Would prefer to keep separate	11	4.7
Have you spoken to your GP about the issue you are seeing the adviser about today?		
Yes	106	39.0
No	166	61.0
Why/why not (coded from open ended question)?		
Affecting health/health-related	54	25.8
Needed medical evidence	20	9.6
GP first port of call	21	10.1
Not relevant/not health-related	72	34.5
GP not supportive/cannot help/cannot access GP	42	20.1

† Numbers do not add to totals due to missing data.

Table DS2 Comparison of advice group participants recruited during baseline recruitment period (December 2015 to July 2016) to all those receiving co-located advice during the same period that were recorded on the Citizens Advice (CA) platform.

	All clients (n=295†)		Advice group participants (n=278)	
	n	%	n	%
Gender				
Male	106	35.9	107	38.5
Female	188	64.1	171	61.5
Age group (years)				
18-24	4	1.4	6	2.2
25-34	26	9.0	32	11.6
35-44	43	14.9	48	17.4
45-54	92	31.8	87	31.5
55-64	85	29.4	70	25.4
65-74	25	8.7	24	8.7
75+	14	4.8	9	3.3
Ethnicity				
Black/Black British	116	41.7	109	39.9
White	101	36.3	112	41.0
Asian/Asian British	32	11.5	24	8.8
Mixed/multiple	13	4.7	14	5.1
Other	16	5.8	14	5.1
Health status				
Disabled/Long term health condition	188	72.3	200	73.5
Not disabled/no health condition	72	27.7	72	26.5

† Numbers do not add to totals due to missing data, not all contacts were recorded on the IT platform.

Fig. DS1 Type of improvement reported among welfare advice group participants reporting any improvement at follow-up.