

Resource Implications of a Measured Change in Patient Wellbeing: a Retrospective Cohort Analysis Study

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Abstract

A previous study identified a significant improvement on the Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS) for users of the Sandwell 'Chaplains for Wellbeing' service (Kevern and Hill, 2015). This raises the question of whether such an improvement leads to potential savings for the CCG via a reduction in the resource burden of these patients. The current study sought to establish whether a significant improvement in patient wellbeing (as measured by the WEMWBS scale) was reflected in a reduction in Primary Care resource use by these patients. In a retrospective cohort study of patients who had accessed the Chaplains for Wellbeing Service, pre-post data were gathered on a range of proxy measures of resource use. The study found that, while there was a clear improvement in wellbeing as measured by the WEMWBS score, this was not reflected in any change to certain key indicators of resource use and mental wellbeing. The reasons for this result are discussed and several possible explanations advanced.

Keywords

Chaplaincy; community medicine; mental health services; Primary Care; Resilience

Introduction

Over the last decade, there has been increasing emphasis National Health Service (NHS) policy on commissioning of preventive services. The main drivers for this movement have been economic: against a background of rising demand for NHS acute services, costs will only be contained if Clinical Commissioning Groups (CCGs) invest in projects which maintain people in good health (Public Health England 2013). One groundbreaking attempt to support, integrate and promote resources to improve health and wellbeing at a community level which has attracted favourable attention at a national level (e.g. Das 2012) was the Sandwell Wellbeing Hub, administered first by Sandwell Primary Care Trust and then (from 2013) Sandwell and West Birmingham CCG. The Hub draws together a range of wellbeing services, ranging from self-help groups through to courses of counselling and psychotherapy. As well as referral through a GP surgery or Primary Care Centre, patients can self-refer through the Hub's own Wellbeing Coordinators.

One of the services contributing to the Hub from 2011 onwards was a 'Chaplains for Wellbeing' service, a generic 'listening service' which employs qualified and experienced counsellors. The particular strength of a Chaplaincy service of this sort is that it is not restricted to a particular methodology or role description, but may range widely over topics which might be considered beyond the scope of (for example) psychotherapy services (Bryson et al 2012). It aspires to provide "prompt access to high calibre listening that offers

acceptance, support, signposting and a safe place for patients to explore the issues which are important to them" (ACPC 2014).

Although variations on the 'Chaplains for Wellbeing' model have been adopted at different times by a number of GP Practices, consortia and CCGs, there have been few attempts to measure their achievements. The *Community Chaplaincy Listening Service* supported by NHS Education for Scotland has been evaluated in a qualitative study, for which preliminary data have been analysed (Bunniss et al 2013; Mowat et al 2012). Similarly, qualitative data were gathered for an earlier version of the current Sandwell and West Birmingham Chaplains for Wellbeing project, piloted by a single GP practice in West Birmingham (Bryson 2012); but these were never written up for publication in a peer-reviewed journal. This is not altogether surprising, as research into chaplaincy services is frequently hampered by uncertainty about its methods and goals (see Kevern and McSherry, 2015), but it means that there is little evidence on which those commissioning wellbeing services may draw to inform their decisions. The current paper is part of an attempt to address this shortfall in the literature.

Background

The distinctive contribution of the current paper is that it attempts to address the gap in the knowledge base through a quantitative analysis of clinical data. It represents the second stage of an extended study which had four phases:

1. A retrospective quantitative analysis of changes in patient wellbeing scores over the course of their use of the Chaplains for Wellbeing service, as measured on the Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS) (Kevern and Hill, 2014)
2. A parallel study of patients' use of Primary Care resources, as measured for the 12 months before and after first contact with the Chaplains for Wellbeing service (the current study)
3. A qualitative, interview-based study on patient experiences (McSherry, Boughey and Kevern, in press)
4. An interview-based study of Chaplains' own experiences (unpublished)

The first phase of the study (Kevern and Hill 2014) examined changes in the WEMWBS score for a sample (n=107) of patients who used the service between 1st January 2011 and 1st January 2013. The advantages of the WEMWBS scale were that it measures 'mental wellbeing' rather than a contested and theologically-loaded concept such as 'spirituality'; that it was designed as a measure of overall wellbeing rather than mental illness (Stewart-Brown and Well 2008); and tests well for reliability and validity (Maheswaran et al. 2012; Stewart-Brown et al. 2009; Tennant et al. 2007). The study found a significant improvement in WEMWBS scores which was independent of the key variables of age, sex, employment or ethnicity. It was negatively correlated with the initial score, indicating that those with the lowest initial reported wellbeing generally improved the most. The scale of the change (an average improvement of nine points, out of a possible range of 14-70) is considered a substantial one in the literature (Jaeschke et al. 1989; Maheswaran et al. 2012).

We theorised that an improvement on this scale may lead to a reduction in the extent to which the patient is dependent on Primary Care services and so to a change in their pattern of resource use. If so, this result would be of some interest to commissioners of future services.

However, arriving at an estimation of even a single patient's resource use over the life course is a project of daunting scope and complexity, as well as, inevitably, requiring the gathering of data over years and decades. We therefore limited our analysis to two

measures where the data could be obtained which, we hypothesised, might be useable as 'proxy measures' of a change in resource use; the frequency of a service user's attendance at the Medical Centre and of prescriptions to antidepressant medication. The reasoning behind the first of these was the anecdotal evidence from our own conversations with GPs that they may be inclined to refer 'frequent attenders' to chaplaincy services in the hope that, by having the opportunity to discuss their problems at length, they may be less inclined to book frequent appointments with the GP. The rationale behind the second measure was the suggestion from studies of the Scottish experience of Primary Care Chaplaincy that the service may function as an alternative to antidepressants (Bunniss et al. 2013). These considerations led to the hypotheses which follow.

Hypotheses

The hypotheses are that for a sample of users of the Chaplains for Wellbeing service during the period 1st January 2011-1st January 2013:

1. There will be a significant difference in the number of appointments with the practice in the twelve months before and after the first appointment with the Chaplain. This was tested using measures of GP appointments, Other appointments (e.g. with the Practice Nurse) and Did Not Attend (DNAs).
2. There will be a significant difference in antidepressant use in the twelve months before and after the first appointment with the Chaplain. This was measured in terms of the number of prescriptions issued in the two periods.
3. There will be a correlation between the number of visits to the Chaplaincy service and the change in one or more of these key indicators of mental wellbeing in the twelve months from first chaplaincy appointment.

Method

This was a retrospective cohort study and took the form of an analysis of key data from the records of service users during the period 1st January 2011 to 1st January 2013. This was the same cohort as used in the previous study (n=246) but a different sample: in the first study the sample was limited to those with 'pre and post' WEMWBS scores; in this, it was limited to those who fulfilled the following inclusion criteria:

- Had attended their first appointment with the Chaplain within the sample period
- Were registered with one particular Medical Centre (for which records were available)
- Had been registered with the same Medical Centre for at least 12 months before and after their first appointment with the Chaplain (to enable gathering of pre-post data)
- Had been formally discharged from the Chaplaincy service

This gave a sample of N=138. All data were analysed with IBM SPSS Version 21.

Results

For the sample of 138 service users, in the year following first contact with the Chaplain they made use of the service on an average of 3.53 occasions. This masks considerable variation between individuals, with half of them making only one or two appointments and a small number making many more (median number of appointments 2, interquartile range 1-5, maximum 12).

Because normal distribution could not be shown for all results, for the data analysis bootstrapped tests (1000 samples) were used.

Hypothesis 1: There will be a significant difference in the number of appointments with the practice in the twelve months before and after the first appointment with the Chaplain.

Paired-sample t-tests (2-tailed) were conducted to compare the number of appointments in the 12 months before and 12 months after the first appointment with the chaplaincy service (see Table 1). The findings were:

- No significant change in the number of GP appointments before and after accessing the Chaplaincy service.
- There was a mean *increase* in the number of appointments with other professionals within the health centre (from 3.06 to 3.95 per year, significant at the $p < .05$ level).
- There was also a mean *increase* in the number of DNAs (from 0.59 to 1.23, $p < .001$).
- Since the increase in DNAs is very close to the increase in the number of booked appointments, the net change in the number of appointments *attended* is negligible: a mean decrease of 0.03 appointments per person per year.

There is therefore no basis on which to conclude that the Chaplains for Wellbeing Service reduces the demand among service users for other types of Primary Care appointment.

Table 1. Comparison of number of booked appointments in the 12 months before and after the first chaplaincy appointment

	Mean	SD	95%CI (bootstrapped)	t(137)	Sig. (2-tailed)
Number of appointments for one year before 1st Chaplain appointment	12.44	10.437	10.75-14.36	-1.071	.286
Number of appointments for one year after first chaplain appointment	13.35	11.115	11.65-15.45		
Number of GP appointments (Pre)	9.29	8.744	7.81-11.02	.105	.917
Number of GP appointments (Post)	9.22	7.481	8.04-10.46		
Number of other appointments (Pre)	3.06	3.774	3.49-3.71	-2.247	.026
Number of other appointments (Post)	3.98	5.637	3.17-5.05		
DNAs (Pre)	0.59	1.23	0.41-0.82	-5.723	<.001
DNAs (Post)	1.53	2.29	1.15-1.93		

Hypothesis 2: There will be a significant difference in antidepressant use in the twelve months before and after the first appointment with the Chaplain.

Paired-sample t-tests (2-tailed) were conducted to compare the number of antidepressant issues in the 12 months before and 12 months after the first appointment

with the chaplaincy service. No significant change was recorded before and after accessing the Chaplaincy service (see Table 2).

Table 2. Comparison of number of antidepressant issues in the 12 months before and after the first chaplaincy appointment

	Mean	SD	95%CI (bootstrapped)	t(137)	Sig. (2-tailed)
Number of A-D issues for one year before 1st Chaplain appointment	4.57	6.275	3.57-5.64	-.772	.442
Number of A-D issues for one year after first chaplain appointment	4.86	6.495	3.79-5.96		

Hypothesis 3: There will be a correlation between the number of visits to the Chaplaincy service and the change in one or more of these key indicators of mental wellbeing in the twelve months from first chaplaincy appointment.

One-way ANOVA was conducted to test for possible relationships between the number of chaplaincy appointments and the following variables: change in appointments (total, GP, other, DNA) and change in antidepressant issues (see Table 3). There was some evidence for correlation at the trend level ($F(137)=1.683$, $p=.084$) between Chaplaincy appointments and GP appointments, but the effect size was negligible (R^2 linear=.010). There was clearer evidence for a correlation with antidepressant issues ($F(137)=3.143$, $p=.001$), but again the effect was found to be negligible (R^2 linear = .038, accounting for less than 4% of the total variance between participants). There is therefore only weak evidence that successive appointments with the Chaplains for Wellbeing Service have an incremental effect on service users' antidepressant use, notwithstanding the fact that, according to the previous study (Kevern and Hill 2014) their reported wellbeing has substantially improved.

Table 3. Relationship between number of chaplaincy visits and change in key indicators

	F	Sig
Change in appointments over one year	1.227	.276
Change in GP appointments	1.683	.084
Change in other appointments	.372	.965
Change in number of A-D issues	3.143	.001
Change in DNAs	.362	.968

Discussion

Since this is the first study to attempt to quantify the effect of a primary care chaplaincy service upon the wellbeing and resource use of service users, there is no basis for comparison or interpretation of these findings within the existing literature. On the face of it, the findings are purely negative. The input per person is relatively low (median 2

appointments over 12 months) so it may be too much to expect a substantial effect; but the absence of any but the slightest correlation between the number of chaplaincy appointments and the change in either of the 'proxy measures' - primary care appointments or antidepressant issues - suggests that increasing the number of appointments does not lead to an increase in effect size. It seems reasonable therefore to conclude on the basis of this evidence that the Chaplains for Wellbeing service has no effect on these proxy measures within the twelve months following on from the first appointment.

These findings should be interpreted in the light of the previous study, which showed a substantial, nine-point improvement in WEMWBS score over a comparable period. A richer understanding of the data requires that the two findings be read in tandem.

On reflection, it is clear that there are only four logically-consistent explanations for the discrepancy between the findings of the initial WEMWBS study and the current one:

1. That the improvement in wellbeing reported in the study of the WEMWBS data is a 'false positive' due to limitations in the scale or its analysis. This explanation is outside the scope of the present paper (see Kevern and Hill (2014) for a more detailed discussion), but the validity and robustness of the scale is now widely accepted.

2. That the 'proxy measures' are not reflecting an actual improvement in wellbeing because of the limitations of the data set. Of these, the most salient limitation is the short time-scale: it might be more appropriate to measure changes in resource use over the whole life-course rather than a total of 24 months

3. That patients themselves may have entrenched patterns of behaviour or persistent health problems that slow the rate with which improvements in wellbeing are reflected in patterns of resource use. In particular, habitual users of primary care services (notably, Frequent Attenders) may be slow to change a weekly routine, and frequent attendance may be driven by an intractable complex of medical, social and psychological factors. (Jiwa 2000; Smits et al 2009; Koskela et al, 2010)

4. The structure of the service within which the resources are delivered may itself have impeded the detection of changes due to improvements in wellbeing. For example, service users who are identified by the practice as suffering from depression are typically offered a regular prescription, along with a regular appointment to review it. Therefore any change in their wellbeing would not be reflected very rapidly (if at all) in either their antidepressant use or the frequency of visits to the Medical Centre. It may be reflected in, for example, the length of a patient's consultation on each occasion; or a reduction in dosage rate rather than frequency; but the present analysis is not sufficiently detailed to identify such changes.

To summarise, the main finding of this study is of the need for caution in drawing inferences about either improvements in wellbeing or consequent use of resources by extrapolation from an analysis of 'proxy measures'. There are too many possible confounding variables, whose effect is itself difficult to estimate, to enable reliable conclusions to be drawn.

Conclusions

The primary conclusion of this study is that, if the previous analysis of WEMWBS data has identified a true improvement in the wellbeing of patients who access the Chaplains for Wellbeing Service, the change has produced no reduction in resource use that can be picked up by the proxy measures used in this study. Several possible reasons have been suggested for this negative result. None of the possible explanations for this result are likely to yield to

further analysis of retrospective cohort data. Instead, this analysis points to the need for a qualitative study, to establish how the measured improvement in wellbeing is manifest in the patients' reported experience (McSherry, Boughey and Kevern, in press). A parallel study in Scotland (Mowat et al. 2012) has suggested a range of benefits which, together, may explain the observed improvement in WEMWBS scores; the next stage of our study will explore these in more detail.

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References

Association of Chaplaincy in General Practice (ACPC) (2014) *Chaplaincy in General Practice* obtainable from <http://www.gpchaplaincy.com/index.html> [Accessed 11th November 2015]

Bryson, P., Dawlatly, S., Hughes, A., Bryson, E. and Petra, H. (2012) *Honouring Personhood in Patients: the added value of chaplaincy in General Practice* Whole Person Health Trust, England.

Bunniss, S., Mowat, H. and Snowden, A., (2013) Community chaplaincy listening: Practical theology in action. *Scottish Journal of Healthcare Chaplaincy*, 16, 1, pp .42–51.

Das, J. (2012) *A primary care approach to mental health and wellbeing*, London: NHS Confederation. Available from: <http://www.nhsconfed.org/Publications/reports/Pages/CaseStudyReportOnSandwell.aspx>. [Accessed 11th November 2015]

Jaeschke, R., Singer, J. and Guyatt, G.H., (1989) Measurement of health status: ascertaining the minimal clinically important difference. *Controlled clinical trials*, 10, 4, pp. 407–415.

Jiwa, M. (2000) Frequent attenders in general practice: an attempt to reduce attendance. *Family practice*, 17, 3, pp. 248-251.

Kevern, P. and Hill, L. (2015) 'Chaplains for well-being' in primary care: analysis of the results of a retrospective study. *Primary Health Care Research & Development*, 16, pp. 87-99. doi:10.1017/S1463423613000492.

Kevern, P. and Mcsherry, W. (2015) The Study of Chaplaincy: methods and materials in Swift, C. et al (eds), *A Handbook of Chaplaincy Studies: understanding spiritual care in public places*. London: Ashgate

Koskela, T.H., Ryyananen, O.P. and Soini, E.J. (2010) Risk factors for persistent frequent use of the primary health care services among frequent attenders: a Bayesian approach. *Scandinavian journal of primary health care*, 28, 1, pp. 55-61.

Maheswaran, H., Weich, S., Powell, J. and Stewart-Brown, S.L. (2012) Evaluating the responsiveness of the Warwick Edinburgh Mental Well-Being Scale (WEMWBS): Group and individual level analysis. *Health and Quality of Life Outcomes*, 10, 1, pp.156.

Mcsherry, W., Boughey, A. and Kevern, P. (under review) Chaplains for wellbeing in primary care: A qualitative investigation of their perceived impact for patients' health and wellbeing.

Mowat, H., Bunniss, S. and Kelly, E. (2012) Community Chaplaincy Listening: working with General Practitioners to support patient wellbeing. *Scottish Journal of Healthcare Chaplaincy*, 15, 1, pp. 21–26.

Public Health England (2013) *A Call to Action: Commissioning for Prevention* obtainable from <https://www.england.nhs.uk/wp-content/uploads/2013/11/call-to-action-com-prev.pdf> [Accessed 11th November 2015].

Smits, F.T., Brouwer, H.J., Van Weert, H., Schene, A.H. and Ter Riet, G. (2009) Predictability of persistent frequent attendance: a historic 3-year cohort study. *British Journal of General Practice*, 59, 559, e44-e50.

Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J. and Weich, S. (2009) Internal construct validity of the Warwick-Edinburgh mental well-being scale (WEMWBS): a Rasch analysis using data from the Scottish health education population survey. *Health and Quality of Life Outcomes*, 7, 1, pp. 15.

Stewart-Brown, S. and Janmohamed, K. (2008) *Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS): User Guide Version 1*. Edinburgh: NHS Health Scotland.

Taggart, F., Friede, T., Weich, S., Clarke, A., Johnson, M. and Stewart-Brown, S. (2013) Cross cultural evaluation of the Warwick-Edinburgh mental well-being scale (WEMWBS)-a mixed methods study. *Health and Quality of Life Outcomes*, 11, 1, pp. 27.

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S. and Stewart-Brown, S. (2007) The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of life Outcomes*, 5, 1, pp. 63.