This is the author's final accepted version.

There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

Deposited on: 02 April 2018

Multimorbidity and consultation length, empathy, and patient-centred care in areas of socioeconomic deprivation

Stewart W Mercer PhD[1] , Yuefang Zhou[2], Gerry M Humphris[2], , Alex McConnachie[3],
Andisheh Bakhshi[3,4], Annemieke Bikker[1], Maria Higgins[1], Paul Little[5], Bridie Fitzpatrick[1] ,
Graham CM Watt[1]

[1]General Practice and Primary Care, Institute of Health and Wellbeing, University of
Glasgow, United Kingdom

[2]School of Medicine, University of St Andrews, United Kingdom

[3]Robertson Centre for Biostatistics, Institute of Health and Wellbeing, University of Glasgow,
United Kingdom

[4] University of the West of Scotland, Scotland, United Kingdom

[5]Primary Medical Care, Aldermoor Health Centre, University of Southampton, England, United
Kingdom.

*Corresponding author: Professor Stewart Mercer

Academic Unit of General Practice and Primary Care, Institute of Health and Wellbeing,
University of Glasgow, Scotland, United Kingdom

Telephone: +44 (0)141 3308351; Fax: +44 (0)141 330 8330; Email:
Stewart.Mercer@glasgow.ac.uk

Abstract

Purpose: The influence of multimorbidity on the clinical encounter is poorly understood, especially in areas of high socioeconomic deprivation where burdensome multimorbidity is concentrated. The aim of the current study was to examine the effect of multimorbidity on general practice consultations, in areas of high and low deprivation.

Methods: Secondary analyses of 659 video-recorded routine consultations involving 25 general practitioners (GPs) in deprived areas and 22 in affluent areas of Scotland. Patients rated the GPs empathy (CARE Measure) immediately after the consultation. Videos were analysed using the Measure of Patient Centred Communication. Multilevel, multi-regression analysis identified differences between the groups.

Results: In affluent areas, multimorbid patients received longer consultations than non-multimorbid patients (mean 12.8 minutes versus 9.3, respectively; p=0.015) but this was not so in deprived areas (mean 9.9 minutes versus 10.0 respectively; p=0.774). In affluent areas, multimorbid patients perceived their GP as more empathic (p=0.009) than non-multimorbid patients; this difference was not found in deprived areas (p=0.344). Video-analysis showed that GPs in affluent areas were more attentive to the disease and illness experience in multimorbid patients (p<0.031) compared with non-multimorbid patients. This was not the case in deprived areas (p=0.727).

Conclusions: The greater need of patients with multimorbidity in deprived areas is not reflected in the longer consultation length, higher GP patient-centredness, and higher perceived GP empathy found in affluent areas. Action is required to redress this mismatch

of need and service provision for multimorbid patients if health inequalities are to be narrowed rather than widened by primary care.

Words 250

Key words: multimorbidity, primary care, general practice, consultations, deprivation

Introduction

Multimorbidity - defined as the coexistence of two or more long-term conditions within an individual - is now the norm rather then the exception in high income countries.[1] Although related to ageing, multimorbidity is also socially patterned, being commoner and occurring at a younger age in those of lower socioeconomic status.[1,2] People with multimorbidity living in areas of high socioeconomic deprivation struggle to cope with every day life tasks,[3] and have lower quality of life compared with more affluent patients with multimorbidity.[4] The effect of multimorbidity on unplanned hospital admissions is also exacerbated by deprivation, including for ambulatory care sensitive conditions which could in principal be managed in the community if primary care was working more effectively.[5]

The clinical encounter lies at the heart of primary care, yet there has been surprisingly little research on how multimorbidity influences the consultation[6], and how or whether multimorbid patients needs are met within routine clinical encounters in affluent and deprived areas.[7] Qualitative research shows that GPs working in deprived areas find it hard to manage multimorbid patients.[8] This is exacerbated the inverse care law (which states that 'the availability of good medical care tends to vary inversely with the need for it in the population served') which continues to blight healthcare, even in countries such as the United Kingdom(UK) with its universal coverage and national health service (NHS) free at the point of care.[9-11] Reflecting the inverse care law, patients living in areas of high deprivation have poorer access to primary care, shorter consultation length, less enablement, and doctors who are more stressed compared with those working in more

affluent areas.[12] Empathic, patient-centred care is a pre-requisite for patient enablement and improves health outcomes in both affluent and deprived areas.[13-15]

In the present study we examined the influence of multimorbidity on general practice consultations, in areas of high and low socioeconomic deprivation. We hypothesised that in affluent areas, where workforce pressures are less severe[11,] the greater needs and complexity of multimorbid patients would result in longer consultations, and more empathic, patient-centred care than in less complex non-multimorbid patients, but that in deprived areas, due to the ongoing inverse care law[11], these effects of multimorbidity on the consultation would not be possible.

Methods

Study Design

This study was a secondary cross-sectional analysis of a previous study of 659 consultations in primary care settings in Glasgow, Scotland UK.[15] The study comprised patient-administered questionnaires and videotaping of consultations. The study protocol and recruitment procedures have been previously reported.[15] Ethical approval of the study was obtained from the local research ethics committee (approval number: REC/06/SO701/43) and informed consent was obtained from all participating GPs and patients.

Recruitment of Practices and Patients

The details of the original study protocol and recruitment procedures are already reported in full.[15] In brief, 20 practices, 47 GPs and 659 patients (339 with multimorbidity)

participated (13 practices, 25 GPs, 356 patients in high deprivation areas including 207

multimorbid patients; 7 practices, 22 GPs, 303 patients in low deprivation areas with 132

multimorbid patients). Practices were recruited from the upper and lower quartile of

deprivation (Scottish Index of Multiple Deprivation, SIMD 2006[16]) in the Greater Glasgow

and Clyde health board area, Scotland, UK. The mean deprivation scores of the participating

practices and patients were comparable to those of all practices in the high and low

deprivation areas. Consecutive, unselected patients (aged > 17 years) from the participating

practices were handed an information sheet by reception staff when they checked in, and a

researcher then gained informed consent.

Patient Questionnaire at Consultation and Follow up

Prior to the consultation, patients completed a questionnaire that included questions on

their demographics, number of problems they wish to discuss and the extent to which their

daily activities were limited by their conditions.[15]   Immediately after consultation, patients

reported their perceptions of the GP's empathy using the Consultation and Relational

Empathy (CARE)[17] measure.

Consultation Video Rating

Consultation videos were coded for GP behaviours with the Measure of Patient-Centred

Communication, (MPCC) as reported previously.[15]The MPCC consists of three components:

exploring both the disease and illness experience; understanding of the whole person; and

finding common ground.[18]

Statistical Analysis

We carried out descriptive unadjusted analysis of the patients' demographic details, health status, and healthcare needs, comparing patients with multimorbidity with patients without multimorbidity, in both affluent and deprived settings. Differences between multimorbid and non-multmorbid patients in both groups were analysed by the appropriate parametric and non-parametric tests (unpaired t-test and Mann-Whitney tests) depending on the distribution of the variables and data type (continuous or non-continuous data).

We then compared the key consultation characteristics of interest (consultation length, GP empathy, patient-centred care) in multimorbid patients versus non-multimorbid patients consulting GPs in high or low deprivation areas. In this analysis, we controlled for patients' age, gender, and clustering effects of patients within individual GPs, using multi-level regression models (SAS, version 9.2) adjusting for GP as a randomeffect with fixed effects for patient age and gender. Our rationale was that age and gender could both feasibly influence consultation characteristics independent of multimorbidity, and the nature of our data was that patients were clustered within GPs and GPs within practices.[15] In our previous analysis of the same data set, we found evidence of clustering effects at the GP level (patients within GPs) but not at practice level (GPs within practices).[15] Thus in the current analysis we adjusted for the former but not the latter.

Results

The age, gender, and ethnicity of the participating GPs did not differ between the high and low deprivation areas; patient ethnicity also did not differ significantly between groups with over 95% speaking English as their first language (results not shown). As expected, more

patients had multimorbidity (2 or more conditions) in deprived areas (207/356; 58%) compared with affluent areas (132/303; 44%) (p<0.001). The average number of conditions per multimorbid patient was 3.4 (SD 1.64) in the deprived compared with 2.9 (SD 1.13) in the affluent (p<0.01). This difference was apparent across age groups (Figure 1).

Patients with multimorbidity were older, had poorer health, were more disabled, consulted more often, and wanted to discuss more problems than non-multimorbid patients (Table 1). Illness burden (poor general health; disability) and demand (frequency of consulting; number of problems to discuss) was significantly higher in the multimorbid patients in deprived areas than in the affluent (p<0.01).

Characteristics of the Consultations

The effect of multimorbidity on the key consultation measures is shown in Table 2. Consultation length was 37% longer (an average of 3 minutes) in patients with multimorbidity compared with those without multimorbidity in the affluent areas, whereas consultation length did not differ in the deprived areas between multimorbid and non-multimorbid patients. Patients' perception of the GPs' empathy was significantly higher in the affluent multimorbid compared with the deprived multimorbid (p<0.01) and significantly higher in the affluent multimorbid versus the affluent non-multimorbid (p<0.01). In the affluent area, video analysis showed that the GPs were significantly more interested in exploring the disease and illness experience of patients with multimorbidity, compared with patients without multimorbidity (component 1 of the MPCC; $p<0.05$). This was not apparent in the deprived area. The other two components of the MCC

(understanding the whole person and finding common ground) and hence overall rating did not differ significantly between the two groups.

Discussion

Summary of findings

We hypothesised that the greater complexity and clinical needs of patients with multimorbidity would result in longer consultations and more empathic, patient-centred care (compared with non-multimorbid patients) in affluent areas, but that these effects would not be apparent in deprived areas (due to the inverse care law). Our findings are entirely consistent with this hypothesis. Despite the fact that multimorbidity was commoner and more burdensome in deprived areas, consultations did not differ significantly from those of non-multimorbid patients.

Comparison with published literature

The higher prevalence and severity of multimorbidity in patients consulting GPs in deprived areas found in the present study is in line with our understanding of multimorbidity in Scotland from our previous large scale epidemiological research.[2] The fact that multimorbidity in commoner in those of lower SES has been widely reported now in many other countries[1]. In terms of the benefits of longer consultation length, systematic reviews are equivocal but suggest beneficial effects in patients with psychosocial problems.[19,20] We have previously found that even modest increases in consultation length improves enablement in patients with complex needs in deprived areas.[21] and our RCT of a primary care-based complex intervention (CARE Plus) for multimorbid patients living in deprived

areas based on longer consultations showed evidence of improvements in quality of life and cost-effectiveness over a 12 month period.[22]

The higher empathy and patient-centredness regarding disease and illness experience in the affluent multimorbid group is also an important finding, since GP empathy and patient-centred approaches have previously been shown to improve patient enablement and health outcomes.[13-15] GP empathy and patient-centredness are generally lower in deprived areas compared with affluent[15,23], and a systematic review has recently indicated that this is true generally of doctors dealing with patients of low educational status.[24]

Policy Implications

The findings of the current study need to be understood in the context of the 'inverse care law' which has existed in the UK NHS for over forty years.[9-12] Despite the higher levels of unmet need in deprived areas, the distribution of funding and of GPs in Scotland is flat across deprivation deciles[11] resulting in high GP stress, shorter consultations and worse consultation outcomes in deprived areas.[12,15] Tackling this remains essential if health inequalities are to be narrowed rather than widened through the availability of effective healthcare. In Scotland, ambitious policy changes are afoot regarding integrated primary care and a new GP contract[25]; it will be important that such changes embrace the inverse care law, which research has shown can be changed cost-effectively with benefit to patients with multimorbidity.[22]

Strengths and Limitations

A strength of this study was the large sample size of videoed routine consultations with a comprehensive analysis of observed GP communication, plus patients' views having been

gathered. The use of multilevel regression analysis in which we adjusted for cluster effects from GP level cluster, and patient age and gender also add to the robustness of the findings. However, the study was a secondary data analysis and the sample size was thus not powered on the basis of the present analysis, but on the aims of our original work.[15]

Conclusion

Multimorbidity is more common and more burdensome in patients consulting GPs in deprived areas compared with more affluent areas. Exemplifying the inverse care law, the greater need of such patients in deprived areas is not reflected in the longer consultation length, higher GP patient-centredness, and higher perceived GP empathy found in affluent areas. Action is required to redress this mismatch of need and service provision if health inequalities are to be narrowed rather than widened by primary care.

Conflict of Interest Statement

None.

References

1. Violan C, Foguet-Boreu Q, Flores-Mateo G, Salisbury C, Blom J, Freitag M et al. Prevalence, determinants and patterns of multimorbidity in primary care: a systematic review of observational studies. PloS One. 2014;9(7):e102149.

2. Barnett B, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. The epidemiology of multimorbidity in a large cross-sectional dataset: implications for health care, research and medical education. Lancet 2012; 380:37–43.

3. O'Brien R, Wyke S, Watt G, Guthrie B, Mercer SW. The 'everyday work' of living with multimorbidity in socio-economically deprived areas of Scotland. Journal of Comorbidity 2014;9:62

4. Lawson KD, Mercer SW, Wyke S, Grieve E, Guthrie B, Watt GCM and Fenwick EAE. Double trouble: the impact of multimorbidity and deprivation on preference-weighted health related quality of life a cross sectional analysis of the Scottish Health Survey. Int J Equity Health 2013;12:67.

5. Payne R, Abel G, Guthrie B, Mercer SW. The impact of physical multimorbidity, mental health conditions and socioeconomic deprivation on unplanned admissions to hospital: a retrospective cohort study. CMAJ 2013, doi:10.1503/cmaj.121349

6. Kadam, U. Redesigning the general practice consultation to improve care for patients with multimorbidity. BMJ 2012, 345: e6202

7. Mercer SW, Guthrie B, Furler J, Watt GCM, Tudor Hart J. Multimorbidity and the inverse care law in primary care. BMJ 2012; 344: e4152.

8. O'Brien R, Wyke S, Guthrie B, Watt G, Mercer SW. An "endless struggle": a qualitative study of GPs' and Practice Nurses' experiences of managing multimorbidity in socio-economically deprived areas of Scotland. Chronic Illn 20117; 45-59

9. Hart JT. The inverse care law. Lancet 1971; 297: 405–412.

10. Watt, G. The inverse care law today. Lancet 2002; 360: 252-253.

11. McLean G, Guthrie B, Mercer SW. General practice funding underpins the persistence of the inverse care law: cross sectional study in Scotland. Br J Gen Pract 2015; 65(641):e799-805. doi: 10.3399/bjgp15X687829

12. Mercer SW, Watt GMC. The inverse care law: clinical primary care encounters in deprived and affluent areas of Scotland. Ann Fam Med 2007; 5: 503–510.

13. Little P et al. Observational study of effect of patient-centredness and positive approach on outcomes of general practice consultations   BMJ 2001; 32: 908-911

14. Mercer SW, Jani B, Wong SY, Watt GCM. Patient enablement requires physician empathy: a cross-sectional study of general.practice consultations in areas of high and low socioeconomic deprivation in Scotland. BMC Fam Pract 2012, 13:6

15. Mercer SW, Higgins M, Bikker AM, Fitzpatrick B, McConnachie A, Lloyd SM, Little P, Watt GCM. General practitioners' empathy predicts better outcome: prospective observational study of consultations in areas of high and low deprivation. Ann Fam Med 2016; 14: 117-124

16. SIMD: Scottish Index of Multiple Deprivation. Available from http://www.scotland.gov.uk/Topics/Statistics/SIMD (accessed on 28 July, 2017)

17. Mercer SW, McConnachie A, Maxwell M, Heaney DH, Watt GCM. Relevance and performance of the Consultation and Relational Empathy (CARE) Measure in general practice. Fam Pract.2005;22(3):328-334.

18. Brown JB, Stewart MA, Ryan BL. Assessing communication between patients and physicians: the measure of patient-centred communication (MPCC) working paper series. Paper no. 95-2, 2nd ed. London, Ontario, Canada: Thames Valley Family Practice Research Unit and Centre for Studies in Family Medicine, 2001.

19. Wilson AD, Childs S. Effects of interventions aimed at changing the length of primary care physicians' consultation. The Cochrane Database of Systematic Reviews 2006; 1: Art.No.: CD003540.DOI:10.1002/14651858.CD003540.pub.2.

20. Hutton C, Gunn J. Do longer consultations improve the management of psychological problems in general practice? A systematic review. BMC Health Serv Res 2007; 7:71.

21. Mercer SW, Fitzpatrick B, Gourlay G, Vojt G, McConnachie A, Watt GCM. More time for complex consultations in a high deprivation practice is associated with increased patient enablement. Br J Gen Pract 2007; 57: 960-966

22. Mercer SW, Fitzpatrick B, Guthrie B, Fenwick E, Grieve E, Lawson K, Boyer N, McConnachie A, Lloyd SM, O'Brien R, Watt GCM, Wyke S. The Care Plus study- a whole system intervention to improve quality of life of primary care patients with multimorbidity in areas of high socioeconomic deprivation: cluster randomised controlled trial. BMC Medicine 2016; 14:88

23. Jani B, Bikker AP, Higgins M, Fitzpatric B, Little P, Watt GCM, et al. Patient centredness and the outcome of primary care consultations with patients with depression in areas of high and low socioeconomic deprivation. Br J Gen Pract 2012;e576–81.

24. Verlinde E, De Laender N, De Maesschalck S, Deveugele M, Willems. The social gradient in doctor-patient communication. Int J Equity Health. 2012;11(12):12.

25. Smith G, Mercer S, Gillies J, McDevitt A. Improving Together: a new quality framework for GP Clusters in Scotland. BJGP 2017 ;67(660):294-295.