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Trends in full-time working in general practice: repeated cross-sectional study

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Abstract

Background

There is little evidence and no agreement on what constitutes full-time working for general practitioners (GPs). This is essential for workforce planning, resource allocation and accurately describing GP activity.

Aim

To clarify the definition of full-time working for general practitioners, how this has changed over time and whether these changes are explained by GP demographics.

Design and Setting

Repeated cross-sectional national surveys between 2010 and 2021.

Method

Comparison of three measures of working time commitments (hours and sessions per week and hours per session) plus a measure of workload intensity across survey years. Multiple regression to adjust the changes over time for age, sex, ethnicity, contract type, area deprivation, and rurality. Unadjusted hours and sessions per week were compared to definitions of full-time working.

Results

Average hours and sessions per week reduced from 40.5 (95% CI: 38.5, 42.5) to 38.0 (36.3, 39.6) and 7.3 (7.2, 7.3) to 6.2 (6.2, 6.3) respectively between 2010 and 2021. In 2021, 54.6% of GPs worked at least 37.5 hours per week and 9.5% worked at least 9 sessions. Hours per session increased from 5.7 (5.7, 5.7) to 6.2 (6.2, 6.3) between 2010 and 2021. Partners worked more hours, sessions and hours per session. Adjustments increased the increase in hours per session from 0.54 to 0.61.

Conclusion

At the current average duration of sessions, six sessions per week aligns with the NHS definition of full-time hours. However, hours per week is a more consistent way to define full-time work for GPs.

Keywords

Primary Care
General Practice
Workforce
Workload
Contracts

How this fits in

General practice is under increasing pressure, in part due to a lack of GPs. There is contention as to the proportion of GPs working full-time. We find that average hours and sessions worked per week by GPs in England have declined, whilst average hours per session has increased. Over half (55%) of GPs work at least the NHS Digital standard full-time definition of 37.5 hours per week. Average hours worked per session in 2021 was 51% greater than the BMA standard definition of a session's duration. We recommend removing sessions as a definition of full-time working. However, if full-time work commitment continues to be defined in terms of the number of sessions worked, alignment with the NHS definition of 37.5 hours per week could be achieved by recognising that 6.0 sessions per week of 6.2 hours constitutes full-time work.

Main Text

Introduction

General practice in England is under increasing pressure from patient, system and supply-side issues.[1] A key factor is the supply of general practitioners (GPs), with a reported decline in full-time practitioners over the last decade, despite the number of doctors training to be a GP increasing.[2,3] At the same time, appointment numbers have remained high and by some measures increased, with a gradual increase in total patient numbers.[2] As a result patients are reporting difficulties in obtaining appointments with GPs,[4] whilst GPs feel under increasing pressure, with an increasing incidence of burnout, early retirement and willingness to leave the profession.[5,6]

Discussion of these trends often focuses on a significant proportion of GPs working part-time, with press commentary sometimes implying that this contributes to difficulty with access to healthcare.[7-9] In response, the RCGP and individual GPs have contended that a 'part-time' GP will often work more hours than other full-time employees.[10, 11] Solving the current crisis in general practice requires a good understanding of these issues. If GPs are working fewer hours than expected, then solutions should focus on ways to increase GPs' working hours. Alternatively, if 'part-time' working is a misnomer which does not properly describe the amount of time worked by GPs, then the potential for these solutions is limited.

We use data from a repeated survey of GPs' working lives to investigate work trends since 2010. The aims are to: 1) provide clarity on whether measurements of 'full-time equivalent' (FTE) are meaningful and useful; 2) analyse how the duration of a session has changed over time; and, 3) analyse whether these changes are explained by changing GP demographics. This should enable a more informed discussion of the current crisis.

Method

Study design

We obtained respondent-level data from repeated nationwide surveys conducted by The University of Manchester in 2010, 2012, 2015, 2017, 2019 and 2021[12-17].

National GP Worklife Survey

The Worklife Survey (WLS) randomly samples GPs working in England[12-17,28]. It contains questions about their demographics, work practices and views on work and well-being. We pooled all returned surveys from 2010 to 2021. We obtained data on sessions and hours worked per week, age, contract types (partner, salaried or locum), sex, ethnicity, perceptions of workload intensity, and the rurality and deprivation of the practice population.

The specific questions used were: a) "how many sessions do you work in a typical week?" (free-text); b) "How many hours do you spend, on average, per week, doing NHS GP-related work? (Please ALL clinical and non-clinical NHS work but EXCLUDE OUT-OF-HOURS WORK" (free-text); c) "what is your age?" (free-text); d) "which of the following types of contract do you hold?" (tick-box partner/principal, salaried (including assistant, retainer), locum); e) "how would you classify your ethnic background?" (tick-box); and, f) measures of work intensity (detailed below). Respondents could select more than one employment type (partner, salaried and locum). We classified respondents by partner or not-partner.

The WLS consists of cross-sectional and longitudinal elements, whereby some GPs are sampled from the previous survey year. Including longitudinal data would have risked introducing bias, so we used only the cross-sectional respondents.

We sequentially excluded reported values that were implausible, with cut-offs agreed in the research team, including: >21 or <1 session per week (n=9 and n= 1 respectively); <4 or > 87.5 hours per week (n= 54 and n = 18); aged <28 or >80 years (n=7 and n=4); or >10 or <2 hours per session (n=134 and n= 160). These were set to missing and multiple imputed.

The GPWLS sample is slightly over-represented by partner, female and 45-59 year old GPs (table S1). To account for this we gathered the 2014 general practitioner headcount from NHS Digital, chosen as it is the closest data release to the midpoint.[18] We removed retired GPs and GP registrars, with the remaining GPs stratified by age, sex and contract type to provide the marginal proportions in table S1. We then raked our GPWLS data to create a matching weighting vector.

Income deprivation

Income deprivation score is a measure of the proportion of the local population receiving income-related benefits, released in the 2010, 2015 and 2019 index of multiple deprivation. We linked to GPs using the distribution of their practice's registered patients by lower-layer super output areas. The 2010 and 2012 surveys were linked to 2010 income deprivation

scores, whilst the 2015 and 2017 surveys were linked to 2015, and 2019 and 2021 surveys were linked to 2019.

Rurality

The rurality of the practice was obtained from the NHS Payments to General Practice dataset,[19] which defines a practice as either Rural or Urban depending on the practice postcode.

Intensity of work

The intensity of work potentially influences working patterns. Factors indicating the intensity of work were obtained from the WLS if the question was constant in all survey years. This included increased demands from patients, dealing with problem patients, paperwork, having insufficient time to do the job, dealing with earlier discharges from hospital, unrealistically high expectations of role by others, and interruptions by emergency calls during surgery.

Responses were collected on Likert scales with the GP asked to rate the factors according to how much pressure they experience in their job. They provide a score of 1-5, corresponding to no pressure, slight pressure, moderate pressure, considerable pressure or high pressure respectively. To assess whether these variables were measuring the same concept, we calculated Cronbach's alpha. This equalled 0.84 (95% CI: 0.83, 0.85) indicating good internal consistency. Therefore, we used the mean score across these seven measures.

Missing data

1140 (15.5%) respondents had at least one missing variable, comprising 2.52% of total data-points. Hours per session had the greatest proportion missing (6.8%). Respondents with a missing variable varied by year: 19.2% in 2010, 12.42% in 2012, 18.6% in 2015, 12.7% in 2017, 20.8% in 2019, and 12.9% in 2021. This was handled by multiple imputation using the mice package in R.[24] We used 50 imputations and chained equations. This followed the principle of fully conditional specification which produces less biased analyses than pairwise deletion.[25] Sessions per week, hours per week, age, income deprivation, hours per session and intensity were estimated using predictive mean matching. Partner, sex, ethnicity and rurality were estimated using logistic regression.

Definitions of full-time working

NHS England defines full-time working as 37.5 hours per week within their national statistics.[3] The British Medical Association (BMA) divides a GP's work into sessions which it assumes last 4 hours and 10 minutes.[20] The BMA then defines a full-time GP as working 9 sessions, which is often used as a basis for pay and contract negotiations.[20] Meanwhile, the NHS Health Careers website states that 8 sessions is full-time in their role description.[21] In the general labour market, the UK government uses a standard definition of full-time as working more than 35 hours per week and the Office of National Statistics uses 30 hours per week.[22-23] We compared the survey responses to these benchmarks.

Statistical analysis

Data was handled as pooled repeated cross-sections. Descriptive statistics of the observed weighted variables were calculated. Proportions of the sampled GPs working at or more than 9 sessions, 8 sessions, 37.5 hours, 35 hours and 30 hours were calculated disaggregated by survey year. Multiple linear regressions were then conducted on the multiply imputed weighted datasets with results pooled to analyse the relationship between the survey year and each of sessions, hours, hours per session and intensity of work. The reference year was 2010. To analyse whether these results were due to changes in age, sex, ethnicity, contract type, practice deprivation or rurality of the GPs and practice populations, the regressions were then repeated whilst adjusting for these factors.

We conducted three sensitivity analyses 1) pairwise deletion compared to multiple imputation 2) including the longitudinal data and 3) including the implausible data. All analyses were conducted in R studio version 4.2.1.

Results

7,340 surveys were included; 1341 in 2010, 1143 in 2012, 1298 in 2015, 1268 in 2017, 529 in 2019 and 1761 in 2021. The variability in sample size was due to variations in the target population sizes and response rates from the corresponding surveys.[12-17]

Mean sessions per week changed from 7.3 (95% CI= 7.2, 7.3) to 6.2 (6.2, 6.3), mean hours per week from 40.5 (38.5, 42.5) and 38.0 (36.3, 39.6), whilst hours per session from 5.7 (5.7, 5.7) and 6.2 (6.2, 6.3) in 2010 and 2021 respectively (Tables 1-2 and figures 1-3). Sessions per week and hours per session showed significant changes compared to 2010. However, changes in hours per week was less consistent (tables S2-5).

The proportion of GPs working at or more than the FTE definitions are detailed in table 3. These proportions have decreased over time across all definitions. However, in 2021, 54.6% of GPs worked at or more than the NHS digital definition of full-time working (37.5 hours). Only 9.5% of GPs worked 9 sessions, used by the BMA to define full-time working. However, the mean hours per session of 6.2 hours in 2021 is 49% more than the BMA definition of full-time working.

There has been a significant 0.38 (0.33, 0.43) increase in GP reported work intensity in 2021 compared to 2010, representing a 11% increase. However, there has been a steady decline since 2015 indicating mixed trends (table S5 and figure S1).

The results of the multiple regression models when adjusting for the potentially confounding variables are detailed in tables S2-5. Results of the impact of survey year on sessions per week, hours per week, hours per session and intensity remained consistent with the unadjusted trends, except for changes in hours per week in 2021 which lost magnitude and significance. GPs worked slightly fewer (-0.07 (-0.12, -0.02)) hours per session per 10% increase in deprivation, with no significant difference in work intensity or sessions/hours per week.

Compared to non-partners, partners consistently worked significantly more hours and sessions and more hours per session, and reported greater work intensity. Meanwhile BAME and male doctors worked significantly more hours and sessions but fewer hours per session.

The results of the sensitivity analyses did not change our main findings (table S5-8), with no difference from removing the implausible values above.

Discussion

Summary

The percentage of GPs working NHS full-time hours per week is 55% in 2021, much greater than the 25% figure recently reported.[8,9] Moreover, the average number of hours per session in 2021 is 49% more than the BMA's official definition.[20] The number of hours worked per session by GPs has increased since 2010, with the number of sessions and hours worked decreasing. Similarly, intensity of work is significantly greater in 2021 than in 2010.

Partners worked more hours, sessions and hours per session than non-partners. Male and BAME GPs worked more hours and sessions per week, but fewer hours per session.

Strengths and Limitations

We used GP-level survey data supplemented with practice deprivation and rurality. This enabled the analysis of how GP work practices have changed over time, whilst controlling for key potential confounding variables.

Our results rely on survey data accurately reflecting GP work practices. The WLS involves several processes to ensure a reasonable response rate, making the validity of the findings reassured.[26]. The details of these processes can be found in the individual reports.[12-17] However, the response rates have declined in recent years, which the survey team have responded to by making methodological changes (detailed in table S10). This decline is consistent with UK and worldwide trends.[27] The independent reporting of hours and sessions is a major advantage for this study, because other data sources presuppose a FTE definition.

Respondents were asked about all NHS GP-related work, but their interpretation may be variable.

We conducted multiple imputation to address the issue of missing data. Our sensitivity analysis showed minimal differences between our multiple imputation and pairwise deletion approaches meaning the impact of this missing data should be minimal.

Comparison with existing literature

Congruent with previous publications, we find a reduction in the average number of sessions and hours worked by GPs.[2,3] However, we identified that the number of hours worked in each session has increased over time. Interestingly, the reduction in hours worked per week lost significance when adjusting for changes in the composition of the GP

workforce, particularly partners. There is variation in the reported proportion of GPs working full-time,[2,3,7-10] which this study clarifies. The current definition of full-time working given by the NHS Health Careers website and the BMA is that a full-time GP will work 8 or 9 sessions.[20,21] Our study suggests this definition is inappropriate when considered according to working hours. The standard NHS definition of full-time hours is 37.5 hours per week. By this measure, 54.6% of GPs work full-time hours, but only 29.4% and 9.5% of GPs work at least 8 or 9 sessions respectively. This suggests that current estimates of how many GPs work full-time are likely underestimates. If sessions continue to be used to define full-time equivalency, then a more appropriate definition would be 6.03 sessions a week, which corresponds to the 37.5 hours used for other NHS workers.[3] However a more consistent approach would use hours per week.

Interestingly age of GP had minimal and inverse impact on hours and sessions per week. This indicates that younger GPs work more, despite a low desire to work full-time by trainee GPs.[28] Further, average GP work intensity remains moderate-considerable and is a priority for future research.

Implications for research and/or practice

This paper emphasises the importance of understanding the general practice workforce prior to making policy decisions.

We find the amount of work performed per session is becoming increasingly underestimated, which may lead to health planners underestimating the associated resources required for commissioning and employment changes. As such, we recommend removing sessions as a definition of full-time working, instead using 37.5 hours per week to align with the wider NHS. This would equate to 6 sessions. This may need a readjustment of salaries accordingly. The accuracy of practice reports to NHS digital is also vital in this process.

Fewer GPs are working part-time than expected, so policies attempting to improve access to general practice by increasing hours worked may not be effective. Accurate measures of full-time GPs are required for long-term workforce planning, with further research required to understand these trends.

Salaries for GPs are primarily calculated by the number of sessions they work, as opposed to the number of hours. As such, the steady increase in the numbers of hours worked per session may lead to a relative decline in the GP salary per hour, particularly for salaried and partner GPs.[29] Further, hours per session varies by GP sex, age and ethnicity which may be a source of salary inequality in the profession, such as for female GPs.[30]

Partners worked more sessions and hours per week, as well as more hours per session. We do not know whether GPs who wish to work longer hours are more likely to become partners. However, it is important to be cognisant of this increased work if changing the partnership model.[31]

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Ethical approval

Ethical approval was obtained as part of the GP worklife survey from the University of Manchester Ethics Committee following proportionate review.

Conflict of interest declaration: Dr Hutchinson, lead author, is a General Practitioner working in the NHS. He works as a salaried GP.

Data Availability

Not available

References

1. Baird, B. Charles, A. Honeyman, M. et al. *Understanding pressures in general practice.* London: The King's Fund. 2016. [online] Available at: https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Understanding-GP-pressures-Kings-Fund-May-2016.pdf [Accessed 24th February 2023]
2. British Medical Association. *Pressures in general practice data analysis.* 2023. [online] Available at: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/pressures/pressures-in-general-practice-data-analysis [Accessed 24th February 2023]
3. NHS Digital *General Practice Workforce, 31 January 2023.* 2023. [online] Available at: https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/31-january-2023 [Accessed 10th March 2023]
4. Voorhees, J. *Understanding access to general practice.* PhD Thesis, University of Manchester. 2020. Available at: https://pure.manchester.ac.uk/ws/portalfiles/portal/205624834/FULL_TEXT.PDF [Accessed 5th May 2023]
5. McKinley, N. McCain, R. Convie, L. et al. Resilience, burnout and coping mechanisms in UK doctors: a cross-sectional study. *BMJ open*, 2020. 10: e031765. DOI: 10.1136/bmjopen-2019-031765
6. Owen, K. Hopkins, T. Shortland, T. et al. GP retention in the UK: a worsening crisis. Findings from a cross-sectional survey. *BMJ open*. 2019. 9: e026048. DOI: 10.1136/bmjopen-2018-026048
7. Ely, J. *Why are Brits STILL struggling to get a face-to-face GP appointment? Fury at ministers for failing to solve crisis amid complaints over 'Catc-22' system… so use our interactive tool to see how bad the situation is at your practice.* Daily Mail. 2023

[online] Available at: https://www.dailymail.co.uk/health/article-11654929/Why-Brits-struggling-face-face-GP-appointment.html [Accessed 29th March 2023]
8. Donnelly, L. *Just one in four GPs are working full-time.* Telegraph. 2022. [online] Available at: https://www.telegraph.co.uk/news/2022/07/28/just-one-four-gps-works-full-time-new-data-reveals/ [Accessed 29th March 2023]
9. Jones, I. *Full-time GPs in England at lowest level for five years.* Evening Standard. 2022. [online] Available at: https://www.standard.co.uk/news/uk/gps-england-nhs-government-nhs-digital-b1015303.html [Accessed 29th Match 2023]
10. Salisbury, H. Helen Salisbury: Oh, those lazy, part time GPs! *BMJ*. 2019 367:I6813. DOI: 10.1136/bmj.I6813
11. Royal College of General Practitioners *Working 'part time' in general practice is the equivalent of working full-time or more, says college.* 2021. [online] Available at: https://www.rcgp.org.uk/news/working-part-time-in-general-practice [Accessed 21st July 2023]
12. Hann, M. Santos, R. Sutton, M. et al. *Sixth National GP Worklife Survey Final Report.* National Primary Care Research and Development Centre. 2011. Available at: http://data.parliament.uk/DepositedPapers/Files/DEP2012-1211/PQ116665.pdf [Accessed 5th May 2023]
13. Hann, M. McDonaldn, J. Checkland, K. et al. *Seventh National GP Worklife Survey.* University of Manchester. 2013.
14. Gibson, J. Checkland, K. Coleman, A. et al. *Eighth National GP Worklife Survey.* Policy Research Unit in Commissioning and the Healthcare System. 2015. Available at: https://pure.manchester.ac.uk/ws/portalfiles/portal/39031810/FULL_TEXT.PDF [Accessed 5th May 2023]
15. Gibson, J. Sutton, M. Spooner, S. et al. *Ninth National GP Worklife Survey.* Policy Research Unity in Commissioning and the Healthcare System. 2017. Available at: https://prucomm.ac.uk/assets/uploads/Ninth-National-GP-Worklife-Survey.pdf [Accessed 5th May 2023]
16. Walker, B. Moss, C. Gibson, J. et al. *Tenth National GP Worklife Survey.* Policy Research Unit in Commissioning and the Healthcare System. 2019. Available at: https://prucomm.ac.uk/assets/uploads/Tenth_GPWLS_2019_Final_version_post-review_corrected_1.pdf [Accessed 5th May 2023]
17. Obediyi, B. Walker, B. Gibson, J. *Eleventh National GP Worklife Survey.* Policy Research Unity in Commissioning and the Healthcare System. 2021. Available at: https://prucomm.ac.uk/assets/uploads/Eleventh%20GPWLS%202021.pdf [Accessed 5th May 2023]
18. NHS Digital. *General and Personal Medical Services, England – 2004-2014, As at 30 September: Practice Level and anonymised GP level Census Data.* 2023. [online] Available at: https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/2004-2014-as-at-30-september [Accessed 21st July 2023]
19. NHS Digital. *NHS payments to general practice.* 2023. [online] Available at: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-payments-to-general-practice [Accessed 14th March 2023]
20. British Medical Association. *Salaried GPs handbook.* 2021. [online] Available at: https://www.bma.org.uk/media/6582/salaried-gp-handbook-updateoct2022.pdf [Accessed 10th March 2023]

21. National Health Service. *Roles for doctors – General Practitioner.* 2023. [online] Available at: https://www.healthcareers.nhs.uk/explore-roles/doctors/roles-doctors/general-practitioner [Accessed 10th March 2023]
22. GOV.UK. *Part-time workers' rights.* 2023. [online] Available at: https://www.gov.uk/part-time-worker-rights [Accessed 10th March 2023]
23. Office for National Statistics. *Employee earnings in the UK: 2022.* 2022. [online] Available at: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2022 [Accessed 5th May 2023]
24. van Buuren, S. and Groothuis-Oudshoorn, K. "mice: Multivariate Imputation by Chained Equations in R." *J Stat Softw*. 2011. 45(3): pp.1-67. DOI: 10.18637/jss.v045.i03.
25. Lee, K. and Carlin, J. Multiple imputation for Missing Data: Fully Conditional Specification Versus Multivariate Normal Imputation*. Ann Epidemiol*. 2010. 171(5): pp.624-632. DOI: 10.1093/aje/kwp425
26. Holtom, B. Baruch, Y. Aguinis, H. et al. Survey Response Rates: Trends and a validity assessment framework*. The Tavistock Institute*. 2022. 75(8). DOI: 10.1177/00187267211070769
27. De Leeuw, E. Hox, J. and Luiten, A. International nonresponce trends across countries and years: an analysis of 35 years of labour force survey data*. Surv Methods Insights Field*. 2018. DOI: 10,11587/IZNRQ5
28. Bergman, K. *Workload issues affecting GP trainees plans for their future careers.* The King's Fund. 2022. [online] Available at: https://www.kingsfund.org.uk/blog/2022/09/workload-issues-affecting-gp-trainees-plans-their-future-careers [Accessed 10th March 2023]
29. Atkins, R. Gibson, J. Sutton, M. et al. Trends in GP incomes in England, 2008-2017: a retrospective analysis of repeated postal surveys. *Br J Gen Pract*. 2019. 70(690): e64-e70. DOI: 10.3399/bjgp19X706073
30. Morris, S. Goudie, R. Sutton, M. et al. Determinants of general practitioners' wages in England. *Health Economics.* 2011. 20(2): pp.147-60. DOI: 10.1002/hec.1573
31. Streeting, W. *Only radical thinking can find a long-term cure for the NHS.* Financial Times. 2023. [online] https://www.ft.com/content/3592b0e6-6d8d-4483-9f89-4c909b2defd0 [Accessed 31st March 2023]

Table 1: Descriptive statistics by survey year for multiple imputed weighted continuous variables

		2010 (n=1341)	2012 (n=1143)	2015 (n=1298)	2017 (n=1268)	2019 (n=529)	2021 (n=1761)
Sessions per week	Mean	7.27	7.22	6.90	6.72	6.57	6.24
	95% CI mean	7.22, 7.33	7.16, 7.28	6..84, 6.95	6.67, 6.77	6.49, 6.65	6.20, 6.28
	SD	2.05	1.99	1.98	1.95	1.93	1.92
Hours per week	Mean	40.50	41.30	40.86	40.23	39.73	37.98
	95% CI mean	38.49, 42.50	39.08, 43.52	38.66, 43.05	38.07, 42.39	36.19, 43.27	36.33, 39.63
	SD	12.82	12.87	13.70	13.50	14.50	12.89
Hours per session	Mean	5.67	5.82	6.03	6.08	6.13	6.22
	95% CI mean	5.65, 5.71	5.79, 5.85	5.99, 6.06	6.05, 6.12	6.08, 6.19	6.19, 6.25
	SD	1.28	1.30	1.37	1.39	1.44	1.51
Age	Mean	46.52	46.08	45.97	47.68	47.50	45.22
	95% CI mean	44.88, 48.17	44.29, 47.89	44.25, 47.70	45.88, 49.48	44.65, 50.35	43.75, 46.70
	SD	9.15	9.34	9.55	9.51	9.76	9.68
Income Deprivation	Mean	0.14	0.13	0.14	0.15	0.12	0.12
	95% CI mean	0.14, 0.14	0.13, 0.13	0.14, 0.14	0.15, 0.15	0.12, 0.12	0.12, 0.12
	SD	0.07	0.07	0.07	0.07	0.06	0.06
Intensity	Mean	3.45	3.71	4.00	3.98	3.85	3.79
	95% CI mean	3.44, 3.46	3.70, 3.72	3.99, 4.01	3.97, 3.99	3.82, 3.87	3.78, 3.80
	SD	0.71	0.68	0.64	0.67	0.77	0.72

Table 2: Descriptive statistics by survey year for multiple imputed weighted categorical variables

		2010 (n=1341)	2012 (n=1143)	2015 (n=1298)	2017 (n=1268)	2019 (n=529)	2021 (n=1761)
Contract type	Partner (%)	1138 (84.8)	963 (84.3)	1087 (83.7)	1090 (86.0)	395 (74.6)	1255 (71.3)
Sex	Male (%)	588 (43.8)	620 (54.3)	655 (50.5)	652 (51.5)	272 (51.5)	743 (42.2)
	Female (%)	753 (56.1)	523 (45.7)	643 (49.5)	616 (48.5)	257 (48.5)	1018 (57.8)
Ethnicity	White (%)	1135 (84.7)	958 (83.8)	1031 (79.4)	986 (77.8)	418 (79.0)	1433 (81.4)
	Non-White (%)	206 (15.3)	185 (16.2)	268 (20.6)	282 (22.2)	111 (21.0)	328 (18.6)
Rurality	Urban (%)	1102 (82.2)	901 (78.8)	1030 (79.4)	1078 (85.0)	416 (78.6)	1450 (82.3)
	Rural (%)	239 (17.8)	242 (21.2)	268 (20.6)	190 (15.0)	113 (21.4)	311 (17.7)

Table 3: Proportions of GPs working at least full-time using different definitions, by survey year.

Organisation setting the definition	General purpose of definition	FTE definition (per week)	2010 (%)	2012 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)
British Medical Association	Pay and contracts	9 sessions	32.6	28.0	20.0	16.3	14.3	9.5
NHS Health Careers Website	Job description	8 sessions	57.9	52.8	45.3	40.2	38.5	29.4
NHS Digital	NHS workforce statistics	37.5 hours	66.7	66.3	63.6	60.1	58.0	54.6
General UK definition (UK government)	General definition	35 hours	73.9	72.9	71.8	69.7	68.5	65.3
Office for National Statistics	National Statistics	30 hours	84.1	85.3	84.3	82.4	81.5	81.5

Figure 1: Boxplot of weighted sessions per week by survey year (outlier points removed). Lines correspond to 9 sessions and 8 sessions which are the BMA and the NHS Health Careers Website (job description) definitions respectively.

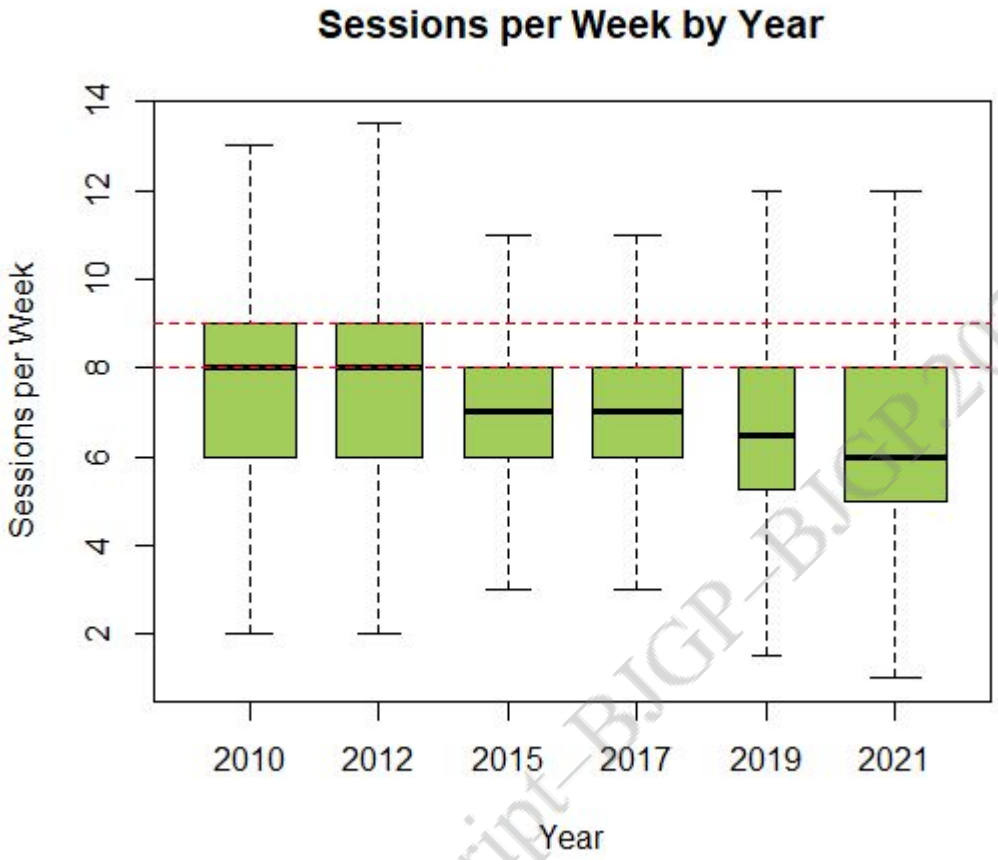

Figure 2: Boxplot of weighted hours per week by survey year (outlier points removed). Lines correspond to 37.5 hours, 35 hours and 30 hours which are the NHS digital, general UK and Office of National Statistics definitions respectively.

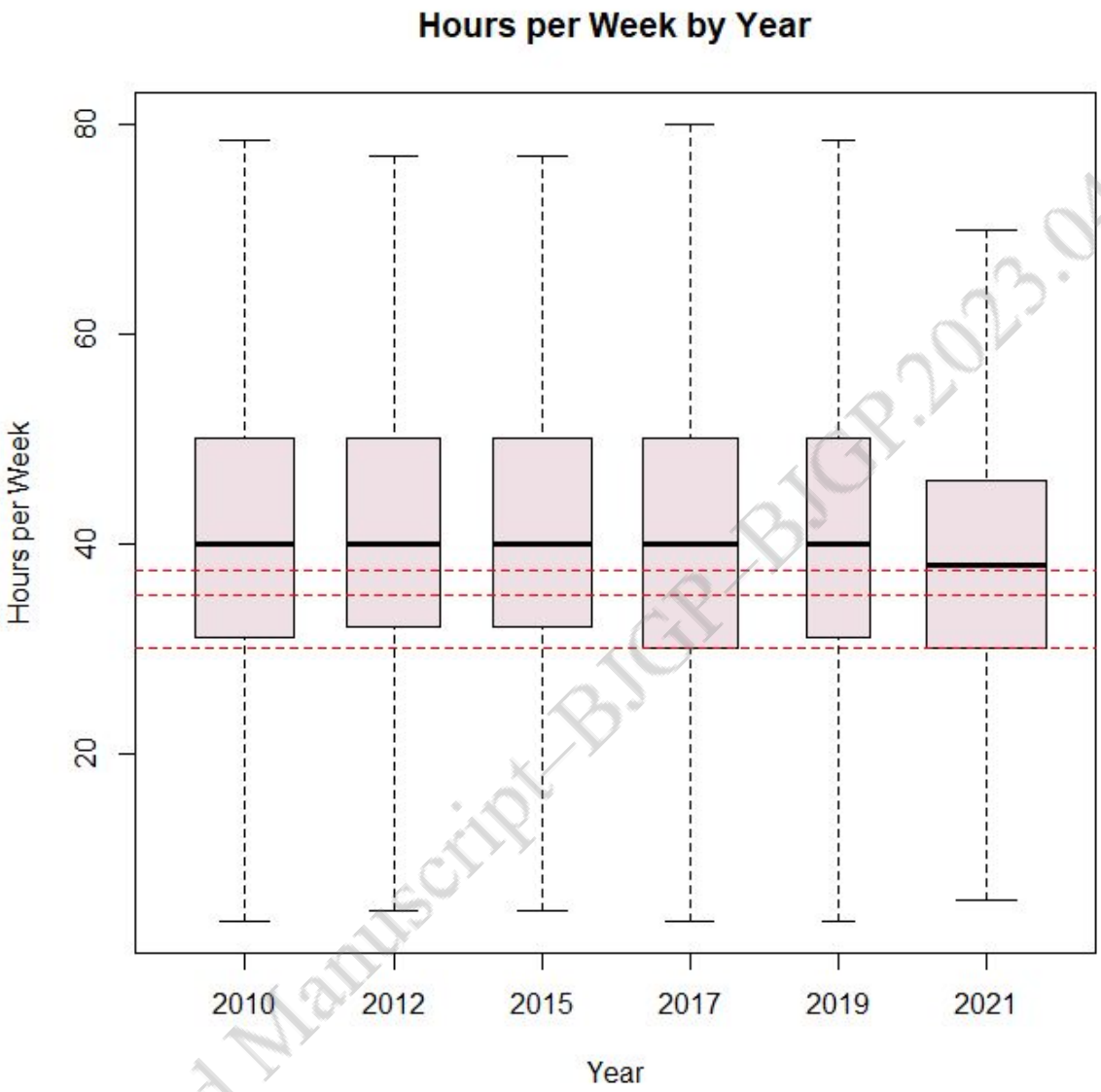

Figure 3: Boxplot of weighted hours per session by survey year (outlier points removed). Line corresponds to 4 hours 10 minutes, which the BMA uses to define the length of a session.