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ORIGINAL ARTICLE ON SOCIAL INEQUALITIES

Social inequalities in the demand, supply and utilisation of psychological treatment

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Abstract

Introduction: Socio-economic deprivation is associated with higher prevalence of mental disorders but poor access to care. We conducted a national workforce survey to examine the demand, supply and utilisation of primary care psychological services. *Aim*: To understand the variability in the rates of access to psychological care in different geographical areas. *Method*: This was a cross-sectional survey of Improving Access to Psychological Therapies (IAPT) services. Data were collected from 144 services covering 180 local areas in England, using a freedom of information request. The access gap (AG) was defined as the percentage of cases that did not receive treatment, from the wider pool of cases referred for psychological care. We examined correlations between the demand (number of referrals) and supply (workforce size) of psychological care with local area prevalence rates of common mental disorders and the index of multiple deprivation (IMD). Regression analyses were used to assess if the variability in the AG may be explained by IMD and workforce size, controlling for local population statistics. *Results*: Workforce size was weakly correlated with the IMD ($r = .16$, $p = .04$) and prevalence rates ($r = .16$, $p = .03$). The AG was significantly associated with IMD, number of referrals, prevalence rates and treatment waiting times, but not with workforce size. Together, these variables explained approximately 26% of variance in the AG. *Conclusions*: Socio-economic deprivation is associated with psychological service utilisation, irrespective of the demand–supply function, particularly when contrasting the poorest and most affluent areas.

Introduction

Socio-economic deprivation has long been a subject of controversy in the social and medical sciences. Income inequality, in particular, has been associated with some of the most pernicious and disparate societal problems including violent crime, drug abuse, imprisonment, racism, teenage birth rates, obesity, poor educational attainment and poor overall health status (Wilkinson & Pickett, 2007, 2010). Although

the centrality of income inequality in relation to these complex human problems has been contested by some (Eckersley, 2015; Kondo et al., 2009; Zagorski, Evans, Kelley & Piotrowska, 2014), there is little doubt that socio-economic deprivation is associated with poor emotional and mental health. Several studies have found correlations between socio-economic deprivation and the prevalence and severity of mental disorders; this has been consistently confirmed using measures of relative deprivation (Eibner, Sturm & Gresenz, 2004; Smith, Pettigrew, Pippin & Bialosiewicz, 2012), income inequality (Johnson, Wibbels & Wilkinson, 2015), income rank

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(Hounkpatin, Wood, Brown & Dunn, 2015) and composite indices of multiple domains of deprivation (Skapinakis, Lewis, Araya, Jones & Williams, 2005). This pervasive association between poverty and mental ill health is also evident in longitudinal studies (McLeod & Shanahan, 1996) and cross-national surveys (Lund et al., 2010).

Furthermore, although socio-economic deprivation increases the need and demand for mental health care, people living in deprived areas are less likely to access and to benefit from treatment. In a compelling demonstration of this paradox, a recent study analysed data for 293,400 cases referred to more than 100 psychological services across England and found a significant correlation between socio-economic deprivation and referral rates, indicating a higher demand for treatment in poorer areas (Delgadillo, Asaria, Ali & Gilbody, 2016). However, the access rate (ratio of cases that accessed treatment/total referrals) was not correlated with local area deprivation, which suggests that neighbourhoods with greater demand for care did not necessarily have higher rates of access to treatment. Attempting to explain this treatment 'access gap', the authors proposed two hypotheses: (1) services working in deprived areas could be underfunded and poorly resourced to meet the high level of demand; (2) deprivation per se could pose obstacles to access treatment even when it is available.

This study aimed to test the above hypotheses through a large-scale, national workforce survey, gathering data from multiple services linked to the Improving Access to Psychological Therapies (IAPT) programme in England. Specific objectives were to gather workforce size estimates for a representative sample of IAPT services and to investigate associations between socio-economic deprivation, workforce size and treatment access adjusting for relevant local population statistics.

Method

Study design and setting

We conducted a cross-sectional workforce survey to gather information about the number of therapists working in publicly funded psychological therapy services linked to the English IAPT programme. These data were then linked to local area statistics on population size, ethnic composition, socio-economic deprivation, prevalence of common mental disorders and IAPT treatment access.

Improving Access to Psychological Therapies services offer evidence-based psychological interventions that are endorsed by clinical guidelines for depression and anxiety disorders (National Institute for Health and Care Excellence, 2011). Treatment options are organised in a stepped care model, where most patients (~70%) initially access low-intensity interventions and cases with enduring symptoms or more severe presentations are stepped-up to high-intensity interventions (Clark, 2011). Low-intensity interventions in this setting are based on principles of cognitive behavioural therapy (CBT). They are typically brief (≤8 sessions) and are delivered by psychological well-being practitioners in a variety of flexible formats; in person, via telephone, in groups, or supported by computerised CBT platforms (Clark, 2011). High-intensity interventions are delivered by qualified psychotherapists and counsellors. These are lengthier (up to 20 sessions), protocol-driven psychotherapies including CBT, behavioural couples' therapy, interpersonal psychotherapy, counselling for depression, dynamic interpersonal therapy and eye-movement desensitisation and reprocessing. IAPT practitioners are trained to a standard curriculum (Richards & Whyte, 2009) and deliver treatments in line with national competency frameworks (e.g. see Roth & Pilling, 2008), under regular clinical supervision for their specific treatment modality.

Measures and data sources

Freedom of information requests were issued in December 2015 to all organisations that delivered IAPT services. Information requests contained a brief survey on the number of full-time equivalent (FTE) clinical posts that were funded at that time-point, as well as a list of clinical commissioning group (CCG) areas served by each organisation. There are 211 CCGs across England; these are clinically led statutory NHS groups responsible for the planning and commissioning of health care services for their local area. This enabled us to link workforce data (FTE per IAPT provider) with local population (CCG-level) statistics. Publicly available health care and population statistics (NHS Digital, 2016; Public Health England, 2017) for the time period between October and December 2015 included local population size, estimated prevalence of common mental disorders (2015), index of multiple deprivation (IMD score 2015), number of referrals to IAPT services, percentage of referrals from minority ethnic groups, number of cases that accessed treatment after an initial assessment and the mean number of days on waiting list before starting treatment. The IMD is an area-level composite measure which assigns a deprivation score to each postcode area across

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England, taking into consideration seven domains: income, employment, education level, health, crime, quality of housing and living environment (Payne & Abel, 2012). This study did not require ethical approval, as it used publicly available data with no patient-level identifiable information, which were subject to the freedom of information act.

Sample characteristics

A total of 205 IAPT service providers were identified from a national register (NHS Digital, 2016) and were issued an information request. Of those, 144 (70.2%) IAPT providers that covered 180 of 211 (85.3%) CCG areas responded to the workforce survey. Data were standardised at CCG-level as a primary unit of analysis and linked to population statistics. The total IAPT workforce size (in FTE units) across all surveyed CCG areas was 6875.26, with a mean of 38.20 FTE per CCG ($SD = 26.97$; range = 5.78–162.11). Altogether, surveyed IAPT services received a total of 307,440 referrals during the 3-month audit period, of whom 206,480 (67.2%) accessed treatment. Local population and service-related statistics are summarised in Table I. We applied Mann–Whitney U-tests to compare available population statistics between CCG areas where we did and did not obtain workforce data. The only significant difference was for the prevalence of common mental disorders, which was higher in the group of CCG areas that responded to the survey (15.7 vs. 14.3); U (209) = 3347.0, $p = .02$.

Data analysis

Consistent with the objectives of the study, the analysis was performed in two steps. Step 1 involved exploring intercorrelations between workforce size, population size, IMD score and prevalence of common mental disorders. Spearman's nonparametric correlations were used. A rank partial correlation controlling for population size was used to assess associations between workforce size and prevalence of common mental disorders. A sensitivity analysis involved repeating these correlation tests using winsorised workforce size data to assess the potential influence of extreme outliers.

The 'access gap' was defined as the ratio between cases that did not access treatment and total cases referred for treatment; therefore, it is complementary to the 'access rate' which is a common metric of service utilisation. Expressed as a percentage, a higher access gap is indicative of the mismatch between demand for and utilisation of care. Step 2 involved weighted least squares (WLS) regression, where the dependent variable was the access gap and independent variables included IMD score, total referrals, prevalence of common mental disorders, % of minority ethnic group referrals, workforce size and mean waiting time. The regression model was weighted by total population size in each CCG area. Tolerance (T < .1) and variance inflation factor (VIF > 2.5) statistics were used as multicollinearity diagnostics during model building (Bowerman & O'Connell, 1990). Standard assumptions and model checking (e.g. residual plots, heteroscedasticity) supported the use of WLS regression without a need to transform variables. As a sensitivity analysis, given the presence of extreme outliers, this model was repeated using winsorised data.

Results

Demand and supply of psychological care

Intercorrelations between IAPT workforce size and population statistics are presented in Table II. As expected, higher deprivation (IMD) scores were

Table I: Local population statistics for a representative sample of clinical commissioning groups in England.

Aggregated statistics for 180 (85.3%) CCG areas	Mean (SD)	Median	Range
Population size	206116.71 (115392.296)	174,970	49,811–715,252
Prevalence of CMD	15.7% (3.1)	15.52	10.29–25.51
IMD score	22.20 (8.45)	21.69	5.65–51.55
IAPT workforce size (FTE)[a]	38.20 (26.97)	30.35	5.78–162.11
Number of referrals to IAPT services[a]	1708.00 (1045.14)	1382.50	230–5665
Percentage of minority ethnic group referrals[a]	14.9% (16.3)	8.70	.9–75.7
Access rate[a]	68.6% (11.9)	69.23	35.0–99.5
Access gap[a]	31.4% (11.9)	30.77	.5–65.00
Average waiting time to start IAPT treatment (days)[a]	24.37 (18.36)	18.88	3.97–111.77

[a]IAPT service utilisation statistics for the quarterly period between October and December 2015; access rate = cases starting treatment/total referrals; access gap = 100 − access rate; CMD = common mental disorders; IAPT, Improving Access to Psychological Therapies; IMD = index of multiple deprivation; FTE = full-time equivalent clinical staff per clinical commissioning group (CCG).

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moderately correlated with greater prevalence of common mental disorders; $r = .54$, $p < .001$. IAPT workforce size was weakly correlated with local population size ($r = .38$, $p < .001$), IMD score ($r = .16$, $p = .04$) and prevalence of common mental disorders ($r = .16$, $p = .03$, controlling for population size). The same pattern of correlations was found using winsorised data, confirming that results were not influenced by extreme outliers. The scatterplot in Figure 1 illustrates associations between IAPT workforce size and the estimated number of cases with common mental disorders across 180 clinical commissioning groups. In this way, it is possible to visually assess the availability of psychological therapists relative to local need, which is a function of both population size and prevalence. Considerable variability in workforce size relative to diagnostic prevalence is evident in this graph, as illustrated by two CCG areas (black dots) that had comparable prevalence rates (65,602 vs. 64,945 cases) but large differences in available clinical staff (139.73 vs. 21.11).

Predictors of the mental healthcare access gap

Intercorrelations diagnostics were adequate (all T > .5; all VIF < 1.8), so all variables were retained in the model to test the primary hypothesis. Results of the regression analysis (Table III) indicated that a greater access gap was associated with higher local IMD scores ($B = .32$, $p = .01$), a larger number of referrals ($B = .002$, $p = .01$), lower prevalence of common mental disorders ($B = -1.43$, $p < .001$), and higher average waiting times ($B = .28$, $p < .001$). The access gap was not significantly associated with workforce size ($B = -.05$, $p = .09$) or the percentage of referrals from minority ethnic groups ($B = -.03$, $p = .65$). The same pattern of results was found using winsorised data; in particular, the regression

Table II: Intercorrelations between Improving Access to Psychological Therapies (IAPT) workforce size and population statistics.

	Workforce size (r)	Prevalence of CMD (r)	IMD score (r)	Population size (r)
Population size	.38***	.11	.04	
IMD score	.16*	.54***		
Prevalence of CMD	.16*,a			
Workforce size ω		.16*,a	.16*	.38***

CMD, common mental disorders; IMD, index of multiple deprivation.
aPartial correlations controlling for population size; ω = winsorised data; workforce size in full-time equivalent (FTE) units.
***$p < .001$; *$p < .05$.

coefficient for workforce size was no longer bordering statistical significance after adjusting for extreme outliers ($B = -.05$, $p = .13$). Intercorrelations between variables in the regression model indicated that average waiting times were correlated with referral rates ($r = .20$, $p < .01$), but not with any other variables.

Figure 2 illustrates the variability in psychiatric prevalence rates and access gap indices relative to socio-economic deprivation (expressed in IMD quintile groups). The most deprived CCG areas are clustered in quintile 1, and the most affluent areas are clustered in quintile 5. There is a clear linear trend of increasing prevalence rates in the most deprived areas. However, the most apparent differences in access gap indices were observed only between the most (quintile 1) and the least deprived (quintile 5) areas.

Discussion

Summary

This study presents the findings of the first large-scale workforce survey of publicly funded primary care psychological therapy services in England, aggregating data from a representative sample of 180 (85.3%) CCG areas. Taking the average FTE per CCG (38.20) to estimate the workforce size of areas with missing data, our findings suggest that there were approximately 8059.46 full-time clinicians working in the national IAPT programme at the time of the survey (December 2015). This equates to approximately 11.81 therapists per every 10,000 adults estimated to have a common mental disorder.

The supply of psychological therapists varied considerably across areas, with as low as 5.78 and as high as 162.11 FTE clinicians per CCG. Clear inequities in the supply of therapists were observed in areas with similar characteristics and prevalence rates. Overall, there was a trend for the alignment of demand and supply of psychological care congruent with prevalence rates, but also evidence of considerable variability across the country.

Strengths and limitations

As is common in large-scale surveys, several services did not respond to the information request and we were unable to quantify the workforce size in 31 CCG areas which had a lower than average prevalence of common mental disorders. It is also possible that the survey data may not be fully representative of

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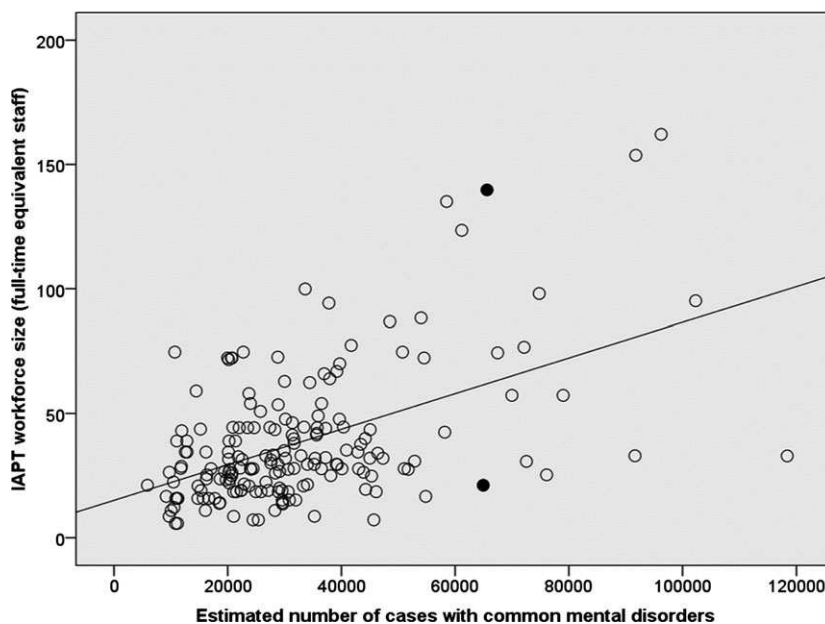
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Figure 1: Demand and supply of psychological therapy across 180 clinical commissioning groups.

Table III: Weighted least squares regression: correlates of the mental healthcare access gap.

	DV = access gap $F_{(178)} = 10.06$, $p < .001$ $R^2 = .26$				
	B	SE	p	95% CI	
Constant	38.34	4.41	<.001	29.63	47.05
IMD score	.32	.12	.01	.07	.57
Number of referrals to IAPT	.002	.00	.01	.00	.00
Prevalence of CMD	−1.43	.34	<.001	−2.10	−.76
Percentage of minority ethnic group referrals	−.03	.06	.65	−.14	.09
IAPT workforce size (FTE)	−.05	.03	.09	−.10	.01
Average waiting time (days)	.28	.04	<.001	.19	.37

Regression model weighted by population size.
B, unstandardised regression coefficient; CI, confidence intervals; CMD, common mental disorders; DV, dependent variable; FTE, full-time equivalent units; IMD, index of multiple deprivation; *SE*, standard error.

charitable and voluntary sector service providers, as these are not obliged to respond to freedom of information requests (whereas this is mandatory for providers aligned to the National Health Service). Nevertheless, we were able to gather data for a large sample covering 85.3% of CCG areas in England, including data from NHS trusts and several voluntary sector and commercial providers of psychological care. A further caveat concerns the cross-sectional nature of the data, which can highlight correlations but not causal relationships between variables.
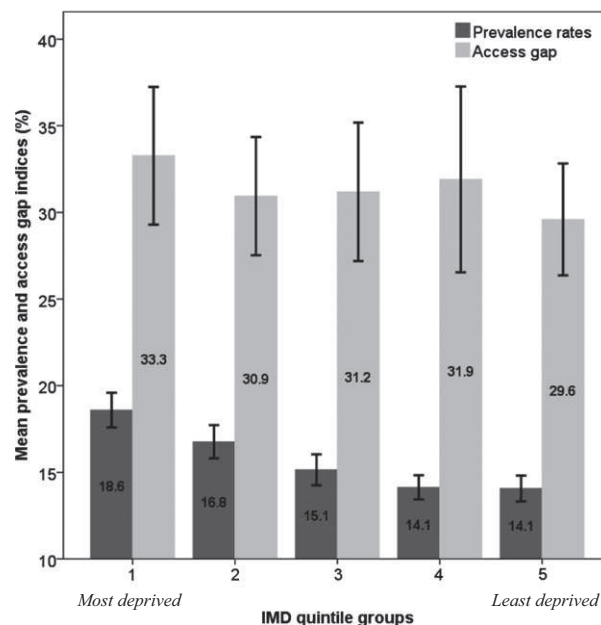

Figure 2: Variability in the prevalence of common mental disorders and access gap indices according to the index of multiple deprivation (IMD).

Comparison with existing literature

Regression analyses indicated that workforce size was not significantly associated with the access gap after controlling for local population statistics. These findings do not support the 'underfunding' hypothesis

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proposed by Delgadillo, Asaria, et al. (2016), but support their observation that socio-economic deprivation is associated with lower service utilisation despite the availability of treatment. As shown in Figure 2, however, this association seems more relevant when extremely poor areas are compared to the most affluent areas. The explanation for this association is not entirely clear, although there are some plausible theories. According to the social selection hypothesis (Eaton, 1980), individuals with mental disorders 'drift downwards' into poverty as a result of disability and functional impairment. Thus, it is plausible that areas with high deprivation also have high rates of disability, multi-morbidity and role impairment, which makes it difficult for patients to reach out to community clinics and to attend regular appointments with minimal support. Such circumstances arguably warrant either more assertive outreach models of mental healthcare delivery, or collaborative care between psychological therapists and social care providers. On the other hand, the social causation hypothesis (Dohrenwend & Dohrenwend, 1996) assumes that stress associated with socio-economic deprivation plays a causal role in the development and maintenance of mental health problems. From this perspective, mental disorders may be further exacerbated or maintained by psychological (e.g. derogatory self-comparison), social (racism, classism, harassment, outgroup derogation) or contextual (e.g. stress related to antisocial behaviour in the neighbourhood, financial debt) factors associated with poverty. Under these circumstances, it is understandable that some level of distress may be enduring and resistant to psychological interventions. It is also possible that, faced with these disadvantages, people living in poverty may have a lower sense of control over their well-being and poorer expectations about treatment.

It is noteworthy that the ethnic composition of CCG areas was not significantly associated with the access gap. Several studies have shown that people from minority ethnic groups are less likely to access mental health care and usually have higher rates of unmet need (Harris, Edlund & Larson, 2005; Kataoka, Zhang & Wells, 2002; Wells, Klap, Koike & Sherbourne, 2001). This finding may indicate that, consistent with national policy directives (Department of Health, 2009), IAPT services have made psychological care more accessible to patients from minority ethnic groups. In our view, similar policy efforts are needed to make psychological care more equitable, accessible and effective for people living in socio-economic deprivation.

The access gap was found to be associated with a lower prevalence of common mental disorders after controlling for other population statistics. It is possible that areas with lower prevalence rates may have a higher proportion of subclinical cases referred for treatment who experience spontaneous remission during waiting times, hence contributing to the access gap. Previous studies have estimated that approximately 20% of cases diagnosed with major depression randomised to waitlist control groups tend to experience spontaneous remission of symptoms without psychological treatment (Posternak & Miller, 2001). It is plausible that short-term improvement rates may be higher in subclinical cases. Furthermore, higher referral rates were correlated with longer average waiting times, which in turn may lead some patients to seek alternative sources of support (i.e. pharmacotherapy, counselling available through occupational, charitable or private sources), thus contributing to the access gap in public psychological services. In view of this, some IAPT services resort to offering large-group psychoeducational interventions which minimise waiting times and increase access rates (Delgadillo, Kellett, et al., 2016). Such strategies enable services to leverage a large patient-to-therapist ratio, which could explain why workforce size was not significantly associated with the access gap. However, the association between waiting times and access gap could also be artefactual. For example, some services contact patients on waiting lists to promote engagement with subsequent therapy appointments (Mander, 2014). This strategy artificially curtails waiting times and inflates access rates, as these contacts are recorded as therapy sessions (while patients in fact remain on a waiting list). In summary, the access gap is influenced by a complex set of population trends and service-related strategies to balance scarce resources with high demand for treatment.

Conclusions

We found weak evidence of an alignment of demand and supply of psychological treatment in publicly funded primary care services. Inequities in workforce size were observed for several areas with comparable prevalence of common mental disorders. The treatment access gap was influenced by factors including socio-economic deprivation, referral rates, prevalence rates and waiting times. Improving the accessibility and effectiveness of psychological care for people living in socio-economically deprived areas remains one of the greatest challenges for mental health services.

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