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Are efforts to recruit to psychiatry closing the stable door after the horse has bolted? Knowledge and attitudes towards a career in psychiatry amongst secondary (high) school students: A UK-based cross-sectional survey

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3 **Are efforts to recruit to psychiatry closing the stable door after the horse has**
4 **bolted? Knowledge and attitudes towards a career in psychiatry amongst**
5 **secondary (high) school students: A UK-based cross-sectional survey**
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Abstract

Background

Internationally there is a shortage of psychiatrists, whilst clinical psychology training is generally oversubscribed. School students interested in psychological health may not be aware of the possibility of studying medicine before specialising in psychiatry. This has implications for the mental health workforce.

Aims

To evaluate the knowledge and attitudes relating to a potential career in psychiatry amongst secondary (high) school students.

Method

A cross-sectional survey evaluated attitudes and knowledge relating to psychiatry and clinical psychology, targeting students from five schools who were studying chemistry, biology and/or psychology at advanced level.

Results

186 students completed the survey (response rate 41%). Knowledge was generally poor with only 57% of respondents knowing that psychiatrists had medical degrees, and most participants substantially underestimating the salaries of consultant psychiatrists. Attitudinal response patterns were explained by two underlying factors, relating to a generally negative attitudes towards psychiatry and positive attitudes towards the effectiveness of psychiatric treatments. Females and those studying psychology reported more positive attitudes towards psychiatry. Those studying chemistry reported more negative attitudes towards the effectiveness of mental health treatment.

Conclusions

Studying psychology predicted a positive attitudes towards psychiatry. Such students could be targeted by recruitment campaigns, which emphasise factual information about the specialty.

Introduction

Worldwide, psychiatry generally struggles to recruit sufficient numbers of doctors, leading to staffing levels lagging behind other medical careers. For certain high income countries, such as Japan and the United States, this is less problematic, though many economically advantaged countries still routinely have around a tenth of senior psychiatric posts vacant at any point (Shields et al., 2017). For example, the number of vacant consultant psychiatrist posts across England more than tripled from 220 in 2013 to 708 in 2019. This has resulted in approximately 10% of all consultant psychiatrist roles being unfilled with high levels of vacancies in the other countries of the UK. This rate of unfilled posts was 7.8% in Northern Ireland, 9.6% in Scotland and 12.7% in Wales (Royal College of Psychiatrists, 2020a). The shortage of medical qualified staff in mental health services has serious consequences for patient care and safety. For example, patients value continuity of care, which can actually reduce the risk of hospital admission (Ride et al., 2019). This continuity can be disrupted by a heavy reliance on locum (temporary) psychiatrists. Moreover, reliance on expensive locum doctors is a major contribution to UK National Health Services (NHS) overspending. For example, one previous Freedom of Information response showed one Mental Health Trust had spent £1.97M on locum doctors in the year 2014-15. The current extent of NHS expenditure on locum psychiatrists is not known. However, given that during 2019 there were 285 consultant posts occupied by locums it is still likely to be considerable (Royal College of Psychiatrists, 2020a). It also known that locum doctors are more likely than those employed substantively to receive serious censure for issues in relation to fitness to practise (General Medical Council, 2018). Thus, this has implications for patient safety, as well as the quality of care provided.

In order to understand the recruitment challenges in psychiatry it is vital to capture what others think of the profession. Psychiatry has always been somewhat stigmatised and misunderstood by the public. In one study, half the general public members surveyed were unaware that psychiatrists had medical degrees, 80% underestimated the length of training and there was huge variation in the conditions that they believed were treated by them. The public also believed psychiatrists were most likely to treat patients with counselling, not recognising the major role medication played in care (Williams et al., 2001). Most strikingly 47% of public respondents reported they would be uncomfortable sitting next to a psychiatrist at a dinner party. These attitudes are also found in the medical profession; perhaps more shockingly 26% of medical students also agreed that they would not like to be seated next to a psychiatrist at a party (Deb & Lomax, 2014)! Likewise, an international survey of medical (non-psychiatric) faculty members reported that 90% of respondents thought that psychiatrists were not good role models for students and 73% thought that psychiatric patients were 'emotionally draining'

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3 (Stuart et al., 2015). Moreover, when medical professionals and non-medics are asked to rank
4 specialities in order of prestige psychiatry is usually listed at, or near, the bottom. These
5 negative attitudes amongst medics may be partly driven by a view that the specialty is
6 relatively 'unscientific' and lacks the evidence base that underpins practice in other branches
7 of medicine (Norredam & Album, 2007); a viewpoint which is largely no longer valid, especially
8 for the most common, significant mental health conditions such as depression and anxiety.
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13 The UK Royal College of Psychiatrists has been operating an award winning recruitment
14 strategy entitled 'Choose Psychiatry' (Royal College of Psychiatrists, 2020b). This has aimed
15 to reduce the proportion of psychiatric posts that remain vacant (Royal College of
16 Psychiatrists, 2017). Their campaigns mainly target medical students and Foundation Years
17 doctors (medical graduates in their first two years of postgraduate training), though some
18 interventions have involved running summer schools for those considering applying to medical
19 school. Innovative approaches, such as utilising student psychiatry clerkships, have
20 demonstrated a positive impact on the attitudes of the small number of individuals participating
21 in these interventions (Lyons & Janca, 2015). The introduction of early exposure to psychiatry
22 in the undergraduate medical curriculum (Qureshi et al., 2016) and increased psychiatric
23 Foundation Years posts (Royal College of Psychiatrists, 2015) have also been implemented
24 in the UK in the hope that these will increase recruitment. To date there have been some early
25 indications of some success with these strategies. Indeed, UK fill rates for 2020 have been
26 reported as 100% for the first year of core training in psychiatry, after one round of
27 readvertising. However, these high rates belie a marked reduction in the absolute numbers of
28 trainees in psychiatry; whilst 418 first year trainee psychiatrists were recruited in 2020 for that
29 year, the equivalent figure for 2019 was 548 core trainees recruited in the 2019 intake (Health
30 Education England North-West, 2020a). It is not clear what has happened to the posts
31 advertised in preceding years, though it is possible that some may have been changed to non-
32 training positions, such as 'Trust grade doctor' roles. These relatively low absolute numbers
33 of doctors in core training will have implications for the proportion of more advanced training
34 posts filled; in 2020, only 342 out of 580 (59%) of UK-based places on higher specialist
35 psychiatric training schemes were filled (Health Education England North-West, 2020b). In
36 turn, this will have implications for the number of unfilled consultant posts.
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51 There has been much focus on those who have already chosen to be doctors, though little
52 exploration regarding the knowledge and attitudes of those yet to choose their careers. A
53 cross-sectional survey reported that those medical students who go on to choose psychiatry
54 frequently expressed an interest in the area prior to medical school (Farooq et al., 2014). Thus
55 there is a strong rationale for understanding the perceptions of psychiatry in those yet to enter
56 university. There is only one published study investigating sixth form students' attitudes
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3 towards psychiatry. This involved asking sixth form students, who had enrolled on a course
4 designed specifically for those interested in medicine, to rate potential careers by likelihood of
5 them entering that career. Psychiatry scored surprisingly high on the ratings by these sixth
6 form students with 12.4% of students reporting that they would 'definitely' pursue the career
7 (Maidment et al., 2003). Interestingly anaesthetics, dermatology, radiology and ear, nose and
8 throat (ENT) surgery all came towards the bottom of the list of desired careers, despite being
9 perceived as more desirable careers amongst doctors. In contrast, a study of first year medical
10 students at a London university reported only 2.7% of 300 students expressed a desire to
11 pursue psychiatry (Fysh et al., 2007). This raises questions about whether those with positive
12 attitudes towards psychiatry actually enter medical school, or whether there is a shift in
13 interests during the early stages of medical education.

21 Many secondary (high) school students may not even realise that psychiatry is a potential
22 career option for a medicine graduate. Moreover, one profession closely allied with psychiatry,
23 though not facing the same recruitment challenges, is clinical psychology. Indeed, psychology
24 undergraduate and postgraduate courses continue to be oversubscribed; psychology is
25 currently the second most popular degree course in the UK (McGhee, 2015). Postgraduate
26 clinical psychology courses, generally leading to careers in mental health services, are
27 likewise grossly oversubscribed and highly competitive. Thus, it is possible that some
28 individuals destined to be clinical psychologists may consider medicine, if they understood
29 more about psychiatry. Indeed, advanced qualification requirements for both psychology and
30 medical courses may be similar, with an emphasis on the sciences (The Medic Portal, 2019).

37 Interventions targeting sixth formers have begun, with psychiatrists providing talks for
38 students. However, in order to ensure the effectiveness of any intervention one must first
39 understand what the students already know and think about the profession. Recruitment
40 strategies could then be tailored accordingly. Thus, this project aimed to assess the knowledge
41 of, and attitudes towards psychiatry as a potential career.

48 **Methods**

51 Ethical approval was granted by the Hull York Medical School (HYMS) Research Ethics
52 Committee. The study employed a cross-sectional survey design, deployed online. The survey
53 questionnaire consisted of a section asking for basic demographic details (age, gender,
54 ethnicity and A-level subjects being studied) and modified version of the Attitudes to Psychiatry
55 (ATP) questionnaire (Burra et al., 1982). In addition a number of bespoke items were included
56 that were designed to capture the level of factual knowledge about psychiatry and clinical
57 psychology in the respondent. The response format of these latter items varied, according to
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3 what seemed most suited to the question. For example, when asking the respondent to
4 estimate the salary of a consultant psychiatrist a pointer had to moved to the estimated
5 monetary amount. Respondents were instructed not to use the internet to obtain any answers
6 given.
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10 Ten schools were initially contacted about the study. All but one was in an urban area of South
11 Yorkshire, UK, the remaining one being in London. The school in London was approached via
12 a personal contact of one of the research team. Both independent and state schools in the
13 urban area of South Yorkshire were targeted (eight being state funded and two private
14 ('independent')) given that medical students tend to be drawn substantially from private and
15 state schools, with around one third from the former type (Kumwenda et al., 2017). Of these,
16 five accepted, of which one was an independent school. All five participating schools were
17 located in ethnically diverse, though relatively affluent areas of major cities. The schools that
18 agreed to participate disseminated the survey either via email or via online virtual blackboards
19 directly to students who met the inclusion criteria. The survey was first distributed on February
20 8th 2019 and remained open for one month. One reminder was sent during this period.
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28 The inclusion criteria for the study were:

- 29 • Aged 16 years or older
- 30 • Currently enrolled in lower sixth form
- 31 • Taking at least one of the following A levels – biology, chemistry or psychology

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36 The A level subject choices were made as these were the qualifications required by the
37 majority of medical schools for 'standard entry', but would also potentially allow admission to
38 a psychology degree course. Participating students were given the option of entering their
39 email addresses into a random prize draw for one of four £50 vouchers.
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43 *Analyses*

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45 In order to understand the dimensionality of the responses to the attitudinal questionnaire a
46 series of exploratory and confirmatory factor analyses were planned. These would be done,
47 firstly, to understand any common constructs underlying the responses ('factors'/latent
48 variables'), and secondly, to decide how best to summarise the scores from the questionnaires
49 for further analysis. As the responses were to a Likert scale response format, an ordinal factor
50 analysis was planned, using Mplus version 8.1 (Muthén & Muthén 2017). A range of plausible
51 factor models would be explored, ranging from one to four factors. The relationship between
52 the attitudinal factor scores, knowledge levels and any demographic or educational factors
53 was explored using a series of univariable linear regression analyses, using STATA 14 MP
54 version (StataCorp LP, 2016).
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Results

The response rate to the survey was 41%; higher than the average of 33% for online surveys (Nulty, 2008). A total of 254 sixth formers commenced the survey. However, not all students completed all components of the survey. In total 186 sixth formers completed both the demographics and knowledge section and a total of 171 completed demographics, knowledge and attitudinal components. The total number of student who were provided with the opportunity to participate in the survey was 456 (i.e. this was the sampling frame). The proportion of males to female respondents was roughly equal, as was the balance of age groups (16 vs 17 years). Eighty-six of the students (46.23%) were studying more than one of the subjects with the biology and chemistry combination being the most popular. A description of the demographic and educational characteristics of the participants are shown in Table 1.

[Insert Table 1 about here]

Attitudes to psychiatry (ATP-30)

The one factor model showed a relatively poor fit to the data and therefore was discarded. A four-factor model contained a factor where there were only three items loading specifically and heavily on it. Thus, the four factor model was not plausible. Therefore, two and three factor models were explored in further detail. It was noted that on a three-factor model there was a separate factor mostly loading on negatively worded items. This was assumed to be a method effect, which has been well described previously (Marsh, 1996). Indeed, there are no theoretical grounds for considering that “a negative attitude” and a “positive” attitude” as separate constructs in relation to perceptions of psychiatry as a profession. Therefore, the two-factor model was focused on, but in order to allow for this putative method effect, the residuals from the model for negatively worded items were allowed to correlate, as recommended by Marsh (Marsh, 1996). This led to a confirmatory factor model that appeared to adequately fit the data with a confirmatory fit index (CFI) of 0.91. Generally, a fit of more than 0.90 is considered adequate, with good fit being considered with CFIs above 0.95 (Hu & Bentler, 1999).

The factor scores were recovered from the two-factor model (with correlated residuals for the negatively worded items) to summarise whereabouts on a continuum, in relation to the other respondents on each dimension of attitude, the respondent lay according to his/her responses. Thus, factor scores are weighted by the loading on each factor of the responses from each

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3 participant, standardised with a mean of zero and variance of one and can be interpreted in
4 relation to the other respondents.
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7 The two factors derived from the factor analysis are shown in Figure 1. Factor 1 relates to a
8 negative general attitude towards psychiatry and is indicated by responses to 16 of the ATP
9 items. Factor 2 relates to a positive attitude towards effectiveness of treatment and indicated
10 by five of the ATP items. The two factors correlate -0.68 , indicating a substantial degree of
11 inverse relationship. That is, more negative general attitude towards psychiatry is correlated
12 with a more sceptical view of mental health treatment effectiveness
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18 [Insert Table 2 about here]
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20 Table 2 outlines the results of a series of regression analyses conducted using the individual's
21 factor scores as the dependent (outcome) variable. As can be seen from Table 2, only female
22 gender and studying psychology were statistically significantly ($p < 0.05$) associated with a
23 relatively less negative general attitude towards psychiatry. Likewise, those who were studying
24 psychology were more positive about the effectiveness of psychiatric treatments, whilst those
25 studying chemistry were more negative about this issue.
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32 *Knowledge Component*

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34 Participants were asked to respond to the statement "To become a psychiatrist someone
35 would require a degree in which subject?" by choosing one or more of 'medicine', 'psychology',
36 'pharmacology' and 'sociology'. Seventy-four percent of respondents erroneously reported
37 that a psychology degree was required whilst only 57% correctly identified that a medical
38 degree was mandated. Many (64%) respondents also commonly indicated that they believed
39 that the length of time to become a consultant psychiatrist was five to eight years from starting
40 university. This is significantly shorter than the five years of medical school, two years
41 foundation training and six years of specialist psychiatry training required in the UK to become
42 a fully qualified consultant psychiatrist .
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49 Respondents were on the whole aware of which specialties were psychiatric specialties when
50 presented with a list containing *general adult*, *child/adolescent*, *learning disability*,
51 *psychotherapy* and *older adult*, intermixed with a list of non-psychiatric specialties
52 (*endocrinology*, *respiratory*, *cardiac*, *gastrointestinal* and *dermatology*). The only exception
53 was forensic which caused a 48/52 split in favour of it erroneously being a non-psychiatric
54 specialty.
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3 Participants were asked to distribute a list of conditions into two boxes, one titled '*Psychiatrist*'
4 and one titled '*Not a Psychiatrist*'. The majority of the conditions listed were placed in the
5 correct group by respondents. 'Dementia' and 'Marital Problems' were less unanimous with a
6 56/44 and 60/40 split between 'Psychiatrist' and 'non-Psychiatrist' respectively. This may be
7 a result of neurologists also seeing patients with dementia and a lack of clarity regarding the
8 difference between psychiatrists and psychologists/therapists who may see people for marital
9 problems.
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12 Respondents were asked to make an estimation of the annual salary of a consultant
13 psychiatrist in the UK. They were informed that the mean UK annual salary for a full time
14 employee is £28,677 (Office for National Statistics, 2017). They were constrained to a
15 minimum salary of £10,000 and a maximum of £200,000. The respondents gave a mean
16 predicted salary of £60,000 and a median value of £52,000. This is much lower than the actual
17 salaries, with the mean likely to be around £90,000 to £110,000 per year in the National Health
18 Service (depending on experience and discretionary pay awards) though will be higher in the
19 private (independent) healthcare sector (British Medical Association, 2020).
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23 Regression analyses were also used to model the measure the relationships between the
24 independent (predictor) variables and the total knowledge score obtained by the respondent,
25 which was calculated simply by totalling by the number of correct answers in the knowledge
26 section. The results are shown in Table 3. As can be seen there were no were statistically
27 significantly ($p < 0.05$) predictors of knowledge of psychiatry as a career. However, there was
28 a trend of borderline statistical significance ($p = 0.05$) for those with less negative attitudes
29 towards psychiatry to provide more accurate answers to the knowledge questions.
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46 Discussion

47 This is the first study to explore the knowledge and attitudes towards psychiatry amongst a
48 diverse group of lower sixth form students, studying science subjects, but who have not
49 necessarily shown any prior interest in studying medicine. The findings highlight the lack of
50 knowledge regarding the psychiatric career pathway, with only just over half of respondents
51 identifying that a medical degree is required. Respondents also underestimated the length of
52 training time and average salary for a consultant. However, the participants demonstrated a
53 reasonable ability to identify which conditions psychiatrists treated and the subspecialties of
54 practice.
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3 In terms of attitudes, two, related, factors underlying responses to the ATP were identified.
4 Males tended to hold more negative views of psychiatry in general, compared to female
5 students. Unsurprisingly, those studying psychology generally reported more positive attitudes
6 towards both the specialty and the effectiveness of treatment, compared to those taking
7 chemistry at advanced level. Those with more accurate knowledge of psychiatry tended to
8 report a more positive attitude. It is notable that the present findings in relation to knowledge
9 of psychiatry are broadly comparable to those reported previously for the general public
10 (Williams et al., 2001).
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16 The strengths of this study include the relatively high response rate of 41% for this kind of
17 survey. The incentive of a prize draw upon completion of the study likely helped to increase
18 the response rates. Nevertheless, there is still the possibility that response bias may have
19 influenced the results, with perhaps those with more favourable or negative views being more
20 likely to complete the questionnaire. A further strength is that this survey accessed a large
21 number of school students who, based on their subject choice, may have subsequently have
22 been in a position to apply for either a medicine or psychology course. Nevertheless, there
23 are some potential limitations and weaknesses present. Firstly, it was noted that there was a
24 drop off in respondents from the point of opening the survey link to completion. It is important
25 to consider why participants dropped out at each stage. The drop out from consent to
26 completion of demographics may have been related to students not wishing to give out their
27 demographic information. This was a mandatory section of the survey and non-completion
28 meant participants could not progress. A further limitation is that the schools participating were
29 drawn from relatively affluent urban areas in South Yorkshire and London. A more diverse
30 sample schools may have rendered the results more generalizable. This could have been
31 addressed by the use of a wider sampling frame of schools, and incentivising their participation
32 in the study. Nevertheless, almost all medical students are drawn from relatively advantaged
33 backgrounds, with 20% of schools in England supplying 80% of the country's medical students
34 (Mwandigha et al., 2018). Moreover, a recent study highlighted that UK medical graduates
35 who choose a career in psychiatry were more likely to identify as of white ethnicity and be
36 privately educated (Lambe et al., 2019). Thus, our findings may apply to the current school
37 students who may be likely to enter medical school. However, further efforts to widen access
38 to medicine (Medical Schools Council, 2018), especially in the light of the recent expansion in
39 UK-based medical school places may influence the demographics of doctors in training.
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55 This study provides valuable information for those designing and deploying recruitment
56 strategies to address the shortage of psychiatrists. Such campaigns should be evaluated using
57 the absolute number of trainees recruited, in addition to the~~rather than~~ fill rates, as both are
58 relevant ~~the primary~~ outcomes of interest. ~~Theis~~ former metric may be more appropriate
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3 when engaged in workforce planning and considering the training pipeline through to
4 consultant posts. These findings highlight that imparting factually accurate information relating
5 to a career path in psychiatry is at least as important as addressing negative, or stigmatised
6 attitudes towards mental health issues. Indeed, stigmatised attitudes towards mental health,
7 particularly amongst younger people, seem to be declining (Henderson et al., 2019).
8 Nevertheless, recruitment campaigns are an opportunity to reinforce the message that
9 physical and mental health should have parity of esteem. Secondly, recruitment campaigns
10 should be targeting those students studying psychology who might already be considering
11 clinical psychology as a career. If this group can be encouraged to enter medical school and
12 mentored through training then they may help form a new cohort of future psychiatrists. There
13 is no evidence, currently, that medical students who have sat A-level psychology are more
14 likely than others to become psychiatrists, although interestingly US medical students who
15 had studied psychology at college were more likely to choose the speciality (Goldenberg et
16 al., 2017). However, comparisons with North America, where medicine is a postgraduate
17 degree, must be made only tentatively, given the very different educational systems.
18 Nevertheless, this observation may further emphasise the need to go 'upstream' and engage
19 with students before they decide to apply to medical school (Mukherjee et al., 2013). In
20 addition, the fact that increasing numbers of UK medical schools are recognising psychology
21 as a science subject, as well as abandoning advanced level chemistry as a core requirement
22 for admission, is to be welcomed (Medical Schools Council, 2020). Such changes may be
23 expected to take some time to filter through to those school students aspiring to be doctors.
24 For the time being the vast majority of medical school applicants in the UK can be expected
25 to continue to focus on achievement at the three sciences and/or, mathematics.
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41 The UK Royal College of Psychiatrists has run summer schools for secondary school students
42 as part of their recruitment campaign. However, if school students fail to understand the main
43 similarities and differences between a career in clinical psychology and psychiatry they are
44 less likely to appropriately attend a psychiatry summer school. Nevertheless, attention should
45 continue to be paid to those already in medical school who may consider a career in
46 psychological medicine. Indeed, there is evidence of 'psychiatry bashing' as part of the 'hidden
47 curriculum' of medical school, resulting in the Royal College of Psychiatrists launching a social
48 media 'Ban the Bash' campaign (Ajaz et al., 2016). With such issues in mind the Royal College
49 of Psychiatrists has issued guidance to medical schools as part of their 'Choose Psychiatry'
50 strategy (Royal College of Psychiatrists, 2019).
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58 In conclusion, this study provides important information that can shape future psychiatric
59 recruitment strategies. Such campaigns should include, as a key component, the provision of
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accurate factual information to secondary school students. Only then will many potential future psychiatrists understand the speciality represents a well remunerated, worthwhile and rewarding career that makes a difference to thousands of patients and their families daily.

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Declaration of interest

PAT is a Fellow and LJM a Member of the Royal College of Psychiatrists.

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3 **List of figure captions**
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5 **Figure 1.** Two factor model of attitudes towards psychiatry with standardised factor loadings,
6 factor correlations, error variance and residuals. Note, correlated residuals [not all shown] are
7 included to account for the 'method effect' of negatively worded items.
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10 **Figure 2.** Distribution of the estimates of the average salary of a UK consultant psychiatrist,
11 as reported by the sample of secondary school students.
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For Peer Review Only

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3 **Are efforts to recruit to psychiatry closing the stable door after the horse has**
4 **bolted? Knowledge and attitudes towards a career in psychiatry amongst**
5 **secondary (high) school students: A UK-based cross-sectional survey**
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15 **Keywords:** Psychiatry, Recruitment, Mental Health Workforce
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For Peer Review Only

Abstract

Background

Internationally there is a shortage of psychiatrists, whilst clinical psychology training is generally oversubscribed. School students interested in psychological health may not be aware of the possibility of studying medicine before specialising in psychiatry. This has implications for the mental health workforce.

Aims

To evaluate the knowledge and attitudes relating to a potential career in psychiatry amongst secondary (high) school students.

Method

A cross-sectional survey evaluated attitudes and knowledge relating to psychiatry and clinical psychology, targeting students from five schools who were studying chemistry, biology and/or psychology at advanced level.

Results

186 students completed the survey (response rate 41%). Knowledge was generally poor with only 57% of respondents knowing that psychiatrists had medical degrees, and most participants substantially underestimating the salaries of consultant psychiatrists. Attitudinal response patterns were explained by two underlying factors, relating to a generally negative attitudes towards psychiatry and positive attitudes towards the effectiveness of psychiatric treatments. Females and those studying psychology reported more positive attitudes towards psychiatry. Those studying chemistry reported more negative attitudes towards the effectiveness of mental health treatment.

Conclusions

Studying psychology predicted a positive attitudes towards psychiatry. Such students could be targeted by recruitment campaigns, which emphasise factual information about the specialty.

Introduction

Worldwide, psychiatry generally struggles to recruit sufficient numbers of doctors, leading to staffing levels lagging behind other medical careers. For certain high income countries, such as Japan and the United States, this is less problematic, though many economically advantaged countries still routinely have around a tenth of senior psychiatric posts vacant at any point (Shields et al., 2017). For example, the number of vacant consultant psychiatrist posts across England more than tripled from 220 in 2013 to 708 in 2019. This has resulted in approximately 10% of all consultant psychiatrist roles being unfilled with high levels of vacancies in the other countries of the UK. This rate of unfilled posts was 7.8% in Northern Ireland, 9.6% in Scotland and 12.7% in Wales (Royal College of Psychiatrists, 2020a). The shortage of medical qualified staff in mental health services has serious consequences for patient care and safety. For example, patients value continuity of care, which can actually reduce the risk of hospital admission. This continuity can be disrupted by a heavy reliance on locum (temporary) psychiatrists. Moreover, reliance on expensive locum doctors is a major contribution to UK National Health Services (NHS) overspending. For example, one previous Freedom of Information response showed one Mental Health Trust had spent £1.97M on locum doctors in the year 2014-15. The current extent of NHS expenditure on locum psychiatrists is not known. However, given that during 2019 there were 285 consultant posts occupied by locums it is still likely to be considerable (Royal College of Psychiatrists, 2020a). It also known that locum doctors are more likely than those employed substantively to receive serious censure for issues in relation to fitness to practise (General Medical Council, 2018). Thus, this has implications for patient safety, as well as the quality of care provided.

In order to understand the recruitment challenges in psychiatry it is vital to capture what others think of the profession. Psychiatry has always been somewhat stigmatised and misunderstood by the public. In one study, half the general public members surveyed were unaware that psychiatrists had medical degrees, 80% underestimated the length of training and there was huge variation in the conditions that they believed were treated by them. The public also believed psychiatrists were most likely to treat patients with counselling, not recognising the major role medication played in care (Williams et al., 2001). Most strikingly 47% of public respondents reported they would be uncomfortable sitting next to a psychiatrist at a dinner party. These attitudes are also found in the medical profession; perhaps more shockingly 26% of medical students also agreed that they would not like to be seated next to a psychiatrist at a party (Deb & Lomax, 2014)! Likewise, an international survey of medical (non-psychiatric) faculty members reported that 90% of respondents thought that psychiatrists were not good role models for students and 73% thought that psychiatric patients were 'emotionally draining' (Stuart et al., 2015). Moreover, when medical professionals and non-medics are asked to rank

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3 specialities in order of prestige psychiatry is usually listed at, or near, the bottom. These
4 negative attitudes amongst medics may be partly driven by a view that the specialty is
5 relatively 'unscientific' and lacks the evidence base that underpins practice in other branches
6 of medicine (Norredam & Album, 2007); a viewpoint which is largely no longer valid, especially
7 for the most common, significant mental health conditions such as depression and anxiety.
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11 The UK Royal College of Psychiatrists has been operating an award winning recruitment
12 strategy entitled 'Choose Psychiatry' (Royal College of Psychiatrists, 2020b). This has aimed
13 to reduce the proportion of psychiatric posts that remain vacant (Royal College of
14 Psychiatrists, 2017). Their campaigns mainly target medical students and Foundation Years
15 doctors (medical graduates in their first two years of postgraduate training), though some
16 interventions have involved running summer schools for those considering applying to medical
17 school. Innovative approaches, such as utilising student psychiatry clerkships, have
18 demonstrated a positive impact on the attitudes of the small number of individuals participating
19 in these interventions (Lyons & Janca, 2015). The introduction of early exposure to psychiatry
20 in the undergraduate medical curriculum (Qureshi et al., 2016) and increased psychiatric
21 Foundation Years posts (Royal College of Psychiatrists, 2015) have also been implemented
22 in the UK in the hope that these will increase recruitment. To date there have been some early
23 indications of some success with these strategies. Indeed, UK fill rates for 2020 have been
24 reported as 100% for the first year of core training in psychiatry, after one round of
25 readvertising. However, these high rates belie a marked reduction in the absolute numbers of
26 trainees in psychiatry; whilst 418 first year trainee psychiatrists were recruited in 2020 for that
27 year, the equivalent figure for 2019 was 548 core trainees recruited in the 2019 intake (Health
28 Education England North-West, 2020a). It is not clear what has happened to the posts
29 advertised in preceding years, though it is possible that some may have been changed to non-
30 training positions, such as 'Trust grade doctor' roles. These relatively low absolute numbers
31 of doctors in core training will have implications for the proportion of more advanced training
32 posts filled; in 2020, only 342 out of 580 (59%) of UK-based places on higher specialist
33 psychiatric training schemes were filled (Health Education England North-West, 2020b). In
34 turn, this will have implications for the number of unfilled consultant posts.
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50 There has been much focus on those who have already chosen to be doctors, though little
51 exploration regarding the knowledge and attitudes of those yet to choose their careers. A
52 cross-sectional survey reported that those medical students who go on to choose psychiatry
53 frequently expressed an interest in the area prior to medical school (Farooq et al., 2014). Thus
54 there is a strong rationale for understanding the perceptions of psychiatry in those yet to enter
55 university. There is only one published study investigating sixth form students' attitudes
56 towards psychiatry. This involved asking sixth form students, who had enrolled on a course
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3 designed specifically for those interested in medicine, to rate potential careers by likelihood of
4 them entering that career. Psychiatry scored surprisingly highly on the ratings by these sixth
5 form students with 12.4% of students reporting that they would 'definitely' pursue the career
6 (Maidment et al., 2003). Interestingly anaesthetics, dermatology, radiology and ear, nose and
7 throat (ENT) surgery all came towards the bottom of the list of desired careers, despite being
8 perceived as more desirable careers amongst doctors. In contrast, a study of first year medical
9 students at a London university reported only 2.7% of 300 students expressed a desire to
10 pursue psychiatry (Fysh et al., 2007). This raises questions about whether those with positive
11 attitudes towards psychiatry actually enter medical school, or whether there is a shift in
12 interests during the early stages of medical education.
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19 Many secondary (high) school students may not even realise that psychiatry is a potential
20 career option for a medicine graduate. Moreover, one profession closely allied with psychiatry,
21 though not facing the same recruitment challenges, is clinical psychology. Indeed, psychology
22 undergraduate and postgraduate courses continue to be oversubscribed; psychology is
23 currently the second most popular degree course in the UK (McGhee, 2015). Postgraduate
24 clinical psychology courses, generally leading to careers in mental health services, are
25 likewise grossly oversubscribed and highly competitive. Thus, it is possible that some
26 individuals destined to be clinical psychologists may consider medicine, if they understood
27 more about psychiatry. Indeed, advanced qualification requirements for both psychology and
28 medical courses may be similar, with an emphasis on the sciences (The Medic Portal, 2019).
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36 Interventions targeting sixth formers have begun, with psychiatrists providing talks for
37 students. However, in order to ensure the effectiveness of any intervention one must first
38 understand what the students already know and think about the profession. Recruitment
39 strategies could then be tailored accordingly. Thus, this project aimed to assess the knowledge
40 of, and attitudes towards psychiatry as a potential career.
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48 **Methods**

49 Ethical approval was granted by the Hull York Medical School (HYMS) Research Ethics
50 Committee. The study employed a cross-sectional survey design, deployed online. The survey
51 questionnaire consisted of a section asking for basic demographic details (age, gender,
52 ethnicity and A-level subjects being studied) and modified version of the Attitudes to Psychiatry
53 (ATP) questionnaire (Burra et al., 1982). In addition a number of bespoke items were included
54 that were designed to capture the level of factual knowledge about psychiatry and clinical
55 psychology in the respondent. The response format of these latter items varied, according to
56 what seemed most suited to the question. For example, when asking the respondent to
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3 estimate the salary of a consultant psychiatrist a pointer had to moved to the estimated
4 monetary amount. Respondents were instructed not to use the internet to obtain any answers
5 given.
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8 Ten schools were initially contacted about the study. All but one was in an urban area of South
9 Yorkshire, UK, the remaining one being in London. The school in London was approached via
10 a personal contact of one of the research team. Both independent and state schools in the
11 urban area of South Yorkshire were targeted (eight being state funded and two private
12 ('independent')) given that medical students tend to be drawn substantially from private and
13 state schools, with around one third from the former type (Kumwenda et al., 2017). Of these,
14 five accepted, of which one was an independent school. All five participating schools were
15 located in ethnically diverse, though relatively affluent areas of major cities. The schools that
16 agreed to participate disseminated the survey either via email or via online virtual blackboards
17 directly to students who met the inclusion criteria. The survey was first distributed on February
18 8th 2019 and remained open for one month. One reminder was sent during this period.
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26 The inclusion criteria for the study were:

- 27 • Aged 16 years or older
 - 28 • Currently enrolled in lower sixth form
 - 29 • Taking at least one of the following A levels – biology, chemistry or psychology
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34 The A level subject choices were made as these were the qualifications required by the
35 majority of medical schools for 'standard entry', but would also potentially allow admission to
36 a psychology degree course. Participating students were given the option of entering their
37 email addresses into a random prize draw for one of four £50 vouchers.
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41 *Analyses*

42 In order to understand the dimensionality of the responses to the attitudinal questionnaire a
43 series of exploratory and confirmatory factor analyses were planned. These would be done,
44 firstly, to understand any common constructs underlying the responses ('factors'/latent
45 variables'), and secondly, to decide how best to summarise the scores from the questionnaires
46 for further analysis. As the responses were to a Likert scale response format, an ordinal factor
47 analysis was planned, using Mplus version 8.1 (Muthén & Muthén 2017). A range of plausible
48 factor models would be explored, ranging from one to four factors. The relationship between
49 the attitudinal factor scores, knowledge levels and any demographic or educational factors
50 was explored using a series of univariable linear regression analyses, using STATA 14 MP
51 version (StataCorp LP, 2016).
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Results

The response rate to the survey was 41%; higher than the average of 33% for online surveys (Nulty, 2008). A total of 254 sixth formers commenced the survey. However, not all students completed all components of the survey. In total 186 sixth formers completed both the demographics and knowledge section and a total of 171 completed demographics, knowledge and attitudinal components. The total number of student who were provided with the opportunity to participate in the survey was 456 (i.e. this was the sampling frame). The proportion of males to female respondents was roughly equal, as was the balance of age groups (16 vs 17 years). Eighty-six of the students (46.23%) were studying more than one of the subjects with the biology and chemistry combination being the most popular. A description of the demographic and educational characteristics of the participants are shown in Table 1.

[Insert Table 1 about here]

Attitudes to psychiatry (ATP-30)

The one factor model showed a relatively poor fit to the data and therefore was discarded. A four-factor model contained a factor where there were only three items loading specifically and heavily on it. Thus, the four factor model was not plausible. Therefore, two and three factor models were explored in further detail. It was noted that on a three-factor model there was a separate factor mostly loading on negatively worded items. This was assumed to be a method effect, which has been well described previously (Marsh, 1996). Indeed, there are no theoretical grounds for considering that “a negative attitude” and a “positive” attitude” as separate constructs in relation to perceptions of psychiatry as a profession. Therefore, the two-factor model was focused on, but in order to allow for this putative method effect, the residuals from the model for negatively worded items were allowed to correlate, as recommended by Marsh (Marsh, 1996). This led to a confirmatory factor model that appeared to adequately fit the data with a confirmatory fit index (CFI) of 0.91. Generally, a fit of more than 0.90 is considered adequate, with good fit being considered with CFIs above 0.95 (Hu & Bentler, 1999).

The factor scores were recovered from the two-factor model (with correlated residuals for the negatively worded items) to summarise whereabouts on a continuum, in relation to the other respondents on each dimension of attitude, the respondent lay according to his/her responses. Thus, factor scores are weighted by the loading on each factor of the responses from each

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3 participant, standardised with a mean of zero and variance of one and can be interpreted in
4 relation to the other respondents.
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7 The two factors derived from the factor analysis are shown in Figure 1. Factor 1 relates to a
8 negative general attitude towards psychiatry and is indicated by responses to 16 of the ATP
9 items. Factor 2 relates to a positive attitude towards effectiveness of treatment and indicated
10 by five of the ATP items. The two factors correlate -0.68 , indicating a substantial degree of
11 inverse relationship. That is, more negative general attitude towards psychiatry is correlated
12 with a more sceptical view of mental health treatment effectiveness
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17 [Insert Table 2 about here]
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20 Table 2 outlines the results of a series of regression analyses conducted using the individual's
21 factor scores as the dependent (outcome) variable. As can be seen from Table 2, only female
22 gender and studying psychology were statistically significantly ($p < 0.05$) associated with a
23 relatively less negative general attitude towards psychiatry. Likewise, those who were studying
24 psychology were more positive about the effectiveness of psychiatric treatments, whilst those
25 studying chemistry were more negative about this issue.
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32 *Knowledge Component*

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34 Participants were asked to respond to the statement "To become a psychiatrist someone
35 would require a degree in which subject?" by choosing one or more of 'medicine', 'psychology',
36 'pharmacology' and 'sociology'. Seventy-four percent of respondents erroneously reported
37 that a psychology degree was required whilst only 57% correctly identified that a medical
38 degree was mandated. Many (64%) respondents also commonly indicated that they believed
39 that the length of time to become a consultant psychiatrist was five to eight years from starting
40 university. This is significantly shorter than the five years of medical school, two years
41 foundation training and six years of specialist psychiatry training required in the UK to become
42 a fully qualified consultant psychiatrist .
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49 Respondents were on the whole aware of which specialties were psychiatric specialties when
50 presented with a list containing *general adult*, *child/adolescent*, *learning disability*,
51 *psychotherapy* and *older adult*, intermixed with a list of non-psychiatric specialties
52 (*endocrinology*, *respiratory*, *cardiac*, *gastrointestinal* and *dermatology*). The only exception
53 was forensic which caused a 48/52 split in favour of it erroneously being a non-psychiatric
54 specialty.
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3 Participants were asked to distribute a list of conditions into two boxes, one titled '*Psychiatrist*'
4 and one titled '*Not a Psychiatrist*'. The majority of the conditions listed were placed in the
5 correct group by respondents. 'Dementia' and 'Marital Problems' were less unanimous with a
6 56/44 and 60/40 split between 'Psychiatrist' and 'non-Psychiatrist' respectively. This may be
7 a result of neurologists also seeing patients with dementia and a lack of clarity regarding the
8 difference between psychiatrists and psychologists/therapists who may see people for marital
9 problems.
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12 Respondents were asked to make an estimation of the annual salary of a consultant
13 psychiatrist in the UK. They were informed that the mean UK annual salary for a full time
14 employee is £28,677 (Office for National Statistics, 2017). They were constrained to a
15 minimum salary of £10,000 and a maximum of £200,000. The respondents gave a mean
16 predicted salary of £60,000 and a median value of £52,000. This is much lower than the actual
17 salaries, with the mean likely to be around £90,000 to £110,000 per year in the National Health
18 Service (depending on experience and discretionary pay awards) though will be higher in the
19 private (independent) healthcare sector (British Medical Association, 2020).
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23 Regression analyses were also used to model the measure the relationships between the
24 independent (predictor) variables and the total knowledge score obtained by the respondent,
25 which was calculated simply by totalling by the number of correct answers in the knowledge
26 section. The results are shown in Table 3. As can be seen there were no were statistically
27 significantly ($p < 0.05$) predictors of knowledge of psychiatry as a career. However, there was
28 a trend of borderline statistical significance ($p = 0.05$) for those with less negative attitudes
29 towards psychiatry to provide more accurate answers to the knowledge questions.
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46 Discussion

47 This is the first study to explore the knowledge and attitudes towards psychiatry amongst a
48 diverse group of lower sixth form students, studying science subjects, but who have not
49 necessarily shown any prior interest in studying medicine. The findings highlight the lack of
50 knowledge regarding the psychiatric career pathway, with only just over half of respondents
51 identifying that a medical degree is required. Respondents also underestimated the length of
52 training time and average salary for a consultant. However, the participants demonstrated a
53 reasonable ability to identify which conditions psychiatrists treated and the subspecialties of
54 practice.
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3 In terms of attitudes, two, related, factors underlying responses to the ATP were identified.
4 Males tended to hold more negative views of psychiatry in general, compared to female
5 students. Unsurprisingly, those studying psychology generally reported more positive attitudes
6 towards both the specialty and the effectiveness of treatment, compared to those taking
7 chemistry at advanced level. Those with more accurate knowledge of psychiatry tended to
8 report a more positive attitude. It is notable that the present findings in relation to knowledge
9 of psychiatry are broadly comparable to those reported previously for the general public
10 (Williams et al., 2001).
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16 The strengths of this study include the relatively high response rate of 41% for this kind of
17 survey. The incentive of a prize draw upon completion of the study likely helped to increase
18 the response rates. Nevertheless, there is still the possibility that response bias may have
19 influenced the results, with perhaps those with more favourable or negative views being more
20 likely to complete the questionnaire. A further strength is that this survey accessed a large
21 number of school students who, based on their subject choice, may have subsequently have
22 been in a position to apply for either a medicine or psychology course. Nevertheless, there
23 are some potential limitations and weaknesses present. Firstly, it was noted that there was a
24 drop off in respondents from the point of opening the survey link to completion. It is important
25 to consider why participants dropped out at each stage. The drop out from consent to
26 completion of demographics may have been related to students not wishing to give out their
27 demographic information. This was a mandatory section of the survey and non-completion
28 meant participants could not progress. A further limitation is that the schools participating were
29 drawn from relatively affluent urban areas in South Yorkshire and London. A more diverse
30 sample schools may have rendered the results more generalizable. This could have been
31 addressed by the use of a wider sampling frame of schools, and incentivising their participation
32 in the study. Nevertheless, almost all medical students are drawn from relatively advantaged
33 backgrounds, with 20% of schools in England supplying 80% of the country's medical students
34 (Mwandigha et al., 2018). Moreover, a recent study highlighted that UK medical graduates
35 who choose a career in psychiatry were more likely to identify as of white ethnicity and be
36 privately educated (Lambe et al., 2019). Thus, our findings may apply to the current school
37 students who may be likely to enter medical school. However, further efforts to widen access
38 to medicine (Medical Schools Council, 2018), especially in the light of the recent expansion in
39 UK-based medical school places may influence the demographics of doctors in training.
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55 This study provides valuable information for those designing and deploying recruitment
56 strategies to address the shortage of psychiatrists. Such campaigns should be evaluated using
57 the absolute number of trainees recruited, in addition to the fill rates, as both are relevant
58 outcomes of interest. The former metric may be more appropriate when engaged in workforce
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3 ~~planning and considering the training pipeline through to consultant posts. Such campaigns~~
4 ~~should be evaluated using the absolute number of trainees recruited, in addition to the fill~~
5 ~~rates, as both are relevant outcomes of interest. The former metric may be more appropriate~~
6 ~~when engaged in workforce planning and considering the training pipeline through to~~
7 ~~consultant posts.~~ These findings highlight that imparting factually accurate information relating
8 to a career path in psychiatry is at least as important as addressing negative, or stigmatised
9 attitudes towards mental health issues. Indeed, stigmatised attitudes towards mental health,
10 particularly amongst younger people, seem to be declining (Henderson et al., 2019).
11 Nevertheless, recruitment campaigns are an opportunity to reinforce the message that
12 physical and mental health should have parity of esteem. Secondly, recruitment campaigns
13 should be targeting those students studying psychology who might already be considering
14 clinical psychology as a career. If this group can be encouraged to enter medical school and
15 mentored through training then they may help form a new cohort of future psychiatrists. There
16 is no evidence, currently, that medical students who have sat A-level psychology are more
17 likely than others to become psychiatrists, although interestingly US medical students who
18 had studied psychology at college were more likely to choose the speciality (Goldenberg et
19 al., 2017). However, comparisons with North America, where medicine is a postgraduate
20 degree, must be made only tentatively, given the very different educational systems.
21 Nevertheless, this observation may further emphasise the need to go 'upstream' and engage
22 with students before they decide to apply to medical school (Mukherjee et al., 2013). In
23 addition, the fact that increasing numbers of UK medical schools are recognising psychology
24 as a science subject, as well as abandoning advanced level chemistry as a core requirement
25 for admission, is to be welcomed (Medical Schools Council, 2020). Such changes may be
26 expected to take some time to filter through to those school students aspiring to be doctors.
27 For the time being the vast majority of medical school applicants in the UK can be expected
28 to continue to focus on achievement at the three sciences and/or, mathematics.

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46 The UK Royal College of Psychiatrists has run summer schools for secondary school students
47 as part of their recruitment campaign. However, if school students fail to understand the main
48 similarities and differences between a career in clinical psychology and psychiatry they are
49 less likely to appropriately attend a psychiatry summer school. Nevertheless, attention should
50 continue to be paid to those already in medical school who may consider a career in
51 psychological medicine. Indeed, there is evidence of 'psychiatry bashing' as part of the 'hidden
52 curriculum' of medical school, resulting in the Royal College of Psychiatrists launching a social
53 media 'Ban the Bash' campaign (Ajaz et al., 2016). With such issues in mind the Royal College
54 of Psychiatrists has issued guidance to medical schools as part of their 'Choose Psychiatry'
55 strategy (Royal College of Psychiatrists, 2019).
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In conclusion, this study provides important information that can shape future psychiatric recruitment strategies. Such campaigns should include, as a key component, the provision of accurate factual information to secondary school students. Only then will many potential future psychiatrists understand the speciality represents a well remunerated, worthwhile and rewarding career that makes a difference to thousands of patients and their families daily.

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10 **Figure 1.** Two factor model of attitudes towards psychiatry with standardised factor loadings,
11 factor correlations, error variance and residuals. Note, correlated residuals [not all shown] are
12 included to account for the 'method effect' of negatively worded items.
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16 **Figure 2.** Distribution of the estimates of the average salary of a UK consultant psychiatrist,
17 as reported by the sample of secondary school students.
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|-------------------------|-----------------|------------------|-------------------------------|-----------------|
| Gender | Male | Female | Other (Gender Diverse) | |
| | 81 (43.54%) | 103 (55.37%) | 2 (1.07%) | |
| Age | 16 Years | 17 Years | 18 Years | 19 Years |
| | 77 (41.39%) | 99 (53.22%) | 9 (4.83%) | 1 (0.53%) |
| Subjects studied | Biology | Chemistry | Psychology | |
| | 123 (66.12%) | 101 (54.30%) | 61 (32.79%) | |

Table 1. Demographics and A level subjects studied by the respondents (N=186).

| Factor 1 (generally negative attitude toward psychiatry) | | |
|--|--|----------------|
| Predictor | Beta coefficient (95% confidence intervals) | P value |
| Male vs female | 0.11 (0.03 to 0.19) | 0.01 |
| Age in years | -0.01 (-0.09 to 0.07) | 0.79 |
| Chemistry | 0.08 (-0.01 to 0.16) | 0.09 |
| Psychology | -0.11 (-0.21 to -0.01) | 0.01 |
| Biology | 0.07 (-0.03 to 0.17) | 0.11 |
| Factor 2 (attitude towards treatment effectiveness in psychiatry) | | |
| Male vs female | -0.09 (-0.21 to 0.03) | 0.14 |
| Age in years | -0.01 (-0.11 to 0.09) | 0.89 |
| Chemistry | -0.15 (-0.27 to -0.03) | 0.02 |
| Psychology | 0.23 (0.11 to 0.35) | 0.001 |
| Biology | -0.09 (-0.23 to 0.05) | 0.19 |

Table 2. Results from a regression analysis predicting the factor scores from the attitudinal questionnaire from the demographic and educational characteristics of the respondents.

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| | Beta coefficient (95% confidence intervals) | P value |
|---|---|---------|
| Male vs female | -0.47 (-1.33 to 0.39) | 0.29 |
| Age in years | -0.30 (-1.01 to 0.41) | 0.41 |
| Chemistry | 0.74 (-0.10 to 1.58) | 0.09 |
| Psychology | -0.15 (-1.05 to 0.75) | 0.74 |
| Biology | 0.43 (-0.47 to 1.33) | 0.35 |
| Factor 1 (Negative general attitudes towards psychiatry) | -1.54 (-3.03 to -0.05) | 0.05 |
| Factor 2 (Positive attitudes towards effectiveness of treatments) | 0.85 (-0.21 to 1.91) | 0.12 |

Table 3. Results from a regression analysis predicting the total knowledge scores from the demographic and educational characteristics of the respondents, as well as their attitudinal factor scores.

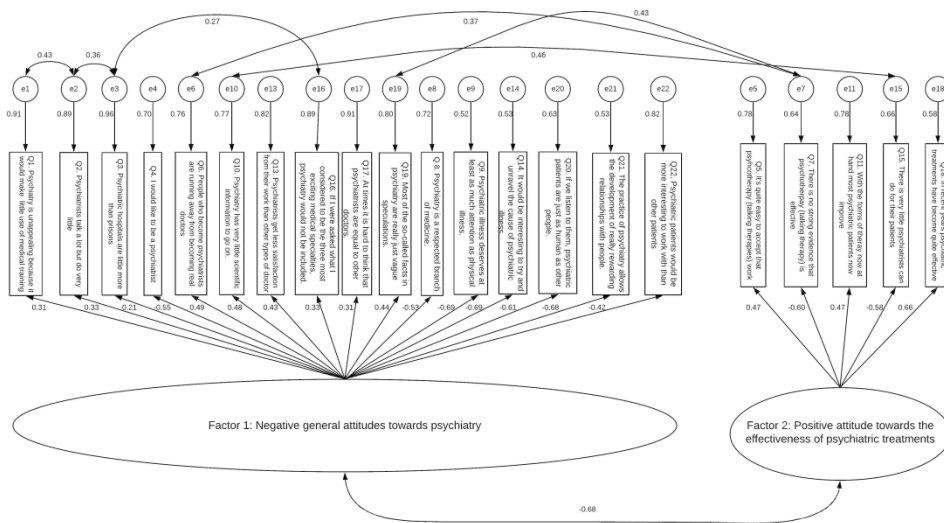
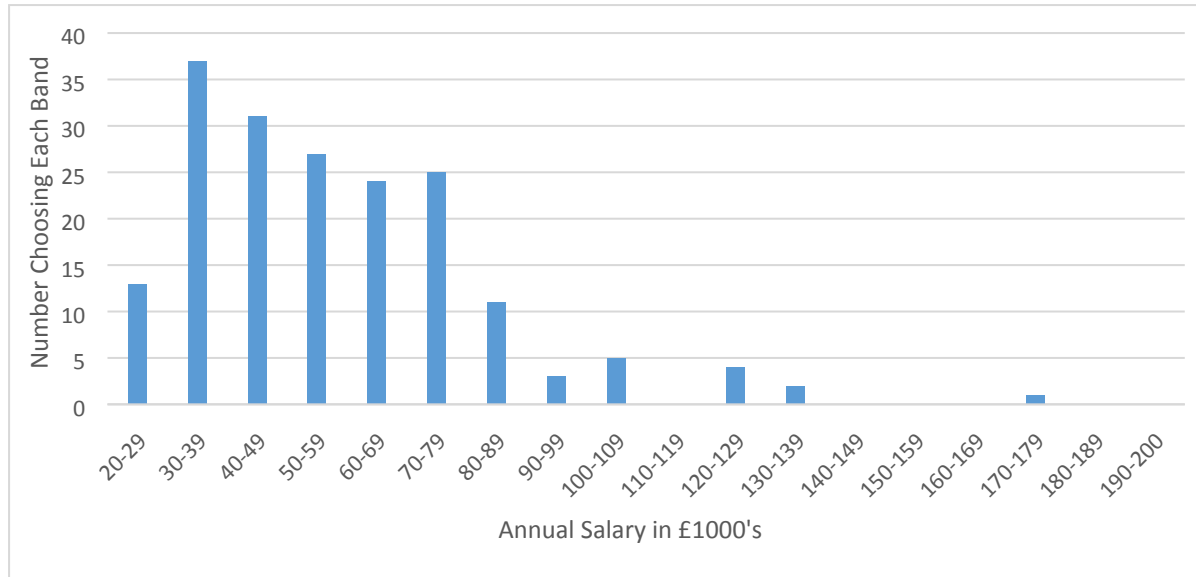


Figure 1. Two factor model of attitudes towards psychiatry with standardised factor loadings, factor correlations, error variance and residuals. Note, correlated residuals [not all shown] are included to account for the 'method effect' of negatively worded items.

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