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# What are the Social Determinants That May Affect Access to Clinical Psychology Training?

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# Abstract

**Objective**. Social inequalities in the United Kingdom (UK) can pose as a barrier in accessing higher education, including the Doctorate in Clinical Psychology (DClinPsy) training. Courses nationwide have been using contextual admission processes as part of their selection process to reduce these barriers. This approach ensures applicants are evaluated on a case-by-case circumstance, where their personal life experiences, challenges and academic attainment are considered in a holistic way when offering an admission to a DClinPsy course. Although the introduction of contextual admission processes aims to address the barriers in accessing DClinPsy training, little to no empirical research has been carried out to evaluate its effectiveness.

**Methods.** A retrospective design, using six logistic regression models were ran to examine whether factors measuring protected characteristics or disadvantages faced during childhood could predict the selection outcome for applicants (n=2044) for the DClinPsy training course at the University of Hertfordshire.

**Results**found 74.07% of the entered variables (40 out of 54) in the logistic regressions did not influence access to clinical training. Only 14 factors influenced the possible selection outcomes for DClinPsy training.

**Conclusion.**Although there are limitations from using a retrospective design, results suggest how contextual admission processes could possibly promote the selection of clinical psychology trainees that can represent a diverse society. Recommendations have been made, including replicating this study in other training sites.


# Introduction

Individuals from marginalised communities can experience barriers that can prevent social mobility in a society. These disparities align with the Social Gradient Theory, which posits how there is a stepwise relationship between socioeconomic status and health outcomes, where experiencing more forms of disadvantages can result in a step down in a social hierarchy (Donkin, 2014). These disadvantages exist in many countries (Beckfield et al., 2013; Chauvel & Leist, 2015; Maskileyson, 2014), for example, in the United Kingdom (UK), there is evidence showing that individuals from marginalised communities can experience barriers in accessing opportunities, which can result in various inequalities. These inequalities have widened in the UK over a 10-year period, and those from more disadvantaged communities are less likely to get opportunities that promote social mobility. Lord Marmot's hallmark report identified various determinants (for example, socioeconomic status, age, disability, gender, ethnicity, religion, pregnancy & maternity status and sexual orientation) that have been shown to negatively affect health, educational and social outcomes amongst individuals' socioeconomic circumstances and how these disadvantages can impede social mobility (Marmot et al., 2010, 2019).

The Office for Students (OfS, 2019) acknowledge how these inequalities can impact educational attainment in the United Kingdom and has asked universities to introduce initiatives to reduce these inequalities to improve access to higher education for marginalised communities. An example of one of these measures is contextual admission processes. This approach ensures applicants are evaluated on a case-by-case circumstance, where their personal life experiences, challenges and academic attainment are considered in a holistic way when offering an admission to a course (OfS, 2019). This process aims to address the educational inequalities where the most educationally privileged UK students are around six times more likely to attend more prestigious university than those from lower socioeconomic backgrounds, minoritised ethnicities, disabilities, first family member attending university, and those with caring responsibilities (Castell, 2022; OfS, 2019).

Historically, the clinical psychology profession has also lacked diversity. This has meant the profession has not reflected the diversity of the communities it serves, which brings challenges for minoritised applicants experiencing forms of implicit and structural biases during the journey of qualifying as a clinical psychologist (Turpin & Coleman, 2010). For example, although racially minoritised groups represent a similar proportion of clinical psychologists (7.4%; (Department of Health, 2004) when compared to English society (9%; Office for National Statistics, 2003), racially minoritised groups are often overrepresented in metropolitan UK cities. For example, 29% of London originated from racially minoritised communities (Scior et al., 2007). Scior and colleagues (2007) suggested that this racial minoritised underrepresentation could be due to the profession failing to attract the brightest racially minoritised applicants. They found racially minoritised applicants typically obtained lower academic grades, were less likely to have attended red-brick universities, obtained pre-qualification clinical psychology roles, and received less favourable references than their white counterparts when applying to a DClinPsy course. However, these inferences were not robustly assessed in their analysis and if there were any other protected characteristics and socioeconomic status that influenced these disparities in accessing training.

Work by Phillips et al. (2004) considered protected characteristics in their analysis and sought to understand if any explanatory variables could predict access to DClinPsy training (n = 1,538) across universities in the UK. The study concluded that there was insufficient evidence showing that a lack of diversity in the profession was due to selection bias. Except for no religious affiliation increasing the chance of being shortlisted to the course, there were no other protect characteristics that predicted a selection outcome. These researchers surmised that there was insufficient evidence to suggest direct discrimination in the selection process, however, their primary analysis did not enter protected characteristics into their regression models, which arguably dampens these inferences.

The standpoint described above has been disagreed with by various accounts. These accounts argue since the profession is disproportionately represented by ethnically white female applicants, minoritised and socially disadvantaged applicants are more likely to experience discrimination, and bias towards them as well as face barriers before and during clinical psychology training (Adetimole et al., 2005; Bawa

et al., 2021; Borseti, 2021; Desai, 2018; Griffith, 2007; McNeil, 2010; Odusanya et al., 2018; Paulraj, 2016; Shah, 2010; Tong et al., 2019)

The issues described above require attention given that this is a highly competitive 3-year training programme, funded by the National Health Service, which qualifies graduates to practise as registered practitioner psychologists and provide care to an increasingly diverse population, but the profession may not reflect the communities it is intended to serve. Many UK DClinPsy courses have introduced contextual selection processes as part of their admission process. This includes a set of contextual admission questions that enables courses to consider the inclusivity and equity of the recruitment process by gathering information about the applicant's economic status, educational background, and social circumstances (Leeds Clearing House, 2023).

## Rationale

Despite these ongoing inequalities, little research has considered whether contextual admissions have impacted the selection process of clinical psychology trainees. This study investigated the introduction of contextual admissions processes to determine whether there are any barriers to accessing a DClinPsy course based on protected characteristics or disadvantages faced during childhood.

Owing to the literature showing there are a range of protected characteristics and social determinants that can negatively influence access to higher education, this study sought to ascertain if any protected characteristics and/or social determinants, obtained through the Leeds Clearing House, (2023) contextual admission questions, influenced access to DClinPsy training. Considering many these explanatory variables was appropriate as Leeds Clearing House routinely collects this data for evaluation purposes, and Lord Marmot hallmark's review reported that there are various factors that can negatively influence access to higher education. For example, age, disability, gender, ethnicity, religion, sexual orientation and disadvantage faced at younger life, which can be assessed through various metrics (Marmot et al., 2010, 2019; OfS, 2019).

# Research question

Does the introduction of contextual admissions mitigate the influence of protected characteristics and socioeconomic disadvantage on selection outcomes?

## Hypotheses

The following a-priori hypotheses were set for this study:

1. Applicants from racial and religious minoritised groups are more likely to have experienced an unfavourable selection outcome compared to those from religious and racial majority identities.
2. Applicants that reported facing some form of deprivation during childhood were more likely to have experienced an unfavourable selection outcome than those who did not report these forms of adversities.
3. Candidates reporting minoritised identities based on age, cisgender, disability and LGBTQIA+ were likely to have faced an unfavourable selection outcome than a majority identities, based on age, cisgender, non-disabled and heteronormative.

## Methodology

# Study Design

A retrospective observational design was used to examine whether the protected characteristics and proxy variables for disadvantages experienced during childhood (categorical variables: age, gender, disability, ethnicity, religion, sexuality, first-generation university student, accessed free school meals, and Looked After Child (LAC). Interval variable: IMD) could predict the possible selection outcomes for the DClinPsy course selection at UH.

Table 1
Outcome Variables

| ***After Application/Interview*** |
|---|
| Rejected (1) or Waitlisted (0) |
| Rejected (1) or Accepted (0) |
| Waitlisted (1) or Accepted (0) |

## Data Source

A dataset was obtained from the Leeds Clearing House. The application system routinely forwards applications to participating universities for their selection process including responses to contextual admission questions obtained through a standardised questionnaire (Leeds Clearing House, 2023; Rigley, 2020). The data consisted of protected characteristics and measures for disadvantages experienced during childhood of those who had applied to the course from 2021 to 2023. The question, do you follow a religion, or belief was not made available for this analysis.

# Data Selection

The data given to us was anonymised by an administrator. The protected characteristics and disadvantages experienced during childhood were transformed from string to categorical variables. Applicants' postcodes from when they were 17 years old were converted into decile scores using the

IMD postcode checker (https://www.fscbiodiversity.uk/imd/). This metric is intended to capture the level of deprivation experienced through childhood and is widely used in health and social care research and is a valid and reliable measure that combines various factors measuring deprivation. (Niggebrugge et al., 2005). The data was physically examined and cleaned for errors to minimise the possibility of introducing noise and compromised data.

Descriptive statistics were computed to examine the variables, and it was found that there was missing data in every explanatory variable (7.4% to 59.7%). For instance, not disclosing religion was the most common response (59.7%). Moreover, 13.2% of applicants did not disclose their sexual orientation, which was similar in size as a cumulative percentage (13.2%) to applicants who described their sexual orientation as bisexual, gay, or other. Not disclosing information in census datasets is a commonly reported phenomenon that can often bring meaning. For these reasons, not disclosing details was computed as a separate category in the categorical variables entered into the LRM (Alison, 2010; Groves et al., 2009; Herek, 2009; Park et al., 2010; Prah et al., 2016).

There was missing data in the IMD variable (25%). The distribution was examined, and we found no outliers when examining a box plot; there was evidence of normal distribution in a histogram, and the M-estimators (5.87) were similar to the average IMD score (Average 5.95, Standard Error 0.07]). For these reasons, no M-estimators were entered into the dataset.

Additionally, the age group categories; 45 to 49 years old, 50 to 54 years old and 55 years old & above were tabulated into one age category (45 years old and above), since these age groups represented only 1.86% of applicants and previous research has shown that on average applicants for the DClinPsych courses are 28 years old (Phillips et al., 2004), making older applicants comparatively rare. Also, two categories, Baha'i (2 observations) and Jainism (1 observation), from the Religion categorical variable were added to Other as they did not relate with the other religious categories and would have otherwise been excluded from the study. This data transformation was guided by Peduzzi et al., (1996), who discussed the number of events needed per predictor variable (10), which were more than met in the observed categories. The possible selection outcomes were converted from 2 string variables to 6 binary independent variables, as outlined in Table 2.

# Statistical Analysis

Descriptive statistics and binary logistic regressions were run. A prior power analysis was performed using G*Power to determine the required sample size for a logistic regression and reduce the possibility of a type-I error (Faul et al., 2007). The $f^2$ was set at 0.25, the significance level was set (0.05) and power was set at $1-\beta = 0.95$. The power analysis indicated that a total sample size of n = 104 would be necessary to detect the specified effect with the desired power. This was more than adequate for the sample used in this retrospective analysis.

Six enter method LRM (SPSS v29) were used to determine the predictor effect of categorical covariates and an interval covariate on the outcome of an application and interview for the DClinPsy course at UH.

The possible selection outcomes of the application and interview were tabulated into six binary dependent variables (See Table 1) as the outcome for applying to the course were treated as an 'ordered hierarchical category'. Since there are nearly 30 DClinPsy UK course centres and applicants can apply to up to four courses, it possible that an applicant could be offered multiple offers and can only accept one offer. Therefore, it is possible that being offered a wait list offer could result in a favourable admission outcome to a DClinPsy course.

The chosen reference category selected for the entered categorical predictors in the LRM was chosen based on the most frequently observed category in the categorical variables (See Table 3), and several reference categories were selected based on literature suggesting them as predictive variables (Phillips et al., 2004; Scior et al., 2007, 2016). IMD was entered as an explanatory variable.

To examine the significance of these LRM results, the Hosmer & Lemeshow test (Nattino et al., 2020) and p values were used to understand the overall model, and then β coefficients, p values, odds ratios and 95% confidence intervals were used to evaluate the explanatory variables.

Collinear diagnostics (SPSS v24) were also carried out to see if there was any collinearity amongst the inputted independent variables, which impeded the inference made from an f-test analysis. There were no concerns of collinearity amongst variables since the tolerance and variance inflation factor (VIF) were less than 1 and 5 (Miles, 2014). Although the VIF for the protected characteristics and disadvantage faced at childhood were on average 1, these explanatory variables were included as theoretically they are distinguishable and various forms of disadvantage can result in a step down in a social hierarchy (Donkin, 2014).

## Sensitivity Analysis

Sensitivity analyses were carried out to evaluate the robustness of the six logistic regression and validity of our reported results. To assess the robustness of these models, the regressions were reran, which excluded 696 participants from the original sample. This ensued from excluding "not disclosed" category across the seven of the eight explanatory variables. The not disclosed category was kept for religion categories because it was anticipated not disclosing a religious faith could be affiliated to candidate not aligning themselves to a faith.

## Results

# Descriptive statistics

2,044 individuals applied to the DClinPsy course at UH and were considered for selection in the 2021 to 2023 intakes. From these applicants, 496 candidates were shortlisted for an interview, 80 candidates were offered a reserve interview, and 1,468 individuals were not shortlisted after their application was assessed. From the 494 shortlisted for interview, 155 applicants were offered a place on this course, and

a further 114 individuals were placed on the reserve list. The table below summarises the applicant's demographic information, at each stage in the selection process.

Table 3
Applicants demographic information

| | Applied to course | Offered Interview | Offered Seat | | Applied to course | Offered Interview | Offered Seat |
|---|---|---|---|---|---|---|---|
| **Age Groups** | | | | **Identified as Disabled** | | | |
| 20–24 | 263 *(10%)* | 31 *(1%)* | 10 *(0.37%)* | No[1] | 1593 *(59%)* | 377 *(14%)* | 108 *(4%)* |
| 25–29[1] | 1102 *(41%)* | 273 *(10%)* | 87 *(3%)* | Yes | 305 *(11%)* | 89 *(3%)* | 33 *(1%)* |
| 30–34 | 319 *(12%)* | 100 *(4%)* | 33 *(1%)* | ND | 146 *(5%)* | 30 *(1%)* | 14 *(0.52%)* |
| 35–39 | 100 *(4%)* | 34 *(1%)* | 5 *(0.19%)* | | | | |
| 40–44 | 70 *(3%)* | 18 *(1%)* | 3 *(0.11%)* | Racial Identity | | | |
| 45 and above | 38 *(1%)* | 5 *(0.19%)* | 2 *(0.07%)* | White[1] | 1088 *(40%)* | 242 *(9%)* | 64 *(2%)* |
| ND | 152 *(6%)* | 35 *(1%)* | 15 *(0.56%)* | Asian | 303 *(11%)* | 84 *(3%)* | 26 *(1%)* |
| | | | | Black | 257 *(10%)* | 66 *(2%)* | 24 *(1%)* |
| First Generation University Student | | | | ND | 178 *(7%)* | 41 *(2%)* | 16 *(0.59%)* |
| Yes[1] | 969 *(36%)* | 220 *(8%)* | 78 *(3%)* | Mixed | 123 *(5%)* | 35 *(1%)* | 17 *(0.63%)* |
| No | 601 *(22%)* | 159 *(6%)* | 48 *(2%)* | Other[2] | 95 *(4%)* | 28 *(1%)* | 8 *(0.30%)* |
| ND | 474 | 117 | 29 | | | | |

**Note**. [1]. Set as a Reference Category when categorical variables were entered into the LRM. [2]. Other ethnicities included Chinese, Middle Eastern, and other. ND (Not Disclosed). Std. (Standard deviation)

| | Applied to course | Offered Interview | Offered Seat | | Applied to course | Offered Interview | Offered Seat |
|---|---|---|---|---|---|---|---|
| **Age Groups** | | | | **Identified as Disabled** | | | |
| | *(18%)* | *(4%)* | *(1%)* | | | | |
| | | | | Chosen Religion | | | |
| Identified as a LAC | | | | ND[1] | 1219 | 274 | 85 |
| | | | | | *(45%)* | *(10%)* | *(3%)* |
| Yes | 27 | 4 | 1 | Muslim | 214 | 63 | 20 |
| | *(1%)* | *(0.15%)* | *(0.04%)* | | *(8%)* | *(2%)* | *(0.74%)* |
| No[1] | 1533 | 370 | 123 | Other Christian | 169 | 44 | 18 |
| | *(57%)* | *(14%)* | *(5%)* | | *(6%)* | *(2%)* | *(0.67%)* |
| ND | 484 | 122 | 31 | Roman Catholic | 135 | 26 | 7 |
| | *(18%)* | *(5%)* | *(1%)* | | *(5%)* | *(1%)* | *(0.26%)* |
| | | | | Protestant | 123 | 31 | 8 |
| | | | | | *(5%)* | *(1%)* | *(0.30%)* |
| Identified Gender | | | | Hinduism | 54 | 11 | 3 |
| | | | | | *(2%)* | *(0.45%)* | *(0.11%)* |
| Female[1] | 1620 | 384 | 115 | Other | 53 | 17 | 4 |
| | *(60%)* | *(14%)* | *(4%)* | | *(2%)* | *(0.59%)* | *(0.15%)* |
| Male | 259 | 72 | 23 | Sikhism | 35 | 10 | 3 |
| | *(10%)* | *(3%)* | *(0.85%)* | | *(1%)* | *(0.37%)* | *(0.11%)* |
| ND | 165 | 40 | 17 | Judaism | 28 | 13 | 3 |
| | *(6%)* | *(1%)* | *(0.63%)* | | *(1%)* | *(0.48%)* | *(0.11%)* |
| | | | | Buddhism | 14 | 7 | 4 |
| | | | | | *(1%)* | *(0.26%)* | *(0.15%)* |
| Identified Sexuality | | | | | | | |

**Note**. [1]. Set as a Reference Category when categorical variables were entered into the LRM. [2]. Other ethnicities included Chinese, Middle Eastern, and other. ND (Not Disclosed). Std. (Standard deviation)

| | Applied to course | Offered Interview | Offered Seat | | Applied to course | Offered Interview | Offered Seat |
|---|---|---|---|---|---|---|---|
| **Age Groups** | | | | **Identified as Disabled** | | | |
| Heterosexual[1] | 1521 *(56%)* | 361 *(13%)* | 102 *(4%)* | | | | |
| ND | 253 *(9%)* | 60 *(2%)* | 25 *(1%)* | Indices of Multiple Deprivation | | | |
| Bisexual | 179 *(7%)* | 45 *(2%)* | 21 *(0.78%)* | Average | 5.95 | 6.07 | 6.34 |
| Gay | 64 *(2%)* | 19 *(0.71%)* | 3 *(0.11%)* | Std. | 2.74 | 2.64 | 2.74 |
| Other | 27 *(1%)* | 11 *(0.41%)* | 4 *(0.15%)* | | | | |

**Note**. [1]. Set as a Reference Category when categorical variables were entered into the LRM. [2]. Other ethnicities included Chinese, Middle Eastern, and other. ND (Not Disclosed). Std. (Standard deviation)

# Inferential Analysis

Six LRM were run with explanatory variables (see Table 2) to ascertain if they could predict the possible selection outcomes for this course (see Table 1). The Hosmer-Lemeshow goodness-of-fit tests were performed to see if these logistic regressions have good, predicted probabilities consistent with the observed outcome. These tests identified that there was evidence of goodness of fit between the model predictions and the observed outcomes, which strengthens the inferences made in this analysis [Rejected or waitlisted for interview; $\chi^2(8) = 8.57$, $p = 0.38$; Rejected or accepted for interview; $\chi^2(8) = 9.78$, $p = 0.281$; Waitlisted or accepted for interview; $\chi^2(8) = 9.15$, $p = 0.33$; Rejected or offered seat after an interview; $\chi^2(8) = 10.47$, $p = 0.234$; Rejected or offered seat after an interview; $\chi^2(8) = 13.43$, $p = 0.10$; Waitlisted or offered seat after an interview; $\chi^2(8) = 7.04$, $p = 0.53$].

When examining the LRM looking at the selection outcomes for 2021 to 2023 intakes for the DClinPsy at UH, 74.07% of the entered variables (40 out of 54) showed statistically non-significant explanatory variables. Only 14 statistically significant explanatory variables predicted a possible course selection outcome across the six LRM. Most of the statistically significant variables predicted a selection outcome after the shortlisting of an application, and only two explanatory variables predicted the selection outcome following an interview.

Table 4
statistically significant stable explanatory variable predicting a selection outcome

| | β | S.E. | Odds Ratios | 95% C. I | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Rejected or Waitlisted for Interview | | | | | |
| *Religion Groups: Reference Category was set as ND* | | | | | |
| Sikhism | -2.00* | 0.91 | 0.14 | 0.02 | 0.80 |
| Rejected or Accepted for Interview | | | | | |
| *Age Groups: Reference Category was set as 25–29* | | | | | |
| 20–24 | 0.93** | 0.21 | 2.54 | 1.67 | 3.87 |
| 30–34 | -0.40* | 0.17 | 0.67 | 0.48 | 0.94 |
| *Ethnicity Groups: Reference Category was set as White* | | | | | |
| Other | -0.60* | 0.30 | 0.55 | 0.31 | 0.98 |
| *Religion Groups: Reference Category was set as ND* | | | | | |
| Judaism | -1.06* | 0.41 | 0.35 | 0.15 | 0.78 |
| Buddhism | -1.51* | 0.64 | 0.22 | 0.06 | 0.77 |
| Waitlisted or Accepted for Interview | | | | | |
| *LAC Groups: Reference Category was set at Not Registered as LAC* | | | | | |
| ND | -2.11* | 1.01 | 0.12 | 0.02 | 0.89 |
| Rejected or Accepted After Interview | | | | | |
| *Ethnicity Groups: Reference Category was set as White* | | | | | |
| Mixed | -1.31** | 0.45 | 0.27 | 0.11 | 0.65 |
| *Indices of Multiple Deprivation* | | | | | |
| IMD | -0.06* | 0.03 | 0.94 | 0.89 | 0.99 |
| Rejected or Waitlisted After Interview | | | | | |
| *Religion Groups: Reference Category was set as ND* | | | | | |
| Hinduism | -2.56* | 1.01 | 0.08 | 0.01 | 0.57 |
| Waitlisted or Accepted After Interview | | | | | |

**Note**. * $p < 0.05$, ** $p < 0.001$, Indices of multiple deprivation (IMD), Looked after Child (LAC), Confidence Interval (CI), Not Disclosed (ND), Standard Error (SE) & Beta coefficient ($\beta$)

| | β | S.E. | Odds Ratios | 95% C. I | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| *Ethnicity Groups: Reference Category was set as White* | | | | | |
| Mixed | -1.57* | 0.68 | 0.21 | 0.06 | 0.78 |
| **Note**. * p < 0.05, ** *p* < 0.001, Indices of multiple deprivation (IMD), Looked after Child (LAC), Confidence Interval (CI), Not Disclosed (ND), Standard Error (SE) & Beta coefficient (*β*) | | | | | |

# Ethnicity and Religion

When examining the explanatory variables entered in the regression model, which looked at the selection outcome, declined or offered a reserve interview, applicants affiliated to Sikhism had a markedly increased chance of being waitlisted for an interview compared to the reference category set as not disclosed. Also, a statistically significant strong negative association was found between these variables (Rejected or waitlisted for interview; β = -2.00, p ≤ 0.03, Standard Error (SE) = 0.91, Odds Ratio (OR) = 0.14, 95% Confidence Interval (CI) 0.02–0.80).

The logistic regression looking at the predictive variable for being rejected rather than offered an interview, found Judaism and Buddhism to be statistically significant predictive explanatory variables (Judaism: β = -1.06, p ≤ 0.01, SE = 0.41, OR = 0.35, 95% CI 0.15, – 0.78; Buddhism: β = -1.51, p ≤ 0.02, SE = 0.64, OR = 0.22, 95% CI 0.06–0.77). The model predicted that applicants affiliated with Judaism and Buddhism were more likely to be offered an interview when compared to the reference category. Also, there was a negative association between these categories and the reference category (did not disclose a religion). These models also found that 'other ethnicity' increased the likelihood of being offered an interview compared to the reference category. There was also a statistically significant, strong negative association between this category and reference category, White Ethnicity (Other Ethnicity: β = -0.60, p ≤ 0.04, SE = 0.30, OR = 0.55, 95% CI 0.31–0.98).

Hinduism and Mixed Ethnicity were the only statistically significant predictive variables for the selection outcome following an interview. The logistic regression model examining the selection outcome, declined or offered reserve seat after an interview, found that applicants ascribed to Hinduism were more likely to be offered a reserve seat after an interview when compared to those not disclosing any religious affiliation. Moreover, there was also a strong, negative association between this category and the reference religion category, which did not disclose a faith (Hinduism: β = -2.56, p ≤ 0.01, SE = 1.01, OR = 0.08, 95% CI 0.01–0.57).

Mixed ethnicity was the only protected characteristic that yielded a statistically significant explanatory variable across two LRM (Rejected or Accepted after Interview: β = -1.31, p ≤ 0.001, SE = 0.45, OR = 0.27, 95% CI 0.11–0.65 & Waitlisted or Accepted after Interview: β = -1.57, p ≤ 0.02, SE = 0.68, OR = 0.21, 95% CI 0.06–0.78). These models suggested that applicants affiliated with the mixed ethnicity characteristic

were more likely to be offered a place on the course than the reference category. A negative association was also observed between these variables.

# Age

The age group 20–24 was identified as a statistically significant explanatory variable. The model predicted that these applicants were more likely not to be shortlisted for an interview than the reference category, 25–29 age group. Moreover, there was also a statistically significant, strong positive association between this age group and reference category (Rejected or Offered an Interview: $\beta = 0.93$, $p \leq 0.001$, SE = 0.001, OR = 2.54, 95% CI 1.67–3.87). Interestingly, the 30–34 age group variable also yielded statistically significant predictive variables, which suggested that these applicants within this age group were more likely to be accepted for interview than the reference category (Rejected or Accepted for Interview: $\beta = -0.40$, $p \leq 0.02$, SE = 0.17, OR = 0.48, 95% CI 0.48–0.97).

# Disadvantage faced during Childhood

The entered proxy variables for privilege experienced during childhood yielded statistically significant results across LRM that studied the outcome if they were offered an interview. The variable IMD that measures the level of deprivation experienced at the age of 17 was found to be a statistically significant explanatory variable and did predict the likelihood of the applicants being offered an interview (Rejected or Offered an Interview: $\beta = -0.06$, $p \leq 0.01$, SE = 0.03, OR = 0.94, 95% CI 0.89–0.99).

The LRM showed unexpected statistically significant explanatory variables when applicants chose not to disclose if they were first-generation university students in their families. A model predicted that these applicants are more likely to be accepted for an interview than the reference category. There was a strong negative correlation between these variables (Rejected or Accepted for Interview: $\beta = -1.87$, $p \leq 0.02$, SE = 0.80 OR = 0.15, 95% CI 0.03–0.74). However, another model found that these applicants had a higher chance of being waitlisted for an interview than offered an interview compared to the reference category. Although a strong positive association was found between these variables, the confidence intervals were substantially large (Waitlisted or Accepted for Interview: $\beta = 2.01$, $p \leq 0.04$, SE = 0.99, OR = 7.46, 95% CI 1.07–52.10).

These LRM also showed an unexpected outcome for applicants choosing not to disclose if they were a LAC. They found that not disclosing this information produced a statistically significant higher likelihood of not being offered an interview. A statistically significant strong positive association was also found between this variable and the reference category were substantially large (Rejected or Waitlisted for Interview: $\beta = 1.89$, $p \leq 0.02$, SE = 0.83, OR = 6.64, 95% CI 1.30-34.02). However, in another model, not disclosing this information increased the likelihood of being accepted for an interview. Also, there was a strong negative association with not disclosing LAC between these categories (Waitlisted or Accepted for Interview: $\beta = -2.11$, $p \leq 0.04$, SE = 1.01, OR = 0.12, 95% CI 0.02–0.89).

Table 5
Statistically significant unstable explanatory variable predicting a selection outcome

| | β | S.E. | Odds Ratios | 95% C. I | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Rejected or Waitlisted for Interview | | | | | |
| *LAC Groups: Reference Category was set at not registered as a LAC* | | | | | |
| ND | 1.89* | 0.83 | 6.64 | 1.30 | 34.02 |
| Waitlisted or Accepted for Interview | | | | | |
| *First Generation University Student: Reference Category was set at First Generation University Student* | | | | | |
| ND | 2.01* | 0.99 | 7.46 | 1.07 | 52.10 |

**Note**. * p < 0.05, ** *p* < 0.001, Indices of multiple deprivation (IMD), Looked after Child (LAC), Confidence Interval (CI), Not Disclosed (ND), Standard Error (SE) & Beta coefficient (*β*)

# Sensitivity Analyses

Whilst the reported results indicate that 14 factors may influence the possible selection outcomes for DClinPsy training, our sensitivity analyse identified 10 statistically significant explanatory factors. 5 of these explanatory factors remained in the same direction, and a further 4 statistically significant explanatory variables were identified. Five variables (Sikhism, Other Ethnicity, not disclosing looked after child status, IMD and not disclosing if you were a First-Generation University Student) were no longer statistically significant explanatory when analysing a smaller sample size.

The Age group, 20 to 24 years old, increased the chances of an application being rejected rather than offered an interview, whereas the Religions, Judaism and Buddhism, as well as the Age group 30 to 34 years old yield the reverse observations. A further four variables were found in this sensitivity analysis model, which also appeared to increase the chances of a favourable outcome. This included the sexualities, Gay and Other, as well as the Religion, Muslim.

The ethnicity, Mixed Ethnicity, continued to be a factor that influenced a positive selection outcome of being offered place on the course, however this observation was found in the Rejected or Accepted After Interview model rather than the Waitlisted or Accepted After Interview model. Additionally, in the sensitivity analysis for the Rejected or Accepted After Interview model, the Sexuality, Bisexual, also appeared to influence a positive selection outcome.

# Discussion

These results offer empirical findings derived from 6 LRM with good, predicted probabilities and are consistent with the possible selection outcomes for the DClinPsy course at UH. 74.07% of the explanatory variables entered in the six LRM, examining the possible selection outcomes for the course,

yielded non-significant results. The analysis of the possible selection outcomes among DClinPsy applicants who had applied between 2021 to 2023 revealed 14 statistically significant explanatory variables that appears to be one of the contributing factors that may influence the likelihood of being offered an interview or a place on this DClinPsy course. Factors such as religious affiliation (i.e., Buddhism, Judaism, Hinduism, and Sikhism) and ethnicity (i.e., mixed ethnicity and other ethnicities) seem to increase the chance of a favourable outcome compared to the reference category. Although the deprivation experienced at the age of 17 (IMD) was a statistically significant explanatory variable and seem to marginally benefit applicants being offered a seat on the course. The age group 20–24 also appeared to experience a markedly increased likelihood of being rejected after their application was scrutinised than the age group 30–34, who were more likely to be offered an interview. Interestingly, applicants who chose not to disclose if they were first-generation university students had a higher chance of being waitlisted or offered an interview. Meanwhile, not disclosing LAC status increased the likelihood of an application being rejected or offered a reserve interview. However, both results produced large confidence intervals.

The results from this retrospective analysis show no compelling evidence that there are predictive factors preventing access to DClinPsy training at UH following the introduction of contextual admissions. Although we have interpreted the statistically significant explanatory results below, 74.07% of the entered variables (40 out of 54) in the LRMs yielded results that were random and not predictive of a selection outcome for accessing clinical training. For these reasons, the empirical evidence provided in this analysis disproved our hypotheses, which anticipated that marginalised protected characteristics and proxies for disadvantage experienced during childhood would predict barriers to accessing DClinPsy training for UH candidates.

These results were unexpected given that there is persuasive evidence showing a relationship between the level of disadvantage faced during childhood and the opportunities provided later in life (Marmot et al., 2010, 2019). Similar disparities have previously been found in the selection process for DClinPsy training, where socioeconomically disadvantaged black candidates faired less favourably than their white counterparts (Griffith, 2007). Also, we had anticipated how minoritised protected characteristics would have been factors preventing access to the course, given that there is empirical evidence suggesting how gender, racial minorities and affiliating to religion were previously reported as barriers to accessing training (Phillips et al., 2004; Scior et al., 2007, 2016). Given that the abovementioned factors have previously been shown to negatively influence access to DClinPsy training (Turpin & Coleman, 2010). Our statistically nonsignificant results suggest, the use of contextual admissions may reduce barriers in accessing training at the UH DClinPsy course, which has anecdotally been known to embrace diversity.

The age group 20–24 was the only statistically significant variable that predicted an unfavourable selection outcome for getting onto the UH DClinPsy course. Whilst this was an unforeseen observation, these results are consistent to previous results, which show that applicants on average accrue 3.5 years of employment in addition to their higher education and in many cases, have postgraduate degrees or

hold other professional qualifications (Phillips et al., 2004). This suggests that in most cases, individuals applying to a DClinPsy course would at least be above the age of 24.5 years if they had gained work experience straight after an undergraduate degree before accessing a clinical course, and in many cases, could be in their late twenties or early thirties. This may explain why applicants aged 30–34 are more likely to be offered an interview, given that there would be a higher chance of gaining additional experience. These inferences were replicated in our sensitivity analysis.

The results found that racial (Other and Mixed Ethnicities) and religious monitories (for instance, Buddhism, Hinduism, Judaism and Sikhism) may possibly improve the likelihood of a favourable selection outcome than the reference category not disclosing a religious affiliation. Since these findings were not systematically found across the LRM (see Table 2) our inferences are not suggestive of positive discrimination but perhaps could have arisen by chance given that these inferences derived from a relatively small sub-sample set. However, it is worth noting that the UH DClinPsy course ethos has been known to embrace various forms of diversity.

Although our findings on level of deprivation findings suggests that deprivation experienced at the age of 17 may marginally to influence access to DClinPsy training. This measurement is known to lack predictive validity and these results were not replicated in our sensitivity analysis. Using this measure is a limitation and ideally using more than one deprivation index could have enabled this research to further scrutinise deprivation as a barrier to accessing DClinPsy training (Niggebrugge et al., 2005; OfS, 2019). Our results also suggested that applicants not disclosing their status as a first-generation university student marginally increased the chance of being offered an interview than being waitlisted for one. These results produced unstable confidence intervals and were not replicated in the sensitivity analysis. This highlights limitations over this categorical variable and it being a statistically significant factor bearing a meaningful result.

# Strengths and Limitations

We argued that creating these additional categories, ‘not disclosing information’ amongst the categorical variables, was a discerning strength of this research and argue it can provide meaning (Alison, 2010; Groves et al., 2009). This approach enabled us to make inferences that would not have been possible otherwise and made it possible to make some needed assumptions in this research. For example, not ascribing to a religion is the most prominent religious standpoint in the United Kingdom, and applicants have shared experiences of systemic biases prior to training, which could be contributing reasons for why applicants did not disclose information and the prevalence of this category. Moreover, a number of applicants may also experience a sense of stigma when disclosing certain protected characteristics, like their ethnicity, and sexuality (Herek, 2009; Russell & Fish, 2016). This prompted us to make inferences about the missing data in the religion affiliation question and other variables (Bawa et al., 2021; Office for National Statistics, 2003). While we used this approach as it scrutinised a conservatively transformed dataset, showing no significant concerns of collinearity, we recognise how this approach stiffens the work’s inferences given that the not disclosing category was heterogeneous. To further scrutinise this

subcategory, was ran a Sensitivity analysis, which found moderate consistency between the between the two samples, with approximately 42.86% of findings replicating across analyses. While five variables were no longer statistically significant when the sample size was reduced by 696 cases, several themes persisted. The results around religious and age groups could be more stable underlying explanatory factors, whereas other factors were sensitive to the handling of missing data.

The reduction in sample size and changes in inferential statistics may suggest both reduced power and potential differences between prospective DClinPsy trainees, who did and did not disclose demographic information. Therefore, it is possible among this sample, not disclosing information is perhaps unlikely to be solely because of random chance. Further analysis over the differences between the refusal of information versus self-disclosure in an application would be needed to scrutinise this inference.

The sample used in this analysis is much larger than the advised sample size indicated by the calculated G*Power analysis, which omits the possibility of type I and II errors. Although the inferences drawn from this study came from LRM with good, predicted probabilities, and the sample sizes collected across the various categories in the categorical variables were sufficient in size, this analysis runs the possible risk of type 1 error inflation given that multiple logistic regressions were ran in this study. Also, several variables were scrutinised in the logistic regression models, and no formal corrections for multiple testing were applied as this study was interested in exploring several factors that may possibly influence a selection outcome. This raises the possibility that some of the statistically significant findings could have arisen by chance. Ergo, these results should be interpreted with caution and viewed as hypothesis-generating, requiring replication in future research.

To our knowledge, this is the largest empirical study evaluating the selection outcome process for clinical psychology trainees. Although this is a significant merit of this single-site study, the inferences made would have been strengthened if data from other clinical training courses were included in this analysis and provided strong evidence demonstrating the efficacy of positive action. It is also worth noting that using secondary data in research offers cost and time efficiency, there are some limitations especially since this study has drawn inferences from not disclosing information as a category, which and further replication and work is needed to understand this heterogenous category. Moreover, this dataset was not directly intended for this analysis and perhaps a more appropriate design could have answered the research question better. Therefore, these results should be interpreted with caution and further replication is needed to confirm these findings.

# Conclusion

This work has scrutinised if there are any variables that can predict an unfavourable selection outcome for the DClinPsy course at UH. Although some variables suggested a minority applicants may have benefited during the application shortlisting process, these findings could be coincidental and require further replication. However, the findings from this work reject the set hypotheses and support the value of using contextual admission processes as a good practice of positive action and may mitigate for the

barriers some minoritised applicants may experience during the selection process. This is the first quantitative study supporting the use of contextual admissions processes for shortlisting clinical psychology trainees. While there are merits to this work, further research is needed that collects data from multiple sites, thereby omitting the possibility of site bias and limitations deriving from this retrospective dataset. The following research recommendations are suggested as they would increase the transparency and scrutiny of applicant selection.

- Leeds Clearing House should consider what additional categories could be introduced in their questions that capture the diversity of candidates applying to the course.
- There are a significant number of applicants reporting 'not disclosing data' as a category in the explanatory variables which highlights the need for Leeds Clearing House to adapt the choice responses for questions asked in their application process.

# Declarations

**Author contributions** Dr Shaunak Deshpande designed this study and wrote an original draft. Shalmali Deshpande and Dr Rowan Tinlin-Dixon contributed by making meaningful edits to the manuscript, which raised its impact.

**Clinical trial number:** not applicable.

**Funding** This study did not receive any funding in any form.

**Data availability** The data used in this study are readily available upon request.

**Ethics approval and consent to use secondary data** This research adheres to and is in accordance with the Doctorate in Clinical Psychology cohort 2022-2023 DClinPsy Service-Related Project (https://tinyurl.com/ymw8xav3) and the research codes & conduct outlined by the British Psychological Society and University of Hertfordshire research policies & procedures.

**Ethical statement** The study has received ethical clearance from the University of Hertfordshire cLMS/CL/UH/05069, and a supervisor from the university (Dr Zheng Zhou) agreed to the scope of the project and the use of the secondary dataset.

**Agreement to use Secondary Dataset** The data collated for this research was obtained from a dataset that the University of Hertfordshire's Clinical Psychology faculty holds. The information used for this project has been securely stored on the university's server, and the anonymity of the data of those who applied to the course was preserved.

**Consent for publication** The authors of this paper gave their consent for the publication of the manuscript.

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