IMPLICIT BIASES TOWARDS MINORITY GROUPS IN THE UK

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ABSTRACT

Implicit biases are thoughts and feelings outside of conscious awareness and can be difficult to acknowledge and control. Implicit biases have been found to influence behaviour in health and mental healthcare setting and might have a direct impact on the quality of care people are experiencing, especially when they are from a minority group. Trainee Clinical Psychologists (TCPs) are trained to work in a wide range of healthcare settings and to provide direct and indirect clinical work including leadership and service development. Therefore biases that TCPs hold might have far reaching negative implications on service provision and experiences of therapy. So far, limited research into implicit biases held by TCPs has been conducted. This study investigated implicit biases towards age, disability, gender-attitude, sexuality and skin-tone using Implicit Association Tests (IATs). First new stimuli for the categories disability, sexuality and skin-tone were developed and validated. One hundred and five TCPs took part in the main study and their scores were compared with those of a sample of forty-six Non-TCPs. TCPs showed comparable negative implicit biases against the minority groups for age, disability and skin-tone as the Non-TCP sample whilst not showing negative biases on the explicit measures. There was a female preference and a slight positive bias for homosexuality in both samples. The possible implications of TCP holding negative biases for service provision and therapeutic alliances are discussed. Limitation of this study and possible future directions are presented.

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1. INTRODUCTION

Research has long demonstrated how deprivation negatively impacts on health outcomes (Mathieson et al., 2016; World Health Organisation, 2011, 2017, 2021). Comparing the impact of unequal societies on mental health showed the UK to be one of the most unequal and badly affected countries (Pickett & Wilkinson, 2010). UK focused research into health inequalities has shown poverty to be of high significance (Marmot, 2010, 2020).

Now Covid-19 has highlighted the devastating effect health inequalities can have on the most deprived groups in a rich nation like the UK (Bailey & West, 2020) as well as on the older population. At the same time social political movements as for example Black Lives Matter, #metoo, as well as campaigns to topics like violence against women, for improved access for disabled people to vaccinations and living conditions have received great media attention and enabled a broader discussion in society. Agism is one of the more accepted forms of prejudice in society (L. M. Jackson, 2020); however, Covid-19 impacting on older adults disproportionately has brought it more into focus.

Although labels and terms like “race” and “disability” can and should be questioned as valid constructs, for the purpose of this thesis they will be used as a reflection of the research literature. In psychology discussions about racism are not new. A history of the influence of race on the profession and how racist structures perpetuate inequalities has been widely discussed (Fernando, 2017). Furthermore, in the last few years the debate about structural racism in clinical psychology and in training for clinical psychology has intensified (British Psychological Society, 2019b; Newnes, 2020; Wood & Patel, 2017). This has opened up the discussion and also allowed debates to take place during training. However, anecdotally, awareness of other marginalised groups has still not featured as prominent in the clinical psychology literature or on the training courses for the doctorate.

Since evidence suggests that health inequalities and prejudice are pervasive in UK society, it is important to look at which factors might be influencing those.

One area of interest is how implicit biases might prolong the existence of these differences without people doing so intentionally.

1.1. Definition of Prejudice

Social psychology has long focused on understanding the nature of prejudice and stereotyping and its implication for behaviour. Prejudice had been defined as hostile attitude against a person simply because the person belongs to a certain group (Allport, 1954). Since then the definition has evolved to include implicit and explicit attitudes, emotions or behaviour towards group members (Brown, 2010). This is an important development as the definition previously limited prejudice to conscious negative acts against others; but more recent research has shown how important the implicit aspect in prejudice can be. In their overview about implicit prejudice, Dovidio and Gaertner (2004) summarised that even in well-intentioned people, prejudice is often unwitting, unintentional and uncontrolled.

Implicit prejudice can be more difficult to overcome than explicit prejudice. Stereotyping is an important facet of prejudice. Stereotyping implies that individuals show characteristics that have been allocated to groups, rightly or wrongly. This then can shape expectations for the behaviour or characteristic of the individual based on assumptions that have been made about the group, overriding the individual's abilities and qualities (Brown, 2010; L. M. Jackson, 2020). An attitude can be understood as an evaluation of something or someone and degrees of positivity or negativity (liking or disliking) towards it (Maio et al., 2013).

1.2. Brief Overview of Research into Implicit Prejudice

The research into implicit prejudice was sparked by a noted difference between what participants endorsed as their opinion and how they actually behaved. Most of the research has been conducted in the United States (US) and

focused on ‘racial’ bias. For example, white Americans who endorsed egalitarian values nevertheless responded with less eye contact or friendly engagement in conversation with black interviewers relative to white interviewers (Dovidio et al., 1997). As Dovidio and Gaertner (2004) illustrated, the difference between consciously held and endorsed believes about attitudes and unconsciously demonstrated implicit biases can give ‘mixed messages’. In an experiment Dovidio and colleagues (2002) invited participants into interracial dyads to talk about non-race related topics. Explicit and implicit attitudes to race were assessed and the interactions were filmed. Results indicated that white participants explicit attitude to race informed their deliberate behaviours such as verbal friendliness to black and white participants, their evaluation of the interaction as satisfying and their feeling of contentedness. Whereas the indirect measure showed implicit biases and were reflected in participants non-verbal behaviour, which was used by their dyad partners to evaluate the conversation.

Thus, black participants rated the conversations as more biased and unsatisfying. This demonstrated a discrepancy between the white participants intentions and understanding of the situation to the experience and understanding of the black participants (Dovidio et al., 2002). These kind of mixed messages and different experiences of the same situations can contribute to a climate of misunderstandings and mistrust (Dovidio & Gaertner, 2004). If we translate this to the therapy room, in which most interactions are dyadic, the importance of implicit biases on the experience of therapy becomes evident.

The research into implicit stereotyping had been shifted by an experiment evaluating a fictious “Donald” after participants had been subliminal exposed to words relating to Afro Americans. Participants exposed to larger number of words evaluated Donald as more hostile independent of their explicitly endorsed attitude (Devine, 1989). This was a demonstration that implicit attitudes can be different to explicit attitudes and may influence behaviour. This finding has since led to a substantial body of research. The underlying principle is that explicit attitudes result from conscious, purposeful introspection and can be accessed via self-reported measures whereas implicit measures are outside of conscious awareness and thus not assessable to introspection (Hardin & Banaji, 2013).

Research has established that implicit biases can influence nonverbal behaviour for example friendly or unfriendly nonverbal behaviour to black men (Dovidio et al., 2002) or to gay men (Dasgupta & Rivera, 2008), can influence job hiring decisions (Agerström & Rooth, 2011; Yogeeswaran & Dasgupta, 2010) as well as voting decisions (Devos & Ma, 2013; Greenwald et al., 2009a), medical decisions (Green et al., 2007) and economic decisions as illustrated by allocation of resources to different student organisations (Rudman & Ashmore, 2007). Studies have shown that implicit gender bias can have an impact on girls and women's approach to and performance in science (Charlesworth & Banaji, 2019b; Nosek et al., 2009) as well as in leadership roles (Girod et al., 2016).

1.3. Implicit Social Cognition

Greenwald and Banaji (1995) introduced the term "implicit social cognition" to encompass thoughts and feelings that operate outside of conscious awareness but are influenced by past experiences (Greenwald & Banaji, 1995). This line of research was influenced by findings of amnesic patients implicit memory, where patients were not aware of having learned a process but demonstrated that they were able to perform it (Graf & Schacter, 1985). However, one of the big conceptual differences between implicit memory and implicit social cognition is that in implicit memory research the experimenter has complete control over what is being learned (for example word lists) and then later assessed (as a recall task for explicit memory or word completion task for implicit memory). In implicit social cognition the experimenter has no control over the participants past experiences and social learning (Payne & Gawronski, 2010). Greenwald and Banaji (1995) suggest that implicit attitudes and stereotypes can be understood as experiences that build up over many years and can play a strong role in their explicitly measured counterparts. They suggest that unconscious processes (past learning that bypasses conscious awareness) can shape conscious judgements and perceptions (Greenwald & Banaji, 2017).

Implicit memory was one area that shaped the understanding of implicit social cognition. The other important line of research was selective attention in cognitive psychology. This includes theories of automatic versus controlled

information processing (Payne & Gawronski, 2010). Here controlled processes were understood to need attention, are limited in capacity, are voluntary and thus can be altered. Whereas automatic processes needed little attention, are unlimited in capacity, and are difficult to suppress. Research showed that attitudes can be automatically activated and went on to suggest that there are strong (well-learned) attitudes and others that are weak (poorly-learned) (Fazio et al., 1986). This line of research led to the other important implicit measure – the sequential priming task.

Having two important lines of research shaping the concept of implicit social cognition has led to terms like automatic/ implicit/ unconscious processing versus controlled/ explicit/ conscious processing being used indiscriminately, which can lead to confusion (Payne & Gawronski, 2010). For clarity, this thesis will follow the widely adopted practice of using the words *indirect* and *direct* for procedure measures and *implicit* and *explicit* for the assessed psychological attributes (De Houwer et al., 2009). The term implicit will be used to describe the unconscious, efficient, unintentional, automatic or uncontrollable nature of the constructs being assessed. The term implicit social cognition will be used to describe the thoughts and feelings occurring outside of conscious awareness or control when relating to concepts like attitudes, stereotypes and self-concepts (Greenwald & Banaji, 1995).

1.4. Research Development in Implicit Social Cognition

The main focus of development in theory and methods in implicit social cognition have been ‘racial’ biases. This has probably been influenced by the media attention that some of the studies have received (e.g., US studies looking into the role of implicit biases in police shootings of Black American men) but also by the often-noted discrepancy in this line of research between the stated explicit attitude versus the observed implicit attitude of participants. Other areas have recently received considerable attention for example gender, sexuality, agism, disability, bodyweight but also voting behaviour and consumer choice.

1.5. Measures of Implicit Bias

There are detailed overviews of the nature, measurements and utility of intergroup biases (Fazio & Olson, 2003; Yogeeswaran et al., 2017). The aim of indirect measures is to assess attitudes to a given construct without having to ask participants directly. Frequently participants are not aware that their prejudices are measured. Thus, they provide answers less controlled for social desirability. There are numerous different indirect measures, however, for the purpose of this thesis I will focus upon the main measures that have been used to research implicit biases: priming measures and the Implicit Association Test (IAT) (Greenwald et al., 1998). Both of these measure response latencies or reaction times. In evaluative priming tasks, participants are invited to evaluate words according to their valence. However, before they see the target word, they are briefly presented with a prime stimulus for example a white or black face. If participants respond faster and or more accurately to white faces and positive words, this suggests a more favourable attitudes towards Whites relative to Blacks (Fazio et al., 1995).

1.5.1. The Implicit Association Test

In contrast the IAT invites participants to evaluate two semantically bipolar concepts (e.g. young/ old) and two evaluative attributes (good/ bad) by pressing only two keys on the computer keyboard to establish the strength and direction of the association (Greenwald et al., 1998). Participants have trial blocks to become familiar with the stimuli and the procedure. The target concepts and the attributes are paired, either in the congruent or incongruent fashion. For example, for the majority associating *young* and *good* would be considered the congruent condition and pairing *old* with *good* the incongruent condition. If participants are consistently faster in the congruent task this would indicate a stronger association for young and good relative to old and good. A more detailed description of the IAT procedure and scoring will follow in the method section.

Almost from the beginning of research utilising the IAT, criticism about a lack of unifying theory has been raised. For example, Fazio and Olson (2003) asserted that it has been atheoretical, driven methodical by empirical data. There have

been suggestions of different theoretical explanations as for example based on dual processing (Fazio & Olson, 2003), however, the theoretical underpinning remain insufficiently developed (Greenwald & Lai, 2020). Nevertheless, as a research tool it has been shown to be useful and reliable. In its main form, it is also freely available from the project implicit website, which has surely helped its visibility and popularity.

1.5.1.1. IAT Reliability

One of the reasons for the wide adaptation of the IAT as a research measure is that its reliability has shown to be consistently good, with scores for internal consistency regularly falling between .70 and .90, which is higher than for other indirect measures (Gawronski & De Houwer, 2014). Test-retest reliability is more variable and ranges from .25 to .69, however, this still represents a better test-retest reliability than other measures demonstrate (Lane et al., 2007). Greenwald and Lai (2020) concluded that all of the measures including IATs perform in the satisfactory range for test-retest reliability and internal consistency, and therefore can be used for correlational studies. However, the IAT should be used as a measure of associations on group levels and not for individual selection or diagnostic purposes (Greenwald et al., 2015; Greenwald & Lai, 2020).

1.5.1.2. Construct Validity

As the IAT is an indirect measure, it is important to validate the difference between implicit and explicit social cognition. That is to assess whether it actually measures what it suggests to measure like an explicit measure would. As Greenwald and Nosek (2008) phrased it, that explicit and implicit measures are measuring the same type of thing just not exactly the same thing. To assess construct validity of the IAT different approaches have been employed (Greenwald & Nosek, 2008), one being the ‘known group’ approach.

Group level validation approaches are based on the assumption that groups hold preferences for their ingroup that can be picked up by the IAT (Teige-Mocigemba et al., 2016). For example a study of sexual orientation, showed that identifying as gay led to increased preference for the homosexuality category on the IAT (Banse et al., 2001). Another example is the race IAT, in

which it was demonstrated that both white and black participants showed preference for white faces; however, this was less pronounced for black participants (Nosek et al., 2002). This is in keeping with the underlying assumption of preferring the group one belongs to.

1.5.1.3. Confounding Factors

Studies have shown that older adult response latencies are longer on average than younger participants, which indicates that processing speed can be a confounding factor (Hummert et al., 2002; Sherman et al., 2008). Another confounding factor, task-switching ability, has demonstrably influenced performance on IATs (Mierke & Klauer, 2003). To overcome these confounding influences an improved scoring algorithm has been implemented that provides individual effect sizes (Cai et al., 2004; Ito et al., 2015). To avoid performance being influenced by the order of conditions and switching between them, additional practice trials before the second performance condition have been introduced successfully (Greenwald et al., 2003).

1.5.1.4. Falsification and Malleability

Research has shown that IAT results can be falsified when participants are instructed to slow down their responses for one of the conditions. However, this can be detected statistically (Cvencek et al., 2010) and seems to require that participants already being familiar with the measure (Fiedler & Bluemke, 2005) and rarely occurs spontaneously e.g. without instruction (Kim, 2003). There has been debate about the malleability of the IAT and studies have shown that participants scores can be influenced (Blair, 2002). For example, showing participants photos of admired African Americans and disliked White Americans reduced the pro white biases usually seen in the race IAT (Dasgupta & Greenwald, 2001). Other examples that have shown to change negative implicit attitudes are hearing that one's attitudes differ from one's ingroup (Sechrist & Stangor, 2001) or interacting with an out-group member (Lowery et al., 2001). Similarly, studies have shown that it is possible to enhance pre-existing implicit biases for example by increasing the focus on group membership (Sassenberg & Wieber, 2005).

1.5.1.5. Participants Ability to Predict Biases

Another area of interest has been how far participants can correctly predict their biases. In one study, participants were asked to predict what kind of preference they would show on five IATs that were explained to them, and they had also been given the chance to practice on two unrelated IATs. The accurate predictions of the participants suggested that they had some conscious access to the association measured by the IAT (Hahn et al., 2014). This line of research was later extended, and demonstrated that asking participants to predict their biases increased their acknowledgement of the biases (Hahn & Gawronski, 2019).

As Hahn and Gawronski (2019) pointed out, contextual cues influence the categorisation of a given object, which influences the selection of which category representation is activated and thus influences measured response.

1.5.1.6. Implicit Bias as Predictor of Behaviour?

So far there have been four meta-analyses of IAT findings aiming to address if implicit and explicit measures of social cognition are correlated and if they have predictive validity (Kurdi et al., 2019; Greenwald et al., 2009b; Oswald et al., 2013; Hofmann et al., 2005). Even though the results vary in magnitude, overall findings demonstrate a positive correlation between implicit and explicit measures as well as positive predictive validity. The difference in the findings could be partially explained by different inclusion criteria for the early studies as well as their focus on mainly race related biases. By the time of the latest meta-analysis (Kurdi et al., 2019) the research into the field of implicit biases had magnified and other intergroup domains were included. However, as has been pointed out even if findings only show relative small effect sizes they might still have a meaningful impact especially with repeated interactions (Greenwald et al., 2015). Kurdi et al. (2019) concluded that in the intergroup domain attitudes, stereotypes and identity are systematically related to behaviour, no matter if assessed using measures like the IAT or self-report. They suggest that IAT scores can be robust predictors of behaviour and show incremental validity, especially when focusing on studies using standard IATs with large sample size.

There seems to be a lower correlation between implicit and explicit measures for socially sensitive questions as for example race or skin-tone bias as self-monitoring might be impacting self-reporting (Greenwald et al., 2009b; Hofmann et al., 2005). The higher correlation between implicit and explicit measures can be found in more mundane, socially noncontroversial areas as for example consumer choice (Fazio & Olson, 2003).

One interpretation is that changes in implicit attitudes are based on rather stable features of the individuals in their environment (for example political orientation or group membership), but another suggestion is that changes in implicit attitudes could be sensitive to rather short lived contextual features (for example changes in the test environment). Kurdi et al. (2019) concluded that IAT scores do not reflect disposition but an adaptive response in a given environment by a person with a particular biology, personality and cultural history. As such it would be wrong to use the IAT as a selection or diagnostic devise, but supports its use as a measure in the domains of research and education (Kurdi et al., 2019).

A wide range of fields (for example law, business, medicine, education, psychology) have used IATs for research purposes. Payne et al. (2017) have broadened the field of discussion by suggesting a bias of crowds' model. They raised the issue that implicit biases have been found to be robust but unstable over weeks, e.g., overall results for a given bias remain stable but the same individual tested a month apart shows fluctuating levels of bias. Children's attitudes have been shown to be reflective of the adults around them, suggesting that they are learned early at home (Baron 2015; Baron & Banaji, 2006).

Furthermore, if implicit biases are only weakly correlated with behaviour, how can significant levels of implicit biases (shown for countries, states etc) be associated with disparities and discrimination? The authors suggest that implicit biases might be reflecting aggregate effects of fluctuation in concept accessibility for the individual which are fleeting and dependent on context (Payne et al., 2017). This assumption is based on the notion that concepts more frequently used in society are more easily accessible for the individual. This link

can be both chronic or situational. If implicit biases are considered social phenomenon, that reflect fleeting attitudes of the individual, but show a greater stability in their situational context, that would suggest that measures of implicit biases are meaningful, reliable and valid measures of the situation though not of the individual person (Payne et al., 2017).

One example might be a study evaluating the possible influence of a societal level protest movement as for example Black Lives Matter (BLM) which has been found to be influential on attitudes towards race. Sawyer and Gampa (2018) compared implicit race bias before, during and at high points of BLM activities (when the movement received high media coverage in the US). In the selected time period 2009 to 2016 1,369,204 participants completed the race IAT. Data analysis showed a reduction in pro-white bias for white participants when compared to pre-BLM levels, a reduction in pro-white bias during the BLM period as well as a corresponding reduction in pro-white bias at peak times of the movement for white participants. These lowering of biases occurred irrespective of political orientation, however, the effect was the smallest for conservative participants as opposed to liberal participants who had the biggest reduction in implicit bias (Sawyer & Gampa, 2018).

1.5.1.7. Can Interventions Change Implicit Biases and Behaviours?

There are frequent examples of diversity and implicit bias training in organisations or institutions. However, so far it has not been possible to evaluate their effectiveness scientifically. Research publishing interventions to change implicit biases is mainly focused on lowering race biases. For example, a study published by Devine and colleagues (2012) evaluated the effectiveness of a multi-faceted prejudice habit breaking intervention. They assessed implicit and explicit biases at three points in time for the intervention group, who received not only feedback about their IAT performance but also education about strategies to reduce implicit biases. They found a reduction in implicit biases by week four (second IAT administration) that was still present at week eight (last IAT administration) (Devine et al., 2012).

Unfortunately, there is no data available on whether the change in implicit biases remained over a longer duration, but it is encouraging to see that a short

intervention had been effective. Other studies have demonstrated successful changes in relationship satisfaction when participants engaged in 13 short conditioning sessions spread over six weeks (McNulty et al., 2017) or reduced white preference when white participants lived with a black roommate over a semester (Shook & Fazio, 2008). Recently a study has investigated whether short term changes in implicit attitudes to race could lead to long lasting change. The authors investigated the effectiveness of 17 short term interventions to reduce implicit negative attitudes and found that only 8 of the suggested interventions reduced implicit racial bias (Lai et al., 2014). They then evaluated whether those successful short term interventions led to long lasting change in attitudes towards race, however the findings were negative. None of the intervention had led to change that was still present in the following few days (Lai et al., 2016).

Vuletich and Payne (2019) reanalysed the data of this study and offered a different interpretation. They suggest that when considering both individual and environmental factors (as suggested by the bias of crowds model), the data illustrates that individual's bias was not permanent but was predicted by the average level of bias of their respective universities (Vuletich & Payne, 2019). Thus, suggesting that implicit biases demonstrate societal and not individual biases, therefore interventions would have to aim at a structural and not the individual level.

Another systematic review of interventions to reduce implicit biases that build on the study by Lai et al. (2014) concluded that robust data for the effectiveness of interventions is lacking. They suggest that exposure to counter stereotypical examples are somewhat promising in reducing short term bias whereas techniques like engaging in others perspective seem to be unfruitful. However, they do not want this to imply that reducing biases is not needed, only that it needs more research to back up effective strategies that might not be found in short term interventions (FitzGerald et al., 2019). A recent meta-analysis comparing 492 studies concluded that it is possible to induce small changes in implicit biases in the short term when using strategies like goal or motivation setting, association procedures or taxing mental resources. However, these changes in implicit biases did not mediate changes in explicit measures or behaviour (Forscher et al., 2019).

1.5.1.8. Changes in Patterns of Biases

When looking at the broader picture, of changes in patterns of indirect biases, positive changes are evident. Charleswood and Banaji (2019a) conducted an analysis of long term pattern changes in implicit and explicit attitudes for six domains: age, race, skin-tone, disability, sexual orientation and bodyweight. They evaluated 4.4 million completed tests between 2004 and 2016 on Harvard's Project Implicit website. Findings indicated that all explicit measures showed trends towards neutrality. However, not all of the implicit measures showed this trend. The biggest trend to neutrality in implicit measures was shown for sexual orientation followed by race and skin-tone attitudes.

In contrast, age and disability attitude patterns remained stable over this time period, while attitudes towards body weight moved away from neutrality. When comparing the changes for sexual orientation, explicit attitudes changed by 49% towards neutrality whereas implicit measures also changed towards neutrality, however to a lesser extent 33%. This suggests, that the change is based on shift that affects the sociocultural climate influencing all ages, generational cohorts and demographics (Charlesworth & Banaji, 2019a). Previously, Westgate et al (2015) had investigated changes in attitudes towards gay and straight people over a shorter period of time (7 years) and had found similar shifts in attitudes. They reported that explicit preference of heterosexual people over gay men and lesbians was 26% lowered during the time. Implicit bias also reduced by 13.4% over the same period (Westgate et al., 2015).

Charlesworth and Banaji (2019a) reported changes for race and skin-tone also in the direction of neutrality on both explicit and implicit measures. The explicit measures for race showed a change of 37% and for skin-tone by 21%. The implicit measures changed by 17% for skin-tone and race. The correspondence between implicit and explicit attitudes towards race reduced over the period of time which might reflect the changing social desirability of this attitude. For both the attitude changes in race and skin-tone might suggest that it is driven by a cohort-by-period interaction, as it is mainly evident in the attitudes of the younger generations (Charlesworth & Banaji, 2019a). As noted above, Swayer and Gampa (2018) had also found a lowering in pro-white bias of white

participants in their longitudinal study covering IAT participation during the years 2009-2013.

Interestingly, Charlesworth and Banaji (2019a) did not detect changes in the same period for age and disability attitudes. Here the patterns detected were that explicit attitudes towards age changed in direction of neutrality by 34% whereas implicit attitudes changed only by 5%. For attitudes towards disability change in implicit attitudes was even smaller with 2% and change in explicit attitudes was found to be 24%. These findings were stable across all age groups and generational cohorts for both age and disability. The authors suggest that these findings can be understood as evidence for the possibility of change for implicit attitudes (gradually and durably) at the population level to decrease prejudice. Harder et al. (2019) found mean implicit bias towards disabled people to have increased over the time period 2004-2017, whereas they found a reduction in explicit bias during the same time frame.

Patterns in changes of gender stereotypes have also recently been investigated. Charlesworth and Banaji (2021) analysed the data of 1.4 million gender stereotypes implicit and explicit measures gathered between 2007-2018 on the Project Implicit Website. They focused on male-science/female-arts and male-career/female- family IATs and found a trend towards neutrality for both implicit and explicit measures by 13% - 19%, even though the stereotypes are still strong across all demographic groups. Implicit measures showed a reduction in stereotype for male-science/female- arts of 17% and explicit measures a reduction by 14% and male-career/female-family 13% (implicit) and 19% (explicit) (Charlesworth & Banaji, 2021). Suggesting that even stereotypes that are deeply embedded in society are amenable to changes over time.

1.5.1.9. Summary

Since its development the IAT has become the most popular measurement of indirect biases. Also, since the original publication, the IAT has been exposed to public scrutiny and discussion, which led to improved measuring and scoring procedures so that the individual established scores are now more reliable. The construct validity of the IAT has been demonstrated and studies have investigated in how much indirect biases might influence behaviour.

There is a discussion about whether the IAT reflects individual biases or those represented by society. I would agree with the point of view that an individual is always part of their surrounding environment, and therefore, no clear-cut distinction is possible. However, we can gain an insight into the biases of the individual by using measures like the IAT if we understand them to be momentarily and changeable.

Currently, there is still no underlying theoretical explanation as to what drives implicit biases. However, it has been well established that they exist and are not always how the person would want them to be. On balance, it appears that the IAT might be a good engagement tool for people who are interested to investigate their own biases, to challenge underlying negative assumptions, and who would like to have a starting point for further development.

The IAT should not be used as a selection or judgement tool, but it appears to be very useful as a concrete tool to help with self-reflection and thus, to enable steps that can lead to a change in behaviour, even if that is still difficult to measure as a close association. Even small steps can lead to significant differences if they are embedded in a societal change.

Research into changes in patterns of behaviour to certain topics e.g., racism and sexuality have shown that there are changes on a societal level over time and that the IAT is a good measure to pick up on them.

In summary, I would consider the IAT to be a useful measure for self-reflection and engagement in any profession that wants to provide supportive services for a diverse population, as research has shown that negative implicit biases exist even in services that aim to provide equal provisions to all. As mentioned above, the IAT should not be used on its own or as an evaluative tool, rather as a tool that is embedded in a programme of personal development and self-reflection, for which time and resources need to be allocated.

1.6. Implicit Biases amongst Health Care Professionals

It has been shown that even when controlling for socio-economic background, level of education, and underlying health conditions, the level of care provided for patients from different minority groups differs (Clark, 2009; Green et al., 2007; Hunt & Minsky, 2005; Sabin et al., 2009). A growing body of research has shown that health care professionals hold negative implicit biases towards minority groups (FitzGerald & Hurst, 2017; Hall et al., 2015; Maina et al., 2018). Most of the research has been conducted in the US and focused on race or skin-tone. In their systematic review of implicit bias in health care providers in the USA, Maina and colleagues (2018) concluded that 31 of the 37 analysed studies found health care providers to show a pro-white or pro light skinned bias. Seven studies demonstrated that communication between provider and patient was poorer when providers had more implicit biases. For example practitioners with pro-white biases used more verbal dominance behaviour in their communication with black patients (Cooper et al., 2012; Hagiwara et al., 2013). It was also found that black patients rated the experience of interacting with a practitioner with higher pro-white bias as worse, in multiple areas like patient centredness, supportiveness and interpersonal treatment (Blair et al., 2013; Penner et al., 2016).

The findings for quality of health care provision are more mixed. Even though eight studies did not find a significant association between implicit biases and patientcare, six studies found implicit biases to be associated with treatment recommendations, expectation of therapeutic bonds, pain management and empathy (Maina et al., 2018). For example Green et al. (2007) found that lower rates for appropriate treatment for acute coronary syndrome were made for black participants by internal and emergency medicine residents in a vignette based study (Green et al., 2007).

In their systemic review, FitzGerald and Hurst (2017) included studies from countries around the world to investigate what kind of biases health care professionals show in vignettes based research. They concluded that almost all studies found evidence for implicit biases on a comparable level to the general population. They also found a negative correlation between levels of implicit

bias and quality of care indicators, suggesting that biases may influence diagnosis and treatment decisions as well as levels of care.

Few studies have investigated how implicit biases in health care professionals might be changed. One study evaluated medical students at the beginning and end of their training, showing that students self-assessed increased skills in treating Black American patients was slightly associated with a decrease in bias. However, hearing comments about Black Americans by other medics or having unfavourable encounter with Black American physicians increased racial biases in White Americans (van Ryn et al., 2015). It has been suggested that high case load and time pressure can lead to an increase in implicit biases (Johnson et al., 2016; Stepanikova, 2012).

Therefore interventions that allow for recognition of biases and then forming new habits to counter those biases have been suggested to reduce the impact of biases on health disparities (Byrne & Tanesini, 2015; Marcelin et al., 2019). On a theoretical level, Sukhera and Watling (2018) suggested a 6-point framework to include implicit biases in medical health curricula. These include creating learning environments that are safe and non-threatening, furthering knowledge about implicit bias, illustrating how biases can influence behaviour and patient outcomes, enabling increasing awareness about own biases, improving conscious efforts to overcome bias as well as raising awareness into how implicit biases can impact others (Sukhera & Watling, 2018). The framework sounds comprehensive, and it would be interesting to evaluate whether it can be effectively integrated into medical or mental health curricula, but so far, no such implementation has taken place.

1.6.1. Implicit Biases amongst Psychologists

Biases psychologists hold might not only affect whom they feel comfortable to work with (James & Haley, 1995) but also affect the therapeutic relationship. Forming a helping alliance has shown to be one of the most important factors for a successful therapeutic relationship (Roth & Fonagy, 2005). The therapist's ability to present as caring, sensitive and sympathetic (Horvath & Luborsky, 1993) whilst being perceived as credible (expert and trustworthy) and attractive (similar) by the patient (Heppner & Dixon, 1981; Sue et al., 2019) seems to be

central for the forming of a therapeutic relationship. Recently, research has investigated how therapists' cultural humility might impact on the therapeutic relationship. For example, a retrospective study found that patient's experience of the cultural humility of their therapist was associated with lower levels of experiencing racial microaggressions during the sessions, and also lower level of impact of the experienced microaggressions (Hook et al., 2016).

So far there are only a few studies that focus directly on implicit biases by psychologists. One audit study left voice messages on 371 counsellor and psychologist answering machines in the US, with the only difference in the recording being the name of the hypothetical caller: either Allison (as a white sounding name) or Lakisha (as a non-white sounding name). The researchers found that there was no difference in the call back rate from professionals between the two names; however, there was a statistically significant difference in the content of the call back with Allison receiving 12% more offers to promote services (Shin et al., 2016). This would suggest that non-white service users might experience difficulties accessing support for their mental health.

In recent theses, implicit biases among Trainee Clinical Psychologist have been investigated (Blencowe, 2017; Hearn, 2018). In her thesis Blencowe (2017) provided a comprehensive summary of the research thus far, concluding that most studies had been conducted in the US and that psychologists and trainee psychologists showed similar biases to the general population. Since then, three studies on implicit biases of mental health practitioners have been published. The first study demonstrated that genetic counsellors with pro-white biases were experienced as using less positive affect and lower emotional responses in their communication with minority clients, which might lead to more negative experiences of the communication by minority clients (Schaa et al., 2015).

Another study investigated genetic counsellors' attitudes to sexuality using the Sexuality Implicit Association Test and found the majority showing a slight preference for heterosexual over homosexual people. Self-reported sexuality but not race, gender or speciality led to difference in implicit attitude (Nathan et al., 2019). Ivers and colleagues (2021) concluded that practicing mindfulness is

negatively related to implicit race biases. They utilised the Race-4 BIAT, (which uses the categories Whites, Blacks, Hispanics and Asians) and found a pro-white bias in the majority of participants (mental health professionals). Furthermore, they investigated whether practicing a form of mindfulness was associated with a lowering in biases. According to their analysis this seems to be the case, however, one of the limitations of this study was that establishing mindfulness practice relied on self-report measures and could not be objectively verified (Ivers et al., 2021).

Blencowe (2017) investigated implicit biases in the first UK sample of Clinical and Trainee Clinical Psychologists on the following IATs: age, weight, sexuality, gender-career and skin-tone. Her study found that all groups showed comparable negative implicit biases to the UK population despite holding explicit biases pro-marginalised groups; except for the weight category where implicit and explicit biases were negative towards overweight people. Hearn (2018) aimed to update the IAT for the UK population and to expand on previous findings, by developing a new IAT to investigate attitudes towards trans-people. He found comparable biases in the general population sample to previous studies, and Trainee Clinical Psychologist showing less pronounced biases. However, the validation of the updated IAT stimuli was limited. The newly developed transgender IAT was validated by a very small sample (10 people) and no validation was gathered for other changes (in the age and sexuality IAT stimuli). Furthermore, his sample of Trainee Clinical Psychologists was very small (n=31), and thus not fulfilling the minimum power requirement to make valid good quality interpretations of IAT associations (Kurdi et al., 2019). This thesis will build on the work of my two colleagues and investigate implicit biases by trainee clinical psychologists regarding age, disability, gender-attitude, sexuality, and skin-tone. The gender-attitude IAT was chosen (and not the gender-career IAT as in previous work) as possibly more influential for the therapeutic alliance. Disability bias had not been included in previous works; however, Covid-19 has highlighted that health disparities and ableism are still very present and problematic in our society. Thus, it warrants further exploration.

1.7. Disability

1.7.1. Overview

The World Health Organization (WHO) defines disability as an umbrella term that refers to the negative interaction between an individual with a health condition and the contextual factors (environmental and personal) of the individual (World Health Organisation, 2011). According to their estimate there are between 785 and 975 million persons over the age of 15 living with a disability, which reflects 15% of the world's population. In the UK 21% (14.1 million) people reported a disability (Department of Work and Pensions, 2016). There is a bidirectional link between disability and poverty. People with a disability experience more health difficulties, have lower levels of education, are less active economically, experience higher rates of poverty and cannot participate fully in community activities or live independently (Zaidi & Burchardt, 2005; World Health Organisation, 2011; Saunders, 2007).

They are also significant more likely to be victims of crime (Office of Disability Issues & Department of Work and Pensions, 2011). According to the latest Labour Force Survey 2020, disabled people are more than twice as likely to be unemployed than non-disabled people (Office for National Statistics, 2020a). Experiencing higher levels of discrimination has been shown to be connected with lower life satisfaction, higher rates of depression and greater mental distress (Hackett et al., 2020). The impact of Covid-19 is only just starting to be assessed and will predictably have a similar influence.

There have been efforts to achieve equality for individuals with disability on an international and national level. Nevertheless, people with disabilities still experience stigmatisation and discrimination. One of the influencing factors seems to be negative attitudes towards people with disabilities. Even though open forms of prejudice against people with disabilities are reducing in the UK, more subtle forms remain (Deal, 2007). People with disabilities are often assumed to be more dependent than non-disabled people, seen as more childlike, less capable and less intelligent, but assumed to be more friendly and

warm (Fichten & Amsel, 1986; Harris & Fiske, 2007; Ostrove & Crawford, 2006; Stern et al., 2007).

According to the disability charity Scope, 1 in 3 disabled people feel there is a lot of disability prejudice, and non-disabled people might be underestimating the problem (Scope, 2020). A study investigating whether people with a physical and a mental health disability experienced more stigma than people with only one type of disability indicated that to be the case and this was negatively correlated to emotional well-being, life satisfaction, physical condition and general health (self-rated) (Bahm & Forchuk, 2009).

1.7.2. Implicit Bias towards Disability

There have been studies investigating the impact of implicit biases on the understanding of law (Larson, 2008), on decisions of credibility by children with disability in abuse cases (Reiman, 2014) or social workers decisions in cases were children might be removed from their home (Proctor, 2011). Others have highlighted the connection to racial biases for example in school data of detention (highest for black disabled students) (McIntosh et al., 2018) whereas others argue that students from racial minorities are not as often identified as having an emotional or behavioural disorder and thus do not get sufficient support (Morgan & Farkas, 2016). Wilson and Scior (2014) published a literature review of studies utilising the IAT to assess attitudes to disability. The review included 18 papers with moderate to high quality ratings that spanned from January 2000 to September 2012. Thirteen studies focused on physical disabilities, three on intellectual disabilities, one on both and one did not specify what their category “disability” entailed. Even though the quality of the studies and the used IATs were of appropriate high level, two problems were named more than half the participants were students or in higher education (higher levels of education have been linked with less negative attitudes towards people with disability) and there was a strong female bias in the participants sample (and being female has been linked to lower negative attitudes towards people with disability). These sampling biases were also present for later studies.

Nevertheless, the findings are an important summary of previous research and showed a consistent pattern of moderate to strong negative implicit attitudes

towards individuals with physical and intellectual disabilities (Wilson & Scior, 2014). A scoping exercise showed that since then more research has been published, including whether meditation could change implicit attitudes (Schimchowitsch & Rohmer, 2016) or if people with disability would be more accepted if they are perceived to engage in sports (Clément-Guillotin et al., 2018) or if students attitude would be more positive if they were presented with more positive images of people with disability (Kallman, 2017).

There have been studies into specific types of disability for example using a Blind and Visually Impaired IAT to demonstrate that people in employment decision making positions show an association of blind and less competent (McDonnall & Antonelli, 2018), whereas this bias is still present but lower in professionals that are working with blind people (McDonnall et al., 2019). Another area of interest has been intellectual disabilities. Two studies focused on UK samples, the first investigating the relationship of implicit attitudes towards people with intellectual disabilities to explicit attitudes, emotional distance, emotions and contact using a single term IAT. This study found implicit attitudes to be somewhat negative towards people with intellectual disabilities which did not change with contact or by demographics whereas explicit measures were influenced by social distance and emotional response (Wilson & Scior, 2015). Utilising the same single term IAT, researchers investigated whether participants demographics and contact with people with intellectual disabilities influenced explicit and implicit attitudes. They found participants demographics and frequency of contacts to influence explicit but not implicit attitudes (Murch et al., 2018). This clearly illustrates the need for more research into the area and how different social variables might be influential.

Two recent studies have evaluated the data gathered by Project Implicit with their disability IAT. As mentioned previously, Charlesworth and Banaji (2019a) demonstrated that explicit and implicit biases towards disability did not change according to the same pattern as for example the race and skin-tone attitudes. They found that explicit attitudes towards disability changed by 24% (to more neutrality) but no change in implicit attitude was found in the ten-year period assessed. This shows a lager discrepancy between explicit and implicit

attitudes than for other IATs e.g., race, skin-tone and sexuality. The stability of implicit attitudes was found independent of disability status or generational cohort of the respondents (Charlesworth & Banaji, 2019a).

Another recent study using a large internet dataset of over 300,000 participants (of which 15% had a disability) of the Project Implicit Disability IAT over 13 years investigated demographic, experiential and temporal changes in attitudes (Harder et al., 2019). Results showed that explicit and implicit disability prejudice effects were greater for male participants, participants who had no disability and those who had no contact to people with a disability. Implicit bias increased for participants who took part in the study at a later point in time (i.e., were higher in 2017 than in 2004) and increased with age. Data for participants who had indicated that they had a disability were analysed separately. The findings indicated higher levels of implicit prejudices for those who felt their disability was shorter lived, who did not engage in a support group for their disability and who did not have contact with people with a disability, when they defined themselves as male and white. The ease with which the disability could be hidden, and how long the person had the disability, were also negatively associated with implicit disability prejudice. Explicit disability prejudice of people with a disability decreased over time (Harder et al., 2019) as in other samples.

1.7.3 Literature Review: Disability Bias and Health Care Providers

Health care providers can hold influential roles in the lives of people with disabilities. They can be in positions to make decisions about care, education, living situation and finances. If they have negative biases this might impact these outcomes and also the relationship between clinician and client.

The research literature yields frequent examples of biases of health care providers. In the USA a study found health care professional students to hold less positive attitudes towards people with disability than the general population, and nursing students showed the least positive attitudes out of the health care professional samples (Tervo et al., 2004). In the UK it has been found that medical students tend to not disclose if they have a disability, which might be attributable to negative attitudes and fear of negative consequences of

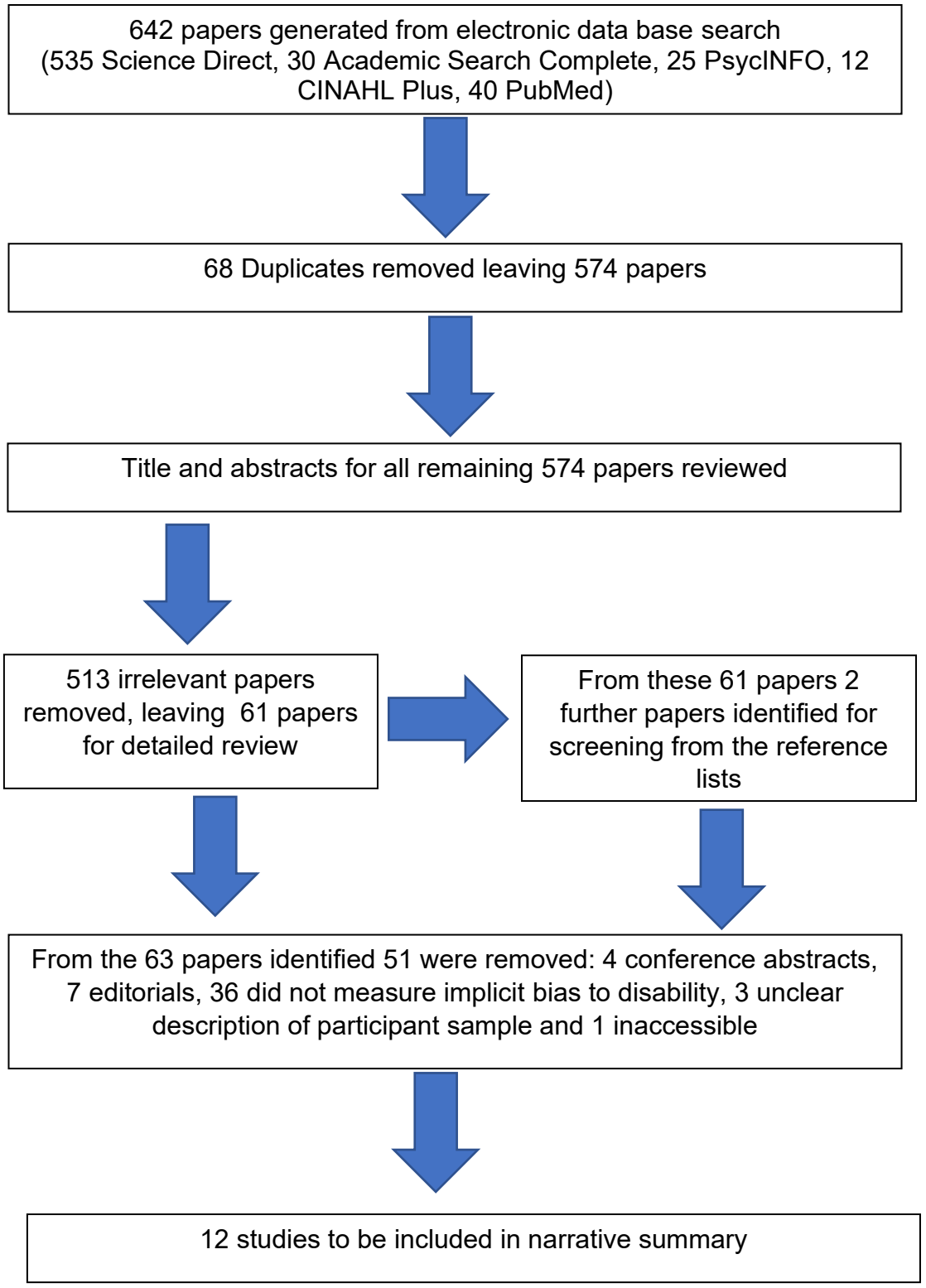
disclosure (Miller et al., 2009) and that behaviour analysts working with children with autism held biases as negative as the general population (Kelly & Barnes-Holmes, 2013).

The above suggested that a literature review into the current level of research to implicit attitudes towards people with disabilities using an IAT methodology would be warranted especially due to the prevalence of negative attitudes towards people with disability in the general population.

To establish how thoroughly implicit biases towards people with disabilities by health professionals have been investigated a literature search was conducted. The university librarian was consulted to identify relevant data bases and to decide best search terms. The search terms used were ("implicit bias" OR "implicit attitude" OR "implicit prejudice" OR "implicit stereotype" OR "conscious bias" OR "conscious stereotype" OR "conscious prejudice") AND ("disability" OR "physical impairment" OR "cognitive impairment" OR "mental health disability" OR “sensory impairment” OR "learning disability" OR "intellectual disability"). The search terms were kept broad to find as many contributions as possible. Inclusion of terms like health care professional led to a significant reduction in results and was thus completed by screening abstracts. The data bases searched were Academic Search Complete, CINAHL Plus, PsycINFO, PubMed, and ScienceDirect. See Figure 1 for an overview of literature search conducted on 17/04/2021.

Figure 1

Flow Chart of Literature Research



1.7.3.1. Narrative Summary

Pruett and Chan (2006) developed and evaluated a paper Disability Ability IAT (DA- IAT) and investigated attitudes held by rehabilitation practitioner students. They utilised symbolic presentations of people with and without a disability and pleasant or unpleasant words. 223 rehabilitation counselling students took part in the survey. Data analysis showed that participants found it easier to connect pleasant words with able bodied symbols and thus showed a moderate negative bias against people with disability. The results did not indicate a reliable relationship between the scores of the DA-IAT and the explicit measure, which reflects frequent findings between implicit and explicit attitude measures. The influence of psychosocial variables on DA-IAT was very small (Pruett & Chan, 2006). Limitation of this study might be that it was a paper based IAT, which seems to be less reliable than the computer-based version, and that many more female participants took part. However, this sample reflects the workforce in most psychological professions.

Archambault et al. (2008) utilised the age and disability IATs from Project Implicit website. As opposed to other studies, here the students were encouraged to participate in the IATs on the original website and then print out their results and submit these anonymously to a faculty member. 49 physician assistant students took part, of which 48 submitted completed results at time point 1. At the three months follow up 28 participants repeated the age IAT and 27 the disability IAT. The results showed a preference for young and abled people (indicating a negative bias towards old and disabled people) on both occasions. The preference for young people actually grew at the second time point. The aim of the study was to investigate how participants biases could be recognised and considered during their education. However, participants fed back that they would have needed more information before actually taking the IATs and maybe more information about the meaning of these kind of tests. Accordingly, a high percentile of the participants who had taken the test said that they had dismissed the findings as false and did not feel inclined to spent more time investigating their own biases in educational setting (Archambault et al., 2008).

A recent study performed a secondary analysis of 25,006 health care providers completing the same DA – IAT of the Project Implicit website (VanPuymbrouck et al., 2020). The authors investigated the relationship between implicit and explicit measures and used an adapted two-dimensional model of racial prejudice to analyse the findings. In this model participants' implicit and explicit scores are grouped into high and low and then categorised in four prejudice styles. Their findings indicate that the majority of health care providers self-reported not being biased against people with disability. However, the implicit measures found moderate negative bias against people with disability. This led to 61% being classified as aversive ableists (meaning they have low explicit but high implicit scores) and only 28% as truly non-judgemental.

This might indicate that health care providers who believe that they are not biased see people with a disability as less able to achieve or be independent and this could have implications for the quality of the care and services they receive. Thus, suggesting that most health care providers are not cognizant of their negative biases towards people with disabilities and the negative consequences this could have for their clients.

Another study evaluating occupational therapy students' attitudes towards people with disability employed an IAT using symbols for the categories *disabled* and *abled* person and *good* and *bad* words as attributes (VanPuymbrouck & Friedman, 2020). They approached future occupational therapists of three Universities in the US to take part, before they commenced with their course. 67 participants took part, of which half had a close relationship with someone with a disability. The findings indicate a moderate bias for abled bodies of 83.6% in this sample. They also investigated participants understanding of "disability", summarising that participant had very different understandings of disability but frequently understood it not on a societal level.

This gives reason for concern as it might lead to participants not being aware of the influence of society and services on the people with disabilities. The authors concluded by making suggestions of how to include the social model of disability more in the curriculum in the hope of changing students understanding and attitudes. The researchers acknowledge that it is a limitation of this study

that the participants were approached before starting on their course and thus it was not possible to comment on whether attitudes change throughout the course, maybe because of exposure to more knowledge and possible encounters with people with a disability (VanPuymbrouck & Friedman, 2020).

An interesting study investigated whether staff at a service for multiple disabilities showed *infantilizing* attitudes towards people with disabilities (Robey et al., 2006). The researchers developed an “infantilising IAT” using words for *disabled* and *abled* persons as well as words for *childhood* and *adulthood*. The prediction was that if participants have an infantilising bias, they would respond quicker to the categories disabled and childhood. To evaluate the validity of the infantilising IAT they also administered an evaluative IAT, based on the same words for disabled and non-disabled people but using the categories good/bad as contrast. They also administered explicit attitude measures based on a feeling thermometer. All tests were administered twice to the participants, with a three to four days gap between sessions. Participants of this study were 30 employees of a specialist school and hospital setting. The results indicated an infantilising bias for participants, which interestingly was no longer significant at the second administration. The negative bias on the evaluative IAT stayed the same for both time points, indicating that staff hold negative biases on an implicit level. In this study the findings between implicit and explicit measures were mixed. The authors acknowledge that the test-retest reliability of the infantilising IAT was not good, but it is an interesting approach to establish further nuances in where biases into people with disability might lie.

Two studies investigating negative biases towards children with Down Syndrome (DS), a genetic disorder affecting cognitive ability, have been conducted in France. The first study investigated whether subtle stereotyping was displayed based on how pronounced the facial features were with the assumption that more pronounced DS features would lead to less positive judgements as compared to children with less pronounced features or typical developing children (Enea-Drapeau et al., 2012). The implicit measure was an IAT comparing response times between the category matching tasks of faces of children with DS versus typically developing and positive versus negative personality trait words. One hundred and sixty-five participants took part, of

which 55 were professional caregivers (for children with DS), another 55 young adults and 55 young adult students. Their findings showed that all three groups exhibited strong negative biases against people with DS in the IAT, which was still a strong, even though smaller magnitude for the professional caregivers. On the explicit measure all three groups endorsed children with DS features with more positive personality traits than typical developing children, which is in keeping with previous research. However, the young adults' groups gave fewer positive judgements for children with more pronounced DS features, which indicates stereotyping within a category. This type of stereotyping was not found in the professional care givers group.

In a later study the same research team investigated whether implicit theories of intelligence influence implicit and explicit attitudes towards people with DS (Enea-Drapeau et al., 2017). This study investigated professional caregivers' and the general populations' conceptualisation of intelligence and implicit and explicit biases. The sample included the 55 professionals and non-student young adults of the previous study. The result of the IAT study remained the same (strong negative bias towards people with DS, however the effect was lower for the professional care giver group). The interesting finding in this study was that professional care givers were more positive about people with DS being more educatable, more intelligent and less stupid than the general public. Nevertheless, they, as the general public, believed that intelligence is different for people with DS, suggesting that they show less flexible intelligence and thus cannot develop as much as people without DS. This is especially revealing as their job was helping people with DS learn and develop. It might be interesting to explore the implications of conceptualisation of intelligence in other areas of disability research.

Another small study in the area of intellectual disabilities investigated whether there was a connection between key word signing (KWS) usage and implicit attitudes in support staff (Rombouts et al., 2016). Being able to communicate is important for everyone but especially for people with communication difficulties it is important that this happens without biases. The sample was small, 12 people with learning disabilities who had been using KWS for at least a year, and two communication partners for each – one with first-hand learning

experience of KWS and one having learned second hand. Participants were filmed during dyadic interactions and completed a measure of explicit attitudes and one IAT. The IAT was single target for “Speaking with support of signs” and utilised pictures of people using signs in communication and pleasant versus unpleasant words. The findings indicated the staff better trained in KWS used more signs in the interaction and showed a more positive implicit attitude to using signs on the IAT. This would suggest that it is important to provide staff members with quality training in the use of KWS. However, this sample was very small and might not have covered actual underlying implicit biases to communication with signs because the participants with more experience had completed the training course in their own time and thus might have been a self-selected group who were motivated to improve communication in the first place.

Another research team investigated whether mental health training influences implicit and explicit attitudes to mental health and stigma, and the association between stigma and clinical decision making (Peris et al., 2008). They recruited four groups of participants with different levels of experience in working in mental health settings (from high to none). Most of the participants were recruited via the Project Implicit website, others via recruitment lists from American Psychological Association accredited psychology departments and professional organisations. The researchers developed an IAT using “Mentally Ill People” versus “Welfare Recipient” as categories and good versus bad words. Explicit attitudes were measured using semantic differential scales not only towards mentally ill people but also towards welfare recipients. Two more analogous scales for blameworthy/innocent and helpless/competent were administered for both categories. Clinical decision making was evaluated using 4 vignettes and a 7-point Likert Scale. Findings indicated that none of the groups showed implicit or explicit negative biases towards mentally ill people. The group with the most clinical experience showed the most positive biases towards people with mental health problems both on implicit and explicit measures. Explicit bias seemed to be a predictor of more negative patient prognosis, whereas implicit bias seemed to be a predictor of over diagnosing of mental health problems. These findings are interesting in that they suggest that clinicians can be influenced in their care by biases even if they do not show a

negative bias on explicit or implicit measures. However, one of the criticisms of this study might be the use of “mentally ill people” and “welfare recipients” as contrast categories, especially if clinicians did not consider them as mutually exclusive categories, then it would be difficult to establish a bias. Nevertheless, this study had a very a large sample which allowed for random allocations in the decision-making task (which is certainly a strong point for the study), and their finding indicates how biases can have negative influences which is certainly important to be aware of for clinicians and mental health workers in training. These findings support the necessity of further research in this field and especially into what kind of consequences biases can lead to.

A study in Japan investigated whether medicine students’ implicit associations of people with epilepsy and danger changed with higher media coverage of fatal accidents involving drivers with epilepsy. Their findings suggests that higher media coverage in 2011- 2012 led to a change in attitudes (media coverage reduced after a change in law). They used a word based IAT with epilepsy versus hypertension as categories and safety versus danger as attributes to assess medical students’ attitudes in 2010 (41 participants), 2013 (44 participants) and 2016 (42 participants). Medical students showed a higher association of Epilepsy with Danger in 2013, whereas there was no difference in the level of association in 2010 and 2016 (Nagamori et al., 2017).

Two studies assessed implicit bias towards people who stutter using the same IAT in which positive and negative words were presented as text, and neutral words were presented aurally either as fluently spoken or with a stutter. The first sample consisted of 23 psychology undergraduate students and found them to have a higher association between negative words and stuttering (Walden & Lesner, 2018). In the second study a sample of 15 speech-language pathologists (SLPs) took part in the implicit bias investigation and was contrasted to a sample of 40 SLPs that completed explicit measures of attitudes towards people with a stutter. The findings reflect a negative implicit bias of SLPs, a positive response towards people with a stutter on explicit measures even though the response was not as positive as towards people without a stutter (Walden et al., 2020). Being familiar with people with a stutter did not have an impact on either implicit or explicit measures. A limitation for both

studies would be the very small sample size which might not be reflective of general attitudes of the professions.
One limitation for all research studies presented here is that participants were predominantly female (reaching from 75 to 90 % in the respective studies) and thus not representative of the composition of the general population, though fairly representative of the predominant workforce in the caring professions.

1.8. Study Rationale and Aims

Implicit biases have been found to influence behaviour in health and mental health care settings. Implicit biases might have a direct impact on the quality of care people are experiencing, especially when they are from a minority group. Clinical psychologists are trained to work in a wide range of health care settings. The code of conduct for psychologists aims to encourage psychologists to treat others with respect and in a fair manner (British Psychological Society, 2018). However, there are indications that clinical psychologists show the same implicit biases as the general population. Research has shown that clinical psychology services in the UK are failing to meet the needs of clients from minority groups. This marginalisation and exclusion is suggested to happen on multiple levels, including the referral process, an over-reliance on ethno-centric and euro-centric conceptual frameworks by the therapists and possible misunderstanding of psychological distress (Williams et al., 2006). Ethnic dissimilarity in the therapy dyad is often associated with reduction in therapy uptake, shorter duration of therapy as well as higher premature dropout rates. However, ethnic dissimilarity is not considered a problem when the therapist shows cultural competency and an awareness of how difference can impact on the therapeutic relationship (Farsimadan et al., 2011). Considering the evidence of access and outcomes disparity from psychological services for minority ethnic groups in the UK, it appears important to establish the possible impact of implicit biases on the therapeutic relationship.

In the US guidelines for multicultural education and how to implement those have been published, which explicitly include challenging personal biases (American Psychological Association, 2008). In the UK goals for the profession to be inclusive have been published, however without detailed suggestions of how to achieve this (British Psychological Society, 2015). Clinical psychology training programmes in the UK are encouraged to develop trainees' skills, knowledge and values so that they can work with clients from diverse range of backgrounds (British Psychological Society, 2019c). So far it is not prescribed how to achieve this outcome or how it should be measured. Anecdotal evidence suggests that there is considerable variation in how much emphasis courses place on issues of equality and diversity. However, it seems apparent that greater focus by the course accreditation body on diversity education, including raising awareness for implicit bias and intervention strategies, could have positive impact on trainee clinical psychologists understanding of the implications and thus lead to positive long term benefits for service users from minority ethnic groups. If training courses were to use IATs as a concrete tool for self-reflection and personal development over the whole duration of the course this might help reach the goal of developing trainees' skills, knowledge and values to offer therapy that is equally accessible and non-biased to clients from divers' range of backgrounds.

The IAT has been found to be especially useful in educational settings, it seems opportune to evaluate implicit biases in trainee clinical psychologists in the UK. Previous research has predominantly been conducted in the US and might not be generalizable as stereotypes have cultural underpinnings and are bound contextually. Blencowe (2017) and Hearn (2018) have started investigating implicit attitudes of qualified and trainee clinical psychologists in the UK. The results are suggestive of a broadly similar trend between trainee clinical psychologists and the general population. However, it would be good to develop culturally and temporally relevant stimuli for the IATs that are pertinent for clinical psychology in the UK. A range of criticism have been levelled at the stimuli originally developed by Project Implicit, that they are rather old by now and might be outdated, that they are visually poor due to technical abilities at that time and that they might be inappropriate for the UK context. Thus, it is important to develop new, engaging stimuli more appropriate for the UK context.

This study is planned as a scoping exercise, to establish whether the newly developed stimuli are appropriate to measure implicit bias in trainee clinical psychologists. Research has shown older adults, disabled people, people with darker skin-tones, gay people and women are most impacted by negative implicit biases. Furthermore, Hearn (2018) had investigated trainee clinical psychologists' attitudes towards trans-people in his gender-identity IAT. However, this proved difficult as the terminology and symbols used by self-identified trans-groups is not yet in widespread use and was difficult to categorise for the participants in his sample. It might still be some time before gender identity words and symbols are in more frequent use in the general population and thus it was decided to omit the gender-identity IAT for this study.

In line with the previously stated goal of updating the stimuli for a UK sample, I decided to develop and validate stimuli for the disability IAT, as this is an under researched area of a group exposed to high levels of prejudice. Furthermore, I aim to update the sexuality and skin-tone stimuli to be more engaging and appropriate to the UK context. I will also evaluate appropriate attribute words for the better use in the IAT study. The age and gender-attitude IATs will use the original stimuli as they were deemed to be less problematic and are understood to be representative of the given categories.

Thus, the aims of this study are:

- To develop and validate stimuli for the UK for the sexuality, disability, and skin-tone IAT as well as evaluate attribute words (Study 1).
- To evaluate implicit biases to age, disability, gender, skin-tone and sexuality in trainee clinical psychologists and the UK general population (Study 2).
- To compare implicit attitudes of trainee clinical psychologists to a group of non-psychologists (Study 2).
- To explore whether implicit attitudes show an association with: age, sex, education, ethnicity, disability status, religious affiliation or geographic location (Study 2).

2. EPISTEMOLOGICAL STANCE

Epistemology is a branch of philosophy focused on the nature of knowledge and how it can be obtained (Burr, 2003); that is, How knowledge is created, acquired and communicated (Scotland, 2012). The epistemological stance of the researcher also influences the method employed (Guba, 1990) and thereby the potential outcomes.

The position most frequently linked to quantitative research has been positivism, which is grounded in a realist ontology (ontology is concerned with the nature of things). This reflects the view that reality exists (independent of how we represent it) and can thus be objectively observed and measured. The assumption is that we can gain knowledge through direct experience or observation. This leads to the assertion of science as value-free, objective and aiming to develop universal causal laws (Barker, 2003). Positivism has been criticised from a range of philosophical standpoints. Especially the assumption that observation could provide an accurate description of the world has been criticised. Bhaskar (1998) named this epistemic fallacy, suggesting that positivism confuses knowledge of things (epistemology) with the actual nature of things (ontology). The notion of developing and applying universal causal laws to the study of social beings has also been challenged (Gorski, 2013).

Postmodernist and anti-positivist approaches such as social constructionist or interpretivism argue that social beings and social life are influenced by meanings that change over place and time. Therefore, even though research can aim to make social phenomena understandable this would not reflect an objective static reality. In its strongest version, postmodernism adopts a relativist ontology, denying the existence of an objective reality (Robson, 2011). Suggesting instead that reality consists of socially, culturally or experientially derived multiple mental constructions (Guba, 1990). Language and power are considered highly important and influential in how we understand and function in the world. This can lead to a position that doubts the existence of an independent reality, whereby everything is dependent on contextual forces. Critical realism sits between the naïve realist and constructionist positions

(Pilgrim, 2015), suggesting that the world exists independently, and can be explored, but that this will be influenced by the social, cultural, political and historical context in which the research takes place (Bhaskar, 1998).

In this thesis, a critical realist stance will be adopted. Critical realism encourages attempts to investigate reality, in a critical and cautious manner to function as an agency of human emancipation (Bhaskar, 1998). The assumption is that all research is theory-laden and informed by scientific and every-day understanding. According to critical realists the world can be understood as structured, differentiated, stratified and changing. There are several domains that constitute reality, including events generating mechanisms. To gain a better understanding, we should investigate those mechanisms too and not only the observed event.

Accordingly, as critical realism focuses on theory-driven knowledge of mechanism and social context, it should be particularly useful in investigating social concepts and problems (Carter, 2003).This might enable research to approach questions of how and why, in a better manner than either an empirical focus or a discursive exploration could do. This thesis investigates implicit attitudes which can be theorised as one mechanism that enables structural inequalities to emerge. The stance taken here posits that social events and processes can be investigated but that all measures and observations are subjected to individual, systemic, cultural and historical biases and therefore not only theory-laden but also fallible and open to revision (Archer et al., 2013).

3. STUDY 1: STIMULUS VALIDATION

3.1. Method

The validation process of new stimuli sets employed a Qualtrics survey in which members of the general population rated in how much a given stimulus represented a given category.

3.2. Design

This study used a cross-sectional design. An online survey was used to validate IAT stimuli sets for the disability, skin-tone and sexuality as well as positive and negative attribute words in a general population sample. The best validated stimulus sets for each of the above categories were established.

3.3. Rationale

As noted earlier, there has been criticism of some of the stimuli used by the Project Implicit. Hearn (2018) made an attempt to update some of the stimuli and to identify stimuli that are more appropriate for a UK context. This study aimed to build on this and establish new stimuli that can be used and shared with researchers in the UK. The new stimuli developed for this study are intended to be more locally valid representations of the concepts under investigation. The stimuli consisted of pictures, symbols, and words. Previous research had establish that both the category frame and the individual stimulus can influence the successful eliciting of an IAT effect (Mitchell et al., 2003) and that stimuli need to be unambiguously classifiable (Steffens & Plewe, 2001). Careful stimulus selection is thus required to exercise as much control as possible over the categories (Teige-Mocigemba et al., 2016). The aim of the study was to develop new stimuli sets consisting of 8 items each for the disability, sexuality, and skin-tone IATs, as well as find appropriate target words.

3.4. Ethics

3.4.1. Ethical Approval

Ethical approval was granted by the University of East London's School of Psychology Research Ethics Committee pending minor amendments (see Appendix A and B). The requested amendments required that all Trainee Clinical Psychologist recruitment would take place via their educational provider, so that no NHS resources or facilities would be used.

3.4.2. Informed Consent

The first page of the online survey provided participants with information about the aim and nature of the study (see Appendix C). The name and contact details of the researcher and supervisor were provided, should participants want to enquire further about the study beforehand. Information about the participant's right to withdraw without an explanation at any point was provided. Participants were only able to continue with the study if they consented to all the above (see Appendix D). The next section requested demographic information in which participants were required to confirm that they are 18 years old or above and currently living in the UK. Participants were unable to proceed with the study if either of these requirements were not met.

3.4.3. Confidentiality and Data Protection

Online research has sometimes been considered less secure in data collection than offline methods (British Psychological Society, 2017). In this study every effort has been made to ensure data security. Secure servers were used, and the downloaded data was stored on an encrypted external hard drive, which was kept physically secure. To ensure confidentiality participants were allocated a unique identifying number for their scores in the study database. At no point was identifying information collected during consent seeking or during the study task. Participants were invited to enter their email address if they wished to be included in a prize draw. This data was stored separately from the research data and not linked to the participant's unique identifying number.

3.5. Participants: Inclusion and Exclusion Criteria

In order to take part in this study participants had to be at least 18 years of age, reside in the United Kingdom and be sufficiently fluent in English to understand the task requirements. These criteria were kept broad to enable maximum participation. A limitation levelled at data collection using the internet is that it excludes individuals who do not have a computer or an internet connection. This might limit the age and socio economic groups that are taking part in this type of research (Birnbaum, 2004). However, as the study ran during the Covid-19 pandemic it was felt that online testing would be the best, most accessible and safest method to proceed.

3.6. Procedure

Participants were invited to take part in the study online by clicking on a link. After having accessed the study website they were taken to a study information page. When participants gave their consent to participate, they were asked to complete basic demographic questions (age, sex, and UK residence) before being presented with the first block of stimuli. There were altogether nine blocks of stimuli to rate, and participants were asked to complete all of them before being debriefed and thanked for their participation (Appendix E). Participants could enter their email addresses should they wish to take part in a prize draw.

3.7. Stimuli

Research suggested that if a stimulus fits the category label in a stereotypic way (e.g. flowers as associated with pleasant looking flowers) than the response will be stereotypic whereas if the stimulus does not fit the category label in a stereotypic way (e.g. unpleasant flowers like weeds or carnivorous flowers) the response will not be the same (Govan & Williams, 2004). As recommended by Bluemke and Friese (2006) the researcher and her supervisor carefully assessed pictures and words for representativeness of the chosen category.

Most of the stimuli were gathered from the internet, using Google image search, and limiting the results to copyright free items only. Originally as many items as

possible were gathered from the internet which let to 160 candidate items being collated and reviewed for potential of representativeness of a given category, whilst not being associated with other categories. These items were carefully analysed by the researcher and her supervisor for clarity of presentation, unambiguity of category, and whether any distracting features were present. Only stimuli that matched these criteria were selected for the validation study for the general public. In the skin-tone domain some stimuli developed by Hearn (2018) were also included. Altogether 75 items (pictures and symbols) were selected for validation as well as 26 target words, with the aim to have stimuli sets of 8 items per category after data analysis. Windows paint was used to ensure all stimuli used were of the same size and good quality when presented.

The study was built using Qualtrics, which offers estimates of how long a survey will be. The time limit of 20 minutes was chosen for this study to encourage wide participation and not feel like a too strenuous time commitment for participants as there would be no opportunity to interrupt participation.

In the validation process of the new stimuli sets members of the general population rated in how much a given stimulus represented a given category. Participants were invited to rate stimuli on a five-point Likert Scale from “does not represent at all” to “represents a great deal”. Each target category was presented in two distinct blocks: for example, one block showed stimuli representing homosexuality, the other showed stimuli representing heterosexuality.

At the end of the study participants were asked to rate in how much they thought pictures of people in the previous blocks could be regarded as *attractive*, to avoid this confounding factor. Participants unintentionally recoding of IAT categories has been suggested to have an impact on effect size (Rothermund et al., 2009) and careful analysis of the stimulus material before conducting IAT studies has been recommended (Bluemke & Friese, 2006). Research has found that perceived attractiveness, for example, influences participants liking of political candidates and can influence voting behaviour (Little et al., 2012). To avoid participants recoding the target categories by using attractiveness as a category, in this study participants were invited to rate how

attractive they found the persons in the stimuli to be, so that if the ratings were high in attractiveness the stimuli could be eliminated.

3.7.1. Disability

Most disability IAT studies have used a combination of pictures or symbols and words as stimuli. This study evaluated 27 pictures and symbols to establish which were rated more representative; 13 pictures represented disability and 14 represented no-disability (see Appendix F). As a limitation of other studies disability IATs had been that they cover different types of disability in one IAT (Wilson & Scior, 2014), the stimuli chosen for this study fell in the category of physical disability, including images for visual impairment, though not hearing impaired. The pictures were also evaluated for *attractiveness* to avoid this confounding factor.

3.7.2. Sexuality

The Sexuality IAT is one of the most frequently used IATs in research, with most studies using the originally published stimuli set from the Project Implicit. However, it has been demonstrated that picture based stimuli evoke stronger emotional responses than words (Kensinger & Schacter, 2006) and that especially pictures of LGBTQ people can initiate greater disgust responses (Inbar et al., 2009). The original Project Implicit stimuli are based on words and basic symbols. Hearn (2018) started the process of updating these stimuli by using stock photos of same and different sex couples to represent hetero- and homosexual couples, matched for size, position, expression and “concept indicator” (such as embracing, holding hands, etc). This study builds on this by keeping the target indicator criteria but diversified the ethnicities used in the stimuli pictures. The number of pictures for lesbian and gay couples were equal. A selection of 14 pictures and symbols were presented in the homosexuality block and 10 in the heterosexuality block (see Appendix G). To establish whether pictures or symbols were the better representation of this category the pilot study included both. All pictures of the sexuality category were also evaluated for *attractiveness* to avoid this confounding factor.

3.7.3. Skin-Tone

The original ‘race’ IAT is the most often used IAT in research in the US. However, due to the differences in population composition, the comparison between Black African Americans and White European Americans is not the most appropriate for use in the UK. In the skin-tone IAT participants are required to differentiate between photographs of faces and comic-style emojis with darker or lighter skin. There has been criticism of lack of realism for these stimuli and Hearn (2018) updated the set by creating a new set with composite facial features from several ethnic groups. These were symmetrical, reflecting a neutral facial expression, kept identical in positioning and orientation, and only the skin-tones were differentiated. As these computer-generated faces can be perceived to be artificial this study used the stimuli described above from Hearn (2018) as well as emojis of different colours (e.g., light skin-tone and dark skin-tone versions of waving hand) and let the participants evaluate which is the more appropriate way to represent the category skin-tone. Altogether 24 pictures and emojis were presented for rating, 12 representations of light skin-tone and 12 representations of dark skin-tone (Appendix H).

3.7.4. Target Attributes

Words can change their connotation over time, and in some cases may come to represent the opposite meaning from the original one (e.g., ‘sick’, ‘wicked’ – first a description of something negative but by now sometimes used as endorsement of something impressive). To avoid misleading attribute categorisation, the pilot study evaluated 13 words for the ‘good’ category and 13 words for the ‘negative’ category.

3.8. Recruitment

Recruitment was conducted online, using social media including Facebook and WhatsApp as well as appropriate psychology research forums (for example Psychological Research on the Net).

3.9. Sample Characteristics

One hundred and eleven participants initially took part in Study 1. However, after excluding uncompleted answers (41) and adjusting the sample to avoid a sex bias, 45 participants were included in the analysis, 17 males and 28 females. The average age was 41.2 (SD=11.1, range 28-67).

3.10. Results

Responses from forty-five participants were included in data analysis. SPSS was used to establish the mean ratings for the presented stimuli and can be found in Table 1 for the disability category, Table 2 for the sexuality category, Table 3 for the skin-tone category, Table 4 for attractiveness and Table 5 for target words. The stimuli with the lowest mean ratings were selected for inclusion as stimuli in the main study. Ratings for *attractiveness* for these pictures were not an interfering factor. For each category eight stimuli were chosen, and these were used in the main study.
The lower the rating the more representative for all measures.

Table 1:

Ratings for Disability and Ability

	Disability			Ability	
Stimulus	**M**	**SD**	**Stimulus**	**M**	**SD**
1	2.29	1.06	**1**	2.53	.99
2	2.38	1.17	**2**	2.31	1.06
3	2.31	1.06	**3**	3.02	1.03
4	2.31	1.04	**4**	2.98	1.14
5	2.24	1.01	**5**	2.64	1.05
6	2.76	1.35	**6**	2.56	1.01
7	3.67	1.30	**7**	2.82	1.23
8	3.13	1.16	**8**	3.09	1.29
9	2.96	1.11	**9**	3.27	1.25
10	2.40	1.12	**10**	4.36	1.09
11	2.80	1.06	**11**	3.42	.96
12	2.11	1.15	**12**	3.11	1.09
			13	3.98	1.13

Table 2:

Ratings for Homosexuality and Heterosexuality

	Homosexuality			Heterosexuality	
Stimulus	**M**	**SD**	**Stimulus**	**M**	**SD**
1	2.82	1.15	**1**	2.51	1.22
2	2.71	1.33	**2**	2.69	1.16
3	2.64	1.40	**3**	3.29	1.12
4	3.16	1.28	**4**	2.82	1.21
5	2.76	1.32	**5**	3.84	1.26
6	2.73	1.39	**6**	3.31	.85
7	3.02	1.39	**7**	3.20	1.12
8	2.38	1.07	**8**	3.71	.87
9	2.18	1.07	**9**	3.00	1.04
10	3.18	1.45	**10**	3.24	.80
11	2.20	1.05	**11**	3.04	.93
12	2.62	1.11			
13	3.67	1.09			

Table 3:

Ratings for Dark and Light Skin-Tone

	Dark Skin Tone			Light Skin Tone	
Stimulus	**M**	**SD**	**Stimulus**	**M**	**SD**
1	3.00	1.00	**1**	2.51	1.22
2	3.49	1.04	**2**	2.69	1.16
3	2.62	1.03	**3**	3.29	1.12
4	2.56	.99	**4**	2.82	1.21
5	3.44	.99	**5**	3.84	1.26
6	3.22	.70	**6**	3.31	.85
7	3.44	.81	**7**	3.20	1.12
8	2.98	.81	**8**	3.71	.87
9	3.29	.72	**9**	3.00	1.04
10	3.22	.80	**10**	3.24	.80
11	3.07	.89	**11**	3.04	.93

Table 4:

Ratings for Attractiveness

	Attractiveness	
Stimulus	**M**	**SD**
1	3.67	.98
2	3.22	1.00
3	3.33	1.04
4	4.29	.90
5	4.18	.98
6	4.29	.89
7	4.38	.94
8	4.07	.96
9	3.29	1.18
10	3.20	1.01
11	3.62	1.01
12	3.73	1.03
13	3.36	1.05
14	2.64	1.09
15	3.49	.97
16	2.84	1.04
17	3.73	.96
18	3.76	1.09
19	3.58	1.03
20	3.36	1.11
21	3.42	1.16
22	2.56	1.12
23	3.07	1.03
24	3.38	1.11

Table 5:

Ratings for Negative and Positive Words

	Negative	Words		Positive	Words
Word	**M**	**SD**	**Word**	**M**	**SD**
1	2.09	.95	**1**	2.82	1.03
2	2.02	.92	**2**	2.07	.92
3	1.71	.90	**3**	2.42	.97
4	2.18	.98	**4**	2.36	1.07
5	1.78	1.02	**5**	2.53	1.04
6	1.73	.78	**6**	2.82	1.19
7	2.02	.97	**7**	2.36	1.11
8	1.64	.83	**8**	2.51	.99
9	2.33	.91	**9**	2.31	.90
10	2.89	1.05	**10**	1.98	1.03
11	2.22	.97	**11**	2.18	.94
12	2.80	1.24	**12**	2.31	1.35

3.11. Discussion

This study aimed to develop and validate new, more locally representative stimuli for the categories disability, sexuality, and skin-tone as well as appropriate attribute words for positive and negative. Careful consideration had been given to the choosing and validating of the stimuli sets, involving assessment by the researcher and her supervisor before asking members of the general public to rate in how much they thought a stimulus represented a given category. Due to financial and time constraints it had been impossible to create stimuli ourselves and we had to rely on pictures and images that are royalty free from the internet. The evaluated stimuli were chosen as unambiguously classifiable, representative of the given category in a stereotypical way and confounding factors (like attractiveness) were controlled for.

A high number of participants had to be excluded from the statistical analysis as they had not completed the full survey. This might have been due to the time

commitment necessary or the ease of terminating internet-based research early. However, this approach was considered the most appropriate for the validation study and the analysis of response of the forty-five participants included gave a representative evaluation of the presented stimuli.

The sample size was bigger than in other pilot studies to evaluate stimuli sets (see for example Steffens & Plewe, 2001) and can be considered a sufficient sample. Therefore, this study was able to validate a new set of stimuli to be used in IAT research for the categories disability, sexuality and skin-tone as well as evaluating the appropriateness of target words.

4. MAIN STUDY: METHOD

4.1. Design

This study used a quantitative, quasi-experimental between groups design. This design was selected as it allows for planned comparisons of performance on the different measures between groups. This corresponded with the study's aim to evaluate whether there are differences in implicit biases between trainee clinical psychologist and the wider UK population. The dependent variables were participants' scores for each measure of implicit and explicit attitudes towards age, disability, gender, sexuality and skin-tone. Participant type (trainee clinical psychologists versus general UK population) was the independent variable. To explore the relationships between implicit and explicit measures of attitudes a correlational design was employed.

4.2. Sample Size

Performing power calculations using G*Power V3.1. indicated that a sample size of 107 would be required to detect a moderate effect size when conducting univariate analysis of covariance. To perform the planned bivariate correlation between implicit and explicit variables a sample size of 63 would be needed. In summary, the power calculations indicated that the minimum number of participants to complete all five IATs would be 107.

4.3. Ethics

4.3.1. Ethical Approval, Informed Consent, and Data Protection

Ethical approval was granted by the University of East London's School of Psychology Research Ethics Committee pending minor amendments (see Appendix A and B). The procedure for informed consent followed the same principle as for Study 1, with the addition that participants were informed that cookies would be used. Participants were informed that cookies would be installed on their device to allow them to return to complete the study over a period of time and being directly led to the next IAT. This would also prevent participants taking part in the study more than once. It was explained that only

progress information and reaction time would be stored and how this information would be used. Participants were made aware that their scores would be used in the write up for a thesis, and hopefully be published as a journal article at a later stage, and so their data stored for 3 years. It was also explained that participants would receive feedback on the implications of their scores for the individual IATs, and that they might find this challenging. Information about the participant's right to withdraw without an explanation at any point was provided (Appendix I). Participants were only able to continue with the study if they consented to all the above (see Appendix J). The next section included demographic information in which participants were required to confirm that they are 18 years of age or above and currently living in the UK. Participants were unable to proceed with the study if either of these requirements were not met.

This study followed the same procedures for confidentiality and data protection as Study 1. As before, participants were invited to enter their email address if they wished to be included in a prize draw; this data was stored separately from the research data and not linked to the participants' unique identifying number.

4.3.2. Protection of Participants

Participant had been informed that they might find aspects of the tests or the feedback of the interpretation of their tests scores challenging before consenting to take part in the study. Each time after completing an IAT details of organisations that offer support and the researcher's details were provided alongside the feedback about the results (see Appendix K).

4.4. Participants: Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for this study were kept broad and only entailed that participant had to be at least 18 years of age, reside in the United Kingdom and be sufficiently fluent in English to understand the task requirements.

4.5. Procedure

4.5.1. Website Procedure

The study was advertised online, using social media including Facebook, Twitter and WhatsApp and on the Psychological Research on the Net platform. Furthermore, emails were sent to 23 course administrators for the clinical psychology training programmes in the UK. Participants were invited to take part in the study online by providing a link. After having clicked the study link, they were taken to a study information page. When participants gave their consent to participate a cookie with their identifying number was saved onto their device. After demographic questions, participants were presented with their first IAT. There were altogether five IATs in the study and they were presented in randomised order. Before the beginning of each task the title of the IAT and the stimuli were presented. After completing an IAT participants were presented with the corresponding measure of explicit bias for the given category. Once this measure was completed participants were given feedback on their IAT score which included a tentative directional interpretation of their score. Information about sources of support should they have felt negatively affected by the interpretation were also displayed. Participants could choose to continue with the next IAT or to end participation here and whether they wanted to enter their email address to take part in a prize draw. If participants choose to return to the study at a later point in time, they were also direct to the starting page of the next IAT. Participants could take part in all five IATs following the same procedure, all in one sitting or divided over several visits to the survey website.

4.5.2. Demographic Questions

Participants were invited to complete demographic questions including their age, sex, sexual orientation, ethnicity, religion, whether they considered themselves to have a disability, highest attained educational qualification, occupation, and location. They were also required to select the option of either Clinical Psychologist, Trainee Clinical Psychologist (indicating years of experience in both cases) or *Other* before proceeding.

4.5.3. The Implicit Association Test

The IAT is a measure of the relative strength of association between pairs within category (e.g., male versus female) and evaluative attribute concepts (good versus bad). Both the concept category and the evaluative attributes are defined as binary and mutually exclusive. Participants are asked to rapidly classify stimuli into four response categories with only two response possibilities. It is assumed that participants respond faster and more accurately when categories that are closely associated in their minds share a response key. For example, participants might have an association of male with the negative connotation so they would be quicker to respond when the category male and the attribute concept bad share a response key than when the category male and the positive attribute share a key. Stimuli were words, symbols or images and reaction time (RT) is measured. The procedure follows closely those of Project Implicit, and used a seven-block IAT to incorporate practice trials and allows the balancing of keys used for the four different concepts (Lane et al., 2007). An illustration of the seven-block IAT using the example of the gender- attitude IAT can be found in Table 6.

The presenting order for the trials was randomised and the order in which pairings were presented was alternated between participants to minimise order-related confounds (Teige-Mocigemba et al., 2016). Furthermore, the order in which the five IATs were presented was also randomised. The IATs used in this study were age, disability, gender-attitude, sexuality, and skin-tone. To limit the influence of conscious deliberation, participants were encouraged to respond as quickly and accurately as possible in all IATs (Fiedler et al., 2006).

Following the procedures of Project Implicit, participants received tentative directional feedback after having completed an IAT and the corresponding thermometer questions. This was considered the most ethical appropriate procedure to ensure participants receive feedback, even if they completed further IATs. It was assumed that if participants were distressed by the feedback they received, or did not like the procedures of the IATs, they would not continue to participate further. However, if they decided to continue, the influence of having undertaken an IAT previously and having received feedback was considered limited, as the feedback was category specific. As a property of

experimental condition participants achieve more familiarity with prolonged exposure to the tests, however, this was counterbalanced by displaying the IATs in randomised order.

Table 6

The 7 Block IAT (Example from the Gender- Attitude IAT)

Block	No Trails	Function	Left Key (Order 1)	Right Key (Order 1)	Left Key (Order 2)	Right Key (Order 2)
1	20	Practice	Bad	Good	Good	Bad
2	20	Practice	Male	Female	Male	Female
3	41	Trial 1: Practice; Trials: 2-41 Test	Bad + Male	Good + Female	Good + Male	Bad + Female
4	41	Trial 1: Practice; Trials 2-41: Test	Bad + Male	Good + Female	Good + Male	Bad + Female
5	20	Practice	Good	Bad	Bad	Good
6	41	Trial 1: Practice; Trials 2-41: Test	Good + Male	Bad + Female	Bad + Male	Good + Female
7	41	Trial 1: Practice; Trials 2-41: Test	Good + Male	Bad + Female	Bad + Male	Good + Female

4.5.4. Self-rating measures

All participants were invited to complete semantic differential *thermometer* scales to assess their explicit attitudes to each target category. Participants had to rate on a 10-point scale how *warm* or *cold* they felt towards the category concept. See Appendix L for the ten thermometer scales used.

4.6. Stimuli

In Study 1 new stimuli for the categories “disability”, “sexuality” and “skin-tone” had been developed and evaluated with the aim to introduce stimuli more appropriate for a UK context. Furthermore, the first study had established words best representing positive and negative attributes. For the gender-attitude IAT, stimuli developed and validated by the Harvard research team were used (Greenwald et al., 2002). In keeping with previous research, this IAT is called gender-attitude IAT even though it is based on conceptualised bipolar opposites of male and female and does not encompass broader gender considerations. The age IAT utilised the original Project Implicit stimuli for ease of comparison. All stimuli used for the IAT study are given in Appendix M.

4.7. Apparatus

The main IAT study employed the same technical set up as Blencowe (2017), using the following software for the web application analysis:

- Windows Paint: to optimise the presentation of the stimuli
- Web Server: Apache HTTP Server V2.4.23, 32-bit for Windows for development environment; 32bit for Linux for live environment.
- Database server: MySQL Server V8.0.11
- Database tool for data migration: MySQL Workbench 8.0, 64-bit for Windows.
- SPSS 26 for Windows for data analysis

As illustrated above, participants could take part in the study by following an invitation link. They were informed that they would need to use a desktop or laptop as they would be required to press keyboard buttons, which is not possible on mobile devices.

4.8. Scoring and Interpretation

4.8.1. IAT Effects (D-Scores)

The scoring procedure for the IAT effect was calculated in the steps recommended by Greenwald et al. (2003).

- Trial blocks 1, 2 and 5 as well as the first trial per block 3, 4, 6 and 7 are classed as practice trials and thus not included in the D-score calculation. See Table 1 for more information
- Response times were considered excessively fast when the response latency was 300 milliseconds or less. If 10% or more of target test trials showed a response latency of 300 milliseconds or less, they were all excluded from the analysis.
- Response latencies of 10, 000 milliseconds or greater were considered excessively slow and also excluded.
- The total number of valid test trials was adjusted accordingly.
- To calculate the mean response latencies for each of the test blocks 3, 4, 6, and 7 the following formula was used:
- Administration order 1: Mean differences were calculated as (Meanblock6 – Meanblock3) and (Meanblock7 – Meanblock4).
- Administration order 2: the calculation for the two mean blocks was (Meanblock3 – Meanblock6) and (Meanblock4 – Meanblock7).
- The difference scores where then each divided by the standard deviation for both trial blocks that had been used for the difference score calculation.
- The D-scores are calculated as the equal weighted average of the two resulting ratios.

This leads to a possible D-score range of -2.0 to 2.0, with zero representing no difference in response latency between the conditions. The D-scores interpretation follows the conventional criteria of Cohen's effect size d measure (Cohen, 1988) of small, medium and large effect size. If too many errors were made by the participants or the number of response latencies considered as excessively fast was more than 10% of the valid test trials, no interpretation of their scores was provided to the participants.

4.8.2. Semantic Differential (Thermometer) Questionnaires Scoring

Explicit attitudes were assessed using self-rated 10-point semantic differential scales (Nosek & Smyth, 2007), evaluating *warm* versus *cold* feeling towards each given category. For each measure scores between -10 and +10 were calculated. A greater level of liking or association with the first category was reflected in a positive score. For example, if young was the first option and the

participant rated themselves six out of ten in their warmth towards young people and three out of ten towards old people the score would be +3 for young people.

4.9. Recruitment

Recruitment was conducted online, using social media websites, including Facebook, WhatsApp, twitter as well as on the Psychological Research on the Net platform. Furthermore, emails were sent to 23 course administrators for the clinical psychology training programmes in the UK.

4.10. Sample Characteristics

4.10.1. Trainee Clinical Psychologists

One hundred and five Trainee Clinical Psychologists (TCP) participated in this study. Descriptive statistics are given in Table 2. The majority (90.5%) were female and just 10 (9.5%) male. Average age was 29.4 (SD=3.20; range 25-43). The TCP sample predominantly identified as white (80.9%) and heterosexual (87.6%). The majority (60.9%) stated not to have a religion. Ninety-eight trainees (93.3%) declared no disability. TCP took part in all regions of the UK, including Wales and Scotland.

Comparing the demographic characteristics of this sample of trainee clinical psychologist to the published equal opportunities data by Clearing House for successful applicants for the 2019 intake shows them to be broadly similar. This sample was slightly less male (9.5% versus 17%) and slightly more heterosexual (87.6% versus 84.2%). 85.7% (as opposed to 93.3%) declared no disability and 70.2% (as opposed to 60.1%) had no religious affiliation. The current sample was slightly more diverse with 80.9% identifying as white versus 85.3% of the general applicant's sample.

4.10.2. Non-Trainee Clinical Psychologists

Forty-six members of the UK General Population took part in this study with an even split between females and males (23 each). Average age was 49.2 (SD=15.45; range 21-76). Most (84.8%) participants identified as white and

heterosexual (76.1%). Like the TCP sample the majority (76.1%) did not have a religion. Forty-one stated not to have a disability (89.13%). The Non-TCP sample was recruited nationwide, like the TCP sample. The majority (23) stated to be in professional occupations, followed by managerial level (7) and was highly educated. This reflects a bias towards the upper end of social economic stratification, which nevertheless corresponds to the occupational level of TCPs. However, this cannot be seen as representation of the stratification of the UK general population.

This Non-TCP sample was broadly similar to the wider population in the UK compared to the latest census data in terms of sex distribution and ethnic diversity. However, this sample was more diverse in terms of sexual orientation (19.6% identified as LGB as opposed to 2.2% in the UK population (ONS, 2018)) and more declared no religious affiliation (76.1% versus 25% in the wider population).

Performing a series of chi-square goodness-of-fit tests to compare the TCP and Non-TCP samples of this study revealed them to be similar in terms of white ethnicity (χ^2=18.12; d.f. =20; p = 0.58), stated disability (χ^2=1.78; d.f. =4; p = 0.77) and religious affiliation (χ^2=7.20; d.f. =8; p = 0.51). However, the samples were different in terms of sexual identification (χ^2=14.23; d.f. =5; p = 0.14), which might be explained by the significant difference in age (with the Non-TCP sample being older than the TCP sample). Differences in the samples in terms of age and sex will be taken into account in the statistical analysis. Completed demographic information is provided in Table 7; more detailed location information is given in Appendix N.

Table 7

Demographic Characteristics of Samples

	TCP (n=105)		Non-TCP (n=46)	
	M	**SD**	**M**	**SD**
Age	29.40	3.20	49.15	15.45
Sex	**N**	**%**	**n**	**%**
Female	95	90.50	23	50.00
Male	10	9.50	23	50.00
Ethnicity	**N**	**%**	**n**	**%**
White British	84	80.91	39	90.90
Asian/Asian British	12	11.43	3	6.52
Black/Black British	2	1.90	0	0.00
Mixed Background	5	4.76	1	2.17
Other	4	3.80	2	4.35
Prefer not to say	0	0.00	1	2.17
Sexuality	**N**	**%**	**n**	**%**
Heterosexual	92	87.62	35	76.09
Gay/Lesbian	3	2.86	6	13.04
Bisexual	10	9.52	2	4.35
Other	0	0.00	2	4.35
Prefer not to say	0	0.00	1	2.17
Disability	**N**	**%**	**n**	**%**
No disability	98	93.33	41	89.13
Physical	3	2.86	2	4.35
Learning	1	0.95	1	2.17
Neurodevelopmental	2	1.90	2	4.35
Mental Health	1	0.95	0	0.00
Religion	**N**	**%**	**n**	**%**
No religion	65	61.90	35	76.09
Christian	19	18.09	3	6.52
Other	18	17.14	7	15.22
Prefer not to say	3	2.86	1	2.17
Education	**N**	**%**	**n**	**%**
Postgraduate	86	81.90	25	54.35
Undergraduate	19	18.09	15	32.61
A-level	0	0.00	3	6.52
GCSE	0	0.00	2	4.35
Other	0	0.00	1	2.17
Occupation	**N**	**%**	**n**	**%**
Managers	0	0.00	7	15.22
Professional	65	61.90	23	50.00
Associated	10	9.52	1	2.17
Administrative	0	0.00	1	2.17
Skilled trades	0	0.00	4	8.69
Services	18	17.14	4	8.69
Unemployed	0	0.00	3	6.52
Prefer not to say	3	2.86	2	4.35

5. MAIN STUDY: RESULTS

5.1. Data Included in Analysis

Altogether 204 participants accessed the study website and began the study. After applying the methodological protocol adopted for IATs (Lane et al., 2007) results from 151 participants were included in the analysis. Data was excluded from the analyses when:

- tasks were not completed
- there were trials with slow response latencies (greater than 10,000 milliseconds)
- there were trials with very fast response latencies (below 300 milliseconds in over 10% of trials)
- there was missing demographic information
- scores were only included in the analysis when both IAT and Thermometer scores were provided.

Of the 151 participants 105 were Trainee Clinical Psychologists (TCP) and 46 Non-Trainee Clinical Psychologists (Non-TCP). Most exclusions were due to incomplete tasks. Where available, the *exact test* options available in SPSS v26 were used to derive exact significance values (rather than asymptotic probability 'p' values) to improve the power and reliability of non-parametric procedures.

5.2. Exploratory Data Analysis

Data distributions were examined to identify errors and outliers and determine whether parametric assumptions were met before commencing data analysis. Z-scores for skewness and kurtosis were examined for participants descriptive data. Smaller samples use a criterion value of above 1.96 to indicate that skewness and kurtosis are not normally distributed and for larger samples (TCP sample) a criterion value of 2.58 would indicate non normal distribution (Field, 2005). Investigating the z-scores for skewness and kurtosis suggested that age was not normally distributed. The TCP group had a z-score of 1.54 (SD= .24)

for skewness and a z-score of 3.43 (SD= .47) for kurtosis, whereas the Non-TCP sample had a z-score of -.44 (SD= .35) for skewness and a z-score of -.99 (SD= .69) for kurtosis.

Further investigation by Shapiro-Wilk's test showed that age was not normally distributed in both groups and visual examination supported this (Appendix O provides the relevant histogram). Table 8 presents the current findings for age distribution and normality statistics.

Table 8

Participant Age Distribution Properties and Normality Statistics

Group	M	SD	Skewness z-score	SD	Kurtosis z-score	SD	S. Wilk	Sig
TCP	29.40	3.20	1.547	0.24	3.43	0.47	0.88	0.00
Non-TCP	49.15	15.45	-0.444	0.35	-0.99	0.69	0.92	0.03

5.3. Descriptive Statistics

5.3.1. Thermometer Scores:

The self-rated preference scores were significantly skewed and kurtotic for disability, sexuality and skin-tone. Tests of normality confirmed that the data was not-normally distributed for all domains and therefore parametric assumptions were not met for the thermometer scores. Thermometer scores distribution and normality statistics are provided in Table 9.

Mean thermometer scores indicate a mixed preference between most domains between the TCP and Non-TCP groups. Both groups expressed a strong pro-female association. For the skin-tone domain, a slight dark skin-tone preference was expressed. For sexuality, age and disability there was a difference between the TCP sample (slight minority preference) to the Non-TCP group (strong minority preference).

Table 9

Thermometer Scores Distribution and Normality Statistics

	Group	N	M	SD	Skew. z score	Kurt. z-score	Shapiro-Wilk	Sig.
Age								
	TCP	68	.24	1.67	-.14	.73	.90	.00
	Non-TCP	33	1.19	1.90	1.27	.19	.72	.00
	Total	101	.55	1.80	0.48	1.16	.87	.00
Disability								
	TCP	70	.20	1.11	1.26	4.03	.70	.00
	Non-TCP	32	.63	1.24	1.68	2.31	.69	.00
	Total	105	.34	1.17	1.40	3.19	.70	00
Gender								
	TCP	73	-1.38	1.48	-1.38	1.52	.82	.00
	Non-TCP	32	-1.19	1.99	-1.42	1.58	.80	.00
	Total	105	-1.32	1.74	-1.35	1.39	.83	.00
Sexuality								
	TCP	68	.27	1.50	.70	11.44	.58	.00
	Non-TCP	34	.74	1.77	1.60	2.74	.78	.00
	Total	102	.43	1.62	1.09	7.33	.67	.00
Skin-tone								
	TCP	75	.23	1.15	2.37	7.08	.61	.00
	Non-TCP	31	.15	.86	1.24	5.49	.65	.00
	Total	106	.21	1.06	2.23	7.31	.61	.00

Interpretation of thermometer scores: > 0.1 = slight association, > 0.3 = moderate association, > 0.5 = strong association. Negative values indicate an explicit preference for the dominant group, apart from the Gender category where it indicates preference for female.

5.3.2. IAT D-Scores

Participants completed 506 IATs altogether. Statistical and visual exploration of skewness, kurtosis and normality showed that most of the IAT scores were normally distributed, apart from gender for the TCP group and skin-tone for the Non-TCP group, which both were non-normally distributed. Detailed information is given in Table 10.

Mean IAT scores indicate that both groups demonstrated some degree of implicit bias for most domains; for sexuality only was there a slight positive association for the minority group. That means that at group-level, participants demonstrated slight pro-homosexual bias and pro-young bias as well as a moderate bias for light skin-tone (in both groups). The TCP group showed a slight pro-ability bias compared to a moderate pro-ability bias in the Non-TCP group. The TCP group showed a strong pro-female bias compared to a moderate pro-female bias in the Non-TCP group. Comparing the D-scores of this TCP sample with the previous TCP sample of Blencowe (2017) suggested that scores are comparable, though the current sample showed slightly larger effects.

Table 10

IAT D-Scores Distribution and Normality Statistics

IAT D Score	Group	M	SD	Skewness z-score	Kurtosis z-score	Shapiro-Wilk	Sig.
Age							
	TCP	-.22	.39	.15	-.55	.98	.511
	Non-TCP	-.26	.25	.25	-.50	.97	.554
Disability							
	TCP	-.20	.34	-.03	-.92	.97	.261
	Non-TCP	-.38	.27	.26	-.89	.96	.303
Gender							
	TCP	-.65	.28	.91	.91	.93	.004
	Non-TCP	-.46	.34	.02	-.32	.97	.646
Sexuality							
	TCP	.02	.35	-.04	-.42	.99	.752
	Non-TCP	.02	.37	.10	-.59	.97	.655
Skin-tone							
	TCP	-.33	.49	.02	-1.03	.96	.097
	Non-TCP	-.31	.34	.74	-.45	.89	.008

Interpretation of D-Scores: > 0.1 = slight association, > 0.3 = moderate association, > 0.5 = strong association. Negative values indicate an implicit preference for the dominant group/stereotype, apart from gender where a negative value indicates implicit female preference.

5.4. Correlations between Explicit and Implicit Measures

In line with previous research, IAT D-scores are expected to be positively correlated with self-reported measures, even if only to some degree. Conducting Spearman's rank correlation found explicit and implicit measures for age, sexuality and skin-tone were positively but weakly correlated. There was a reliable correlation found between the explicit and implicit measures for disability and gender. Correlation coefficients are reported in Table 11.

Table 11

Spearman's Correlation between Explicit and Implicit Measures

IAT D-Score	Thermometer Score		
	All	TCP	Non-TCP
	r_s	r_s	r_s
Age	.25*	.230	.252
Disability	.07	.159	-.031
Gender	.17	.201	.106
Sexuality	.30**	.348**	.285
Skin-tone	.36**	.347**	.388**

*Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

5.5. Inferential Statistics

5.5.1. Implicit Attitudes and Stereotypes by Participant Group

Participant's age, sex, ethnicity, education and religion were explored as possible contributors to IAT D-scores. Disability, and sexuality could not be explored further as the number of participants not from the majority group was too small to conduct useful comparisons. Occupation was also not analysed further as all TCPs are in the same professional category and therefor comparison to the Non-TCP sample would not be meaningful.

Age was not associated with implicit attitudes for any of the IAT D-scores (see Table 12). However, participants sex revealed a significant difference in mean

IAT scores for Disability and Gender; the means for men were higher than for females in the Gender IAT and lower in the Disability IAT (see Table 13). To investigate whether ethnicity had an influence on IATs scores, participants data had to be organised into two groups – white and any other ethnicity, as the numbers in the respective other ethnicities were unfortunately too small to conduct this analysis in more detail. Mann-Whitney U revealed a significant difference in means for the domains of Sexuality and Skin-Tone, with the means from white participants higher in the Sexuality domain and lower in the Skin-tone domain than those of participants from any other ethnicity (see Table 14). For education, the participants data was skewed and ill-proportioned, therefore the six original categories were reduced to the categorise Postgraduate, Undergraduate and Other. For the TCP group, most have subscribed to Postgraduate, but 19 have subscribed to Undergraduate. For the Non-TCP group, most subscribed to Postgraduate or Undergraduate, and only 6 people to lower levels of qualification. Mann-Whitney U (see Table 15) revealed a significant difference of means for the Gender IAT, with the Undergraduate means being higher than the Postgraduate means. To analyse the possible influence of religious affiliation on IAT D-scores, participants data was grouped into no religion and any religion. Mann-Whitney U revealed religion not to be relevant for participants scores (Table 16).

Comparing the Mann-Whitney U contrasts between the TCP and non-TCP groups (see Table 17) suggested differences in the D-scores for the Disability and Gender IATs. The mean D-score for the Disability IAT was higher in the Non-TCP group than for the TCP group. For the Gender IAT, the mean D-score of the TCP group appears higher than the Non-TCP group. As noted earlier, however, the two groups also differ in terms of age (the TCP group are younger on average) and sex ratio (there are many fewer males than females in the TCP group).

Accordingly, General Linear Model (GLM) procedures were employed to explore the relative contributions of age, sex, and participant type on D-scores for the Disability and Gender IATs. GLM is the most appropriate statistical analysis as it does not require normally distributed data within cells and can

address unbalanced models where cells in the model contain very different numbers of cases (as is the case here). However, GLM does require that residuals are normally distributed. For both IATs, age as a covariate, with sex and group as factors, were entered in that order into a GLM. Estimates of effect size were computed and residuals saved for subsequent tests of normality. The GLM results are summarized in Table 18.

For the Gender IAT, the GLM yielded a unique contribution of sex (male versus female) to d-scores, but not for other predictors. Inspection of the descriptive statistics showed that females overall have larger negative values; however, as the residuals for this procedure were not normally distributed (Kolmogorov-Smirnov Test: D (105) =.09, p=.03) this should be interpreted with caution. For the Disability IAT, there were no significant unique contributions (and the residuals were normally distributed).

5.5.2. Explicit Attitudes and Stereotypes by Participant Group

As before, participant's age, sex, ethnicity, education and religion were analysed as possible contributors with the scores from the explicit measures. Participant's age was reliable related to the scores of the Sexuality thermometer (see Table 19). Using Mann-Whitney U revealed participants sex also to impact on scores for the Sexuality thermometer, with male's mean being higher than females (see Table 20). Participant's ethnicity was found to impact on the scores of the Skin-tone thermometer only, with mean of scores of participants from any other ethnicity higher than from white participants (see Table 21). Participant's level of education was not related to scores on the thermometers (see Table 22). But religious affiliation showed a difference for the scores of Sexualities and Skin-tone, with non-religious participants means being higher in the sexuality domain and lower in the skin-tone domain than religiously affiliated participants mean scores (see Table 23).

Non-parametric Mann-Whitney U tests were performed (as the thermometer scores were not normally distributed) to compare explicit attitudes and stereotypes across the two groups. No differences between the means emerged for any of the domains (see Table 24).

Table 12

Correlations (Spearman) between IAT D-Scores and Participants Age

	Age
IAT D-Score	r_s
Age	-.08
Disability	-.04
Gender	.16
Sexuality	-.04
Skin-tone	.00

*Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Table 13

Mann-Whitney U for Contrasts between Participant's Sex and IAT D-Scores

IAT D-Score	Female			Male			U	Z	Sig.
	N	M	SD	N	M	SD			
Age	81	-.25	.34	20	-.29	.45	719.00	-.775	.222
Disability	84	-.25	.34	18	-.45	.32	471.00	-2.502	.006
Gender	88	-.65	.27	17	-.16	.43	245.00	-4.376	.000
Sexuality	84	.04	.38	18	-.08	.37	646.00	-.966	.170
Skin-tone	85	-.32	.43	21	-.38	.41	817.00	-.598	.277

Table 14

Mann-Whitney U for Contrasts between Participants Ethnicity and IAT D-Scores

IAT D-Score	White			Other			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	81	-.26	.37	19	-.26	.37	741.00	-.250	.404
Disability	79	-.27	.34	22	-.33	.37	777.00	-.757	.227
Gender	84	-.57	.36	20	-.59	.31	823.00	-.140	.446
Sexuality	80	.06	.38	21	-.11	.36	612.00	-1.908	.028
Skin-tone	81	-.39	.42	24	-.12	.38	616.00	-2.717	.003

Table 15

Mann-Whitney U for Contrasts Between Participants Education and IAT D-Scores

IAT Scores	Post-graduate			Under-graduate			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	74	-.28	.38	23	-.20	.33	716.00	-1.145	.128
Disability	75	-.26	.36	22	-.31	.30	761.00	-.551	.293
Gender	77	-.61	.36	24	-.52	.30	707.00	-1.731	.042
Sexuality	72	.01	.39	25	.04	.35	875.00	-.206	.420
Skin-tone	76	-.36	.45	24	-.28	.38	797.00	-.928	.179

Table 16

Mann-Whitney U for Contrasts Between Participants Religion and IAT D-Scores

IAT D-Score	No Religion			Any Religion			U	Z	Sig.
	N	M	SD	N	M	SD			
Age	70	-.25	.36	29	-.31	.37	941.00	-.569	.28
Disability	64	-.27	.32	36	-.31	.37	1074.00	-.560	.29
Gender	71	-.57	.36	32	-.58	.34	1095.00	-.292	.39
Sexuality	65	.48	.37	34	-.06	.37	917.00	-1.385	.08
Skin-tone	71	-.30	.38	32	-.36	.52	1039.00	-.691	.25

Table 17

Mann-Whitney U for Contrasts Between Group IAT D-Scores

IAT D-Score	TCP N	Non-TCP N	U	Z	Sig.
Age	68	33	1104.00	-.13	.900
Disability	70	32	804.00	-2.28	.022
Gender	73	32	752.00	-2.90	.003
Sexuality	68	34	1023.00	-.94	.349
Skin-tone	75	31	1107.00	-.38	.704

Table 18

General Multilinear Model Scores for Gender and Disability

D-Scores	Variable	Mean Square	F	P Value	Partial Eta
Gender	Age	.01	.01	.94	.00
	P-Type	.16	1.81	.18	.02
	Sex	1.28	14.52	.00	.13
Disability	Age	.16	1.47	.23	.02
	P-Type	.34	3.05	.08	.03
	Sex	.21	1.88	.17	.02

Table 19

Correlations (Spearman's) between Thermometer D-scores and Participant's Age

Thermometer D-Scores	Participant's Age r_s
Age	.09
Disability	.13
Gender	-.05
Sexuality	.30**
Skin-tone	.00

*Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Table 20

Mann-Whitney U Contrasts between Participant's Sex for Thermometer Scores

Thermo-meter Scores	Female			Male			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	81	.62	1.82	20	.95	1.82	766.50	-.395	.347
Disability	84	.25	1.05	18	.78	1.40	612.50	-1.603	.053
Gender	88	-1.39	1.88	17	-1.30	1.86	719.00	-.262	.400
Sexuality	84	.30	1.50	18	1.05	1.55	488.50	-2.887	.002
Skin-tone	85	.35	1.31	21	-.29	1.68	771.50	-1.253	.088

Table 21

Mann-Whitney U for Contrasts Between Participants Ethnicity and Thermometer Scores

Thermo-meter Scores	White			Other			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	81	.78	1.77	19	.21	2.01	722.50	-.440	.333
Disability	79	.25	1.08	22	.63	1.29	713.00	-1.649	.056
Gender	84	-1.33	1.85	20	-1.65	1.93	761.50	-.674	.251
Sexuality	80	.51	1.32	21	.19	2.16	740.50	-1.032	.149
Skin-tone	81	.02	1.07	24	1.00	2.02	673.00	-3.013	.001

Table 22

Mann-Whitney U for Contrasts between Participant's Education for Thermometer Scores

Thermo-meter Scores	Post-graduate			Under-graduate			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	74	.70	1.82	23	.52	1.75	844.50	-.058	.479
Disability	75	.25	1.05	22	.45	1.18	784.00	-.453	.308
Gender	77	-1.30	1.73	24	-1.58	2.32	922.00	-.017	.496
Sexuality	72	.42	1.36	25	.44	2.04	882.00	-.183	.421
Skin-tone	76	.39	1.40	24	-2.08	1.47	786.00	-1.338	.078

Table 23

Mann-Whitney U for Contrasts Between Participants Religion and Thermometer Scores

Thermo-meter Scores	No Religion			Any Religion			U	Z	Sig.
	N	M	SD	n	M	SD			
Age	70	.83	1.90	29	.21	1.52	876.00	-1.142	.128
Disability	64	.23	1.05	36	.44	1.21	1082.00	-.652	.251
Gender	71	-1.42	1.90	32	-1.19	1.64	1045.00	-.672	.253
Sexuality	65	.66	1.46	34	.06	1.63	0877.50	-2.063	.019
Skin-tone	71	.04	1.14	32	.63	1.77	953.00	-1.735	.039

Table 24

Mann-Whitney U for Contrasts between Groups for Thermometer Scores

Thermo-meter Scores	TCP N	Non-TCP N	U	Z	Sig.
Age	68	33	906.00	-1.66	.96
Disability	70	32	921.50	-1.82	.68
Gender	73	32	1031.00	-0.99	.32
Sexuality	68	34	980.00	-1.54	.13
Skin-tone	75	31	1097.00	-0.60	.55

6. DISCUSSION

6.1. Summary of Results

This study investigated implicit biases towards age, disability, gender, sexuality, and skin-tone among Trainee Clinical Psychologists (TCP) and Non-Trainee Clinical Psychologists (Non-TCP). To summaries, the findings are as follows:

- Both groups showed implicit negative biases against minority groups in the domains of age, disability, and skin-tone.
- Both groups showed implicit positive bias for the minority group in the sexuality domain.
- Both groups showed implicit female preference.
- Both groups self-reported positive explicit bias towards older people, disabled people, gay people, people with dark skin and a preference for women.
- Participant's age was not associated with implicit attitudes. However, sex differences were found for Disability and Gender-Attitudes scores. Education was associated with differences in Gender-Attitudes.
- Suggested differences in the D-Scores of TCPs and Non-TCPs for the Gender-Attitude and Disability IAT were not due to significant unique contributions of either age, sex or participant type.

6.2. Relationship with Previous Research

Previous research has found negative implicit biases held by TCP to be on a level comparable to Non-TCP. The current study reinforces those findings for skin-tone, age, and sexuality biases. This study also included new measures of implicit bias towards disability and gender, which were found to be in line with previous findings of biases shown by other health care providers and psychologists. Even though there seemed to be significant differences in the contrasts between the TCP and Non-TCP group regarding Gender and Disability D-scores, further investigation did not reveal significant unique

contributions of either age, sex or participant type. Therefore, more investigations are needed before it is possible to draw firm conclusions of what might be the driving factors behind differences in biases of the two samples.

6.2.1. Disability

Attitudes towards people with disability has been an under researched area so far. This study is the first to investigate implicit biases against disability by TCP. In a review article, investigating intersectionality framework and identity intersections in counselling psychology journals, disability was found to be the second least investigated intersectionality (after social class) (Shin et al., 2017). Earlier, it was shown how biases can affect people living with a disability. It is important to keep in mind that those biases can also impact on the therapeutic relationship and working alliance. Currently the majority of guidelines for psychologists published by the BPS are in regards to working therapeutically with people with a learning disability (British Psychological Society, 2012, 2019a) and do not include other disabilities. It has been suggested that offering Disability Equality Training for trainees would be a good first step in addressing psychologists' bias. Developing a counselling approach, that has the social model of disability at its core, might be better suited to offer therapy that is inclusive (Reeve, 2002).

The current study utilised photos and symbols of people with a physical disability or a visual impairment. Other disabilities, deafness or stammering were not included, as it has been suggested focusing on specific types of disability might improve the understanding of biases to different forms of disability (Wilson & Scior, 2014). The findings in this study showed TCPs as a group had a slight negative association towards people with a disability, whereas the Non-TCP sample held a moderate negative association. As in other studies, TCP self-rated scores showed a slight positive bias towards disability and for the Non-TCP sample a strong self-reported positive association towards disability was found. In this study, sex was found to be weakly correlated with Disability IAT scores, which had been found in other studies as well, with women showing lower negative attitudes against people with disability. However, further investigation did not reveal participants' sex to

be a significant factor, which would suggest that further investigations are needed before drawing firm conclusions.

The findings of this study are comparable to the biggest study of health care professionals' attitudes so far. VanPuymbrouck et al. (2020) analysed the scores of 25,006 health care providers that had taken part in the DA-IAT on Project Implicit website. They found implicit bias to be correlated with age (older participants showing higher level of bias) and gender (male participants showing higher level of bias), while having a disability lowered implicit bias. As discussed, the findings of a mismatch between explicit and implicit disability attitudes has been interpreted as highly problematic, as people are either unaware of their bias, or rationalising the bias away as not applicable to them (VanPuymbrouck et al., 2020).

The current study also revealed the mismatch between explicit and implicit attitudes in the TCP sample. This might have negative implications for the provision of services and the therapeutic alliance when working with people with a disability. Due to the low number of participants indicating that they define themselves to have a disability, it was not possible to investigate further whether this would have an influence on bias.

The current study is also in accordance with previous research indicating no decline in negative attitudes in the general population for the last 12 years (Charlesworth & Banaji, 2019a). This might feel especially disheartening as there have been frequent media reports about the possible negative implications of Covi-19 on people with disability.

In this study the order of the IATs was random and participants could not choose which IAT they were offered. They could complete more than one IAT, but they did not have a choice in which order the IATs were presented. This might have led to more participants completing the disability IAT than is usually the case. In this study, comparably as many participants took part in the disability IAT as in the other IATs. Studies with self-selected completion samples struggle with lower numbers of participants for the disability IAT then the more popular ones (e.g., race and skin-tone).

6.2.2. Gender-Attitude

Previous research has focused on Gender-Career or Gender-Science stereotypes. They are important issues for the field of clinical psychology as it has a predominantly female workforce, which might be due to psychology being considered a low-prestige profession (Melia, 2016). However, even though men are underrepresented in the wider psychology and NHS workforce, they hold more leadership positions (Murphy et al., 2014; Sealy, 2020).

Blencowe (2017) and Hearn (2018) found implicit association of “men” with “career” and “women” with “family” in their respective studies. So far there is a lack of research into how implicit bias might affect selection for training in clinical psychology, or later for recruitment into leadership positions. In general there is a recommendation for recruiters to participate in implicit bias training (Newman, 2015).

As mentioned previously, most studies had a predominantly female sample which suggests that self-stereotypes might also be a factor in maintaining sex inequalities in leadership roles in clinical psychology. The importance of inter- and intra-personal bias has been demonstrated with studies regarding science, technology, engineering, and mathematics (STEM) (Charlesworth & Banaji, 2019b) and law (Levinson & Young, 2010). The pattern of change in the IATs to gender-career and gender-science has shown a move towards neutrality even though the bias is still strong currently on both explicit and implicit measures (Charlesworth & Banaji, 2021). Studies have also shown that more women are entering STEM professions, but that men are not entering so called communal or female professions at the same level (Croft et al., 2015).

In this study I focused on gender-attitudes as a so far under researched area with implications for therapeutic alliances. For example, a study investigating marriage and family therapy students interaction in therapy by videotaping sessions, found that women were interrupted 3 times more often in therapy than men, irrespective of the gender of the therapist (Werner-Wilson et al., 1997). A retrospective study found microaggressions against women by their male or female therapist to negatively impact the working alliance and therapeutic outcomes (Owen et al., 2010). Another recent study found that counsellors

(male and female) with less egalitarian gender role attitudes held more blaming attitudes towards female survivors of intimate partner violence (Notestine et al., 2017).

It has been suggested that stereotypes about competency and warmth remain relatively stable over time (Fiske, 2018). If both men and women consistently hold the attitude that women are warmer and friendlier than men, how is that going to be reflected in the therapy room? Both when the therapist is female or when the therapist is male, this would have an impact on the expectation of how therapy is conducted and how understanding/ empathic the therapist might be. It might also lead to the therapist supporting female clients into more nurturing and supportive roles, which might be contradictory to what the client actually wants but reflective of societal expectations (Glick & Fiske, 1997).

According to the UK based charity Men's Health Forum, 12.5% of men are suffering from a mental health problem, but are less likely to access support services (Men's Health Forum, 2017). Around three quarters of registered death by suicide were by men in 2019, and were at the highest level since 2000 (Office for National Statistics, 2020b). Depression is more prevalent in females; however, it has been suggested that depression in males might not be detected. Research suggests that males not only show less help seeking behaviour than females but also that diagnostic criteria for depression are more oriented towards female presentation of depression as for example sadness, fearfulness, sleep problems whereas males might show more acting out behaviours like lower impulse control or risk taking (House et al., 2018). It has also been suggested that therapy itself might be more representative of how women express their emotions than men. A recent systematic review has concluded that adherence to more traditional understanding of masculinity can negatively impact on the experience of depression and help seeking behaviour in men (Seidler et al., 2016), suggesting that tailoring and targeting clinical interventions might improve service provisions for men. One narrative summary has presented findings to how Cognitive Behavioural Therapy might be adapted to improve outcomes for depressed male clients. The author suggests that men might struggle with engaging effectively with therapy as it is conceptualised currently due to an incongruence between gender conceptualisations,

depression and therapy. The author presents suggested adaptations for therapy settings and the content of the therapy, whilst acknowledging, that there is currently limited support for the effectiveness of those adaptations and more research is needed (Spendelow, 2015). How clinicians conceptualise masculinity and their implicit biases also impacts on the therapeutic relationship (Englar-Carlson, 2006) and would suggest this to be an important topic to explore during training in clinical psychology.

The current study found a general positive bias towards women both on explicit and implicit measures. This is in keeping with previous studies and was especially strong for the TCP sample, which was predominantly female. However, further investigations showed that the residual distribution was not normal, and thus participants' sex could not be interpreted as a unique contributing factor. This leads to the suggestion, that it would be important to investigate the impact of gender bias in the therapy more thoroughly, including not only engagement and rapport building but also outcome measures for men and women.

6.2.3. Sexuality

Psychology has a well-documented unfortunate history of misunderstanding, misdiagnosing and mistreating people of LGBT identity. However, by now there are guidelines how to provide ethically appropriate therapy to individuals defining themselves as belonging to a sexual minority (British Psychological Society, 2019a). Furthermore, it is topic on the doctoral programmes, including areas therapists should be aware of and possibilities for personal development to help therapist provide affirmative therapy (Pachankis & Goldfried, 2013; Sue et al., 2019).

Previous research had found moderate pro-heterosexual bias among counselling psychology students (Boysen & Vogel, 2008) and slight pro-heterosexual bias in genetic counsellors (Nathan et al., 2019). Dasgupta and Rivera (2008) had shown that exposure to favourable gay men and lesbian women (e.g., famous authors) could lower implicit bias and decrease intention for discriminatory voting. Sabin and colleagues (2015) investigated implicit attitudes in health care providers, towards gay men and lesbian women

separately, and found negative implicit biases to be present but weaker towards lesbian women compared to gay men. Heterosexual nurses held the strongest pro-heterosexual men bias over gay men. They did not include statistical comparisons among groups of service providers and non-service providers, but commented on patterns of preference; suggesting that heterosexual providers and non-providers always demonstrated implicit pro-heterosexual bias, whereas lesbian and gay providers and non-providers always showed a pro-homosexual preference (Sabin et al., 2015). In the current study it was not possible to investigate the influence of sexuality on implicit biases as the number of participants declaring to belong to a minority group was too small. However, it is notable to see that the trend of always showing a pro-heterosexual bias among participants identifying as heterosexual has been reversed in the current study.

In the current study both samples showed implicit and explicit attitudes in favour of gay people. This is in keeping with the current trend development and reflects a significant change in attitudes compared to previous societal norms. Hearn (2018) had also found a positive bias towards gay people in his TCP sample, whereas Blencowe's (2017) TCP sample showed a slight negative bias. However, Hearn's finding might have been due to the higher level of individuals identifying as non-heterosexual in his sample and his TCP sample was very small. However, a change in pattern of implicit biases towards sexuality has been documented and is showing a decrease towards neutrality in the general US population (Charlesworth & Banaji, 2019a).

In this study the sexuality IAT was the only IAT associated with implicit bias in favour of the minority group. The newly developed stimuli showed to be engaging and appropriate to use for the investigation of implicit biases towards gay people.

6.2.4. Age

Agism has been shown to be a pervasive form of prejudice leading to discrimination against older people. Nevertheless it remains a rather under-researched area and seems to be tolerated as consequence of growing older (Swift et al., 2017).

Agism remains a major problem for the NHS due to institutional and professional bias, compromising treatment in mental health care for older adults (Royal College of Psychiatrists, 2018). A study investigating 121 doctors showed implicit pro-young bias. This led to appropriate suggestions of depression and anxiety as the cause of problems for younger people while inappropriately suggesting dementia and physical health problems for older people (based on vignettes that were identical apart from age), leading to less favourable treatment suggestions for the older adults (Linden & Kurtz, 2009). Recently it has been documented that as many as 85% of older people with depression did not receive help from the NHS; they are six times more likely to be on medication than younger people; and that older adults are only a fifth as likely as younger people to have access to talking therapies (Burns & Warner, 2015).

Patterns of implicit bias towards age have not changed over recent years (Charlesworth & Banaji, 2019a). Age bias has the greatest magnitude of the analysed IATs (Nosek, Smyth, et al., 2007). Furthermore, older adults showed the same pro-young bias as younger adults, even though their explicit attitudes differed.

Previous research had found negative explicit age bias in clinical psychologists in the US (James & Haley, 1995). More recent findings (Laidlaw, 2015) suggested that participants hold the assumption that older adults would not benefit as much from therapy and were given poorer prognosis expectations, with clinicians often not feeling comfortable in working with an aging population. This can have implications not only for the therapeutic alliance for older adults but might also suggest more difficulties in accessing therapy in the first place.

The current study showed the TCP group to display similar levels of negative associations against older people as the Non-TCP group. However, the effect was small and not as high as other studies. Blencowe (2017) had found a slight negative bias towards older adults, whereas Hearn (2018) detected no bias in his TCP sample.

These findings might reflect a higher awareness of agism in the TCP sample who are required to gain work experience with older adults during placements. This could be considered encouraging as more exposure and awareness might lead to less bias.

6.2.5. Skin-tone

As previously mentioned, racial and skin-tone biases are the most researched biases. There has been a noted shift in attitudes, reflected in changes in the pattern of implicit and explicit biases towards neutrality (Charlesworth & Banaji, 2019a) and racism has been discussed frequently in the media. Nevertheless, racial biases are still problematic worldwide. Previous studies investigating psychologists race or skin-tone biases have found them to be present, and multi-cultural training can influence them with mixed results (Boysen & Vogel, 2008; Castillo et al., 2007). When psychologists "bonding" and therapy outcome expectations were measured using vignettes, a Race-IAT and measures of multicultural competency, the researchers found implicit negative bias against Black Americans to be the highest predictor of negative bond expectations by therapists (Katz & Hoyt, 2014). The authors argue that this could be a significant negative influence on the therapeutic relationship and outcomes.

In this study it was found that TCP on a group level hold moderate negative associations against darker skin-tone, even when self-rated scores are in favour of darker skin-tone. This is comparable to previous findings: Blencowe (2017) had found a slight negative implicit bias towards darker skin-tone in her TCP sample, using a different stimulus set. Hearn (2018) also found a moderate negative implicit bias against darker skin-tone, also using a different set of stimuli.

This consistent finding of negative implicit bias against darker skin-tone in TCP samples is especially disheartening as efforts have been made to integrate topics of racism and the adverse impact on mental health into the doctoral training. On top of this, racism has been afforded high media attention over the last few years and could thus be expected to be more present in the awareness of the general population. However, the current finding is also reflective of the

broader trend of a slow change in attitudes to race and skin-tone, compared to the changes in attitudes to sexuality.

6.2.6. Correlations Between Implicit Attitudes and Participant Demographics

In this study no correlation between implicit attitudes and age was found. Previous studies had found age to be a significant factor in all assessed implicit domains, as older participants also demonstrated pro-young biases. Older adults were found to hold stronger male-career association and showed a stronger pro-white bias (Nosek et al., 2002). Nosek et al. (2007) used the improved scoring method and still found age was associated with stronger male-career and pro-white biases.

In their review article participants' sex did not influence attitudes to disability, whereas in the current study participants sex was suggested to have an impact on disability and gender-attitude scores, however, when further investigated it did not reveal to be significant factor. Therefore, it would be prudent to investigate the influence of participants sex on attitudes to disability further.

The current finding is nevertheless in line with findings by Harder et al. (2019) showing negative implicit biases towards disability to be higher in male than in female participants. In their literature review Wilson and Scior (2014) concluded that only one of the seven studies included had found sex differences to be a significant factor: with women showing less bias against disabled people than men. This would suggest that it would be worthwhile to investigate sex differences in attitudes towards people with disability in more detail.

Participant's level of education also had an effect on gender-attitude d-scores. Previous studies had not found a correlation for the gender-science and gender-career domains (Nosek, Smyth, et al., 2007). However, others have found stereotyped gender assumptions (regarding competence and warmth) to be stable over time and held by both men and women. It would be important to investigate the impact of levels of education on implicit biases further.

6.2.7. Summary and Interpretation

This study was successful in using newly developed stimuli for three IAT categories. In keeping with other studies, this investigation found that TCPs showed broadly the same biases as the Non-TCP sample in all domains. In certain areas (age, disability) the negative implicit bias was lower in the TCP group than in the Non-TCP group. This might reflect greater awareness and exposure to the impact of these biases in the TCP group, due to them being considered in the doctoral training. All TCPs are expected to gain competencies in working with older adults and with people with learning disability. According to Alport's (1954) "contact theory" greater familiarity would lead to reduced stereotypes. A so far under researched area is how TCPs female preference impacts on the therapeutic alliance and outcomes. Sexuality seems to have reached a level of awareness where it is not considered problematic anymore to be part of a minority. However, darker skin-tone is still associated with negative bias.

All participants had endorsed positive explicit attitudes towards the minority groups. This is broadly in keeping with previous findings, for example suggesting negative explicit biases towards sexuality or darker skin-tone to be uncommon in psychologists (Boysen, 2009).

6.3. Implications

6.3.1. Trainee Clinical Psychologists

This is the third study investigating implicit biases in Trainee Clinical Psychologists in the UK. So far, the findings indicate that TCPs show similar biases to the general population. This could have serious implications for interpersonal interactions and clinical practice. The BPS recommends raising awareness of biases that may affect psychologists behaviour (British Psychological Society, 2018). This supports the importance of bringing implicit biases to the attention of TCPs. As discussed previously, the IAT is a good tool for education and research, and as the results are often perceived as surprising for the individual, this could be a good discussion opener. Trainees would need

to be aware of the difference between findings in explicit versus implicit biases, and how these biases might impact clinical practice.

There appears to be a correlation between implicit biases (as revealed by IATs) and behaviours, even if it is of small magnitude (Kurdi et al., 2019). However, we do not yet know how addressing implicit biases change behaviours (Forscher et al., 2019). Suggestions of successful long term interventions have been made to reduce racial bias (Devine et al., 2012). It might be helpful to utilise participation in different IATs at early stages of training to bring them to the attention of trainees early on, so that they have a chance to engage with those challenging topics in a safe and engaging learning environment. A study using feedback of participation in a body-weight IAT suggested that if it was provided in a sensitive way, it could lead to thoughtful engagement with the topic (Howell & Ratliff, 2017). However, others had found that students rejected the idea of engaging with their own biases after taking part in age and disability IATs at two points for their course (Archambault et al., 2008). This supports the notion that it has to be approached in a careful and considerate manner so that trainees do not feel defensive or further assessed.

In the UK the doctoral training is expected to include elements of self-reflection and dealing with differences and power imbalances (British Psychological Society, 2019c). Courses differ in how much they focus on questions of social diversity and inequality (see for example course self-description on the website for training applications (Clearing House Leeds, 2020) as well as the alternative handbook for clinical psychology (British Psychological Society, 2020) in which current trainees' impression of training are presented).

Anecdotally, particularly biases in regards to race and skin-tone have been raised in discussions (Wood & Patel, 2017) and it would be good to address other biases as well. Older adults and learning disability are currently part of the doctoral curriculum as compulsory topics, understanding the wider implication of negative attitudes would be important in future clinical practice. Discussions about gender attitudes and sexuality are present during training (Macleod et al., 2020). However, raising awareness how implicit gender assumptions might impact on therapeutic relationship appears to be mainly tokenistic, i.e.

mentioning differences in showing emotions by men and women. Sexuality has been afforded more attention in teaching and has also been included in personal professional development sessions.

Trainees are increasingly prepared for leadership roles in the NHS and, as this is a compulsory component of the doctorate (British Psychological Society, 2010), it might be worth considering the wider implications of biases held by trainees beyond the individual therapy level. This would implicate areas such as recruitment, promotion, and allocation of resources as well as accessibility of services. This is also important to consider as the current psychological workforce might be reflecting a homogenous demographical profession that unintentionally perpetuates stereotypes and biases in applicant selections.

Therefore, if, as I suggest, the IAT has the potential to be used as a concrete tool to stimulate self-reflection regarding the biases we may bring to therapy, it would be good to integrate it into clinical psychology training from the beginning. This could be an integrative approach in which implications of biases are included in the curriculum for all topics, but also use the IAT in the personal and professional development (PPD) sessions. PPD sessions usually include a topical session for the whole cohort, followed by discussions in small groups.

If the IATs could be introduced in the first year of teaching by: a) encouraging trainees to take certain IATs, b) individually write the feedback down, c) explore in the cohort wide session how the specific biases might impact on therapy, d) reflect with fellow trainees in the smaller PPD groups personal responses to the IAT feedback and how this might be notable in the therapy this might work as first steps to raise awareness. In later sessions trainees could explore strategies to notice biases quicker and how to respond in a more open-minded way that aligns with explicitly held beliefs.

This conversation should be an integral part of all three years of training and after the initial awareness raising it should be possible to continue monitoring and reflecting at different points in training.

Trainees often comment that they feel safer first discussing difficult topics in smaller groups before raising them in the bigger cohort group. Therefore, I would suggest having information sharing sessions in the bigger cohort, but, certainly at the beginning, to have more explicit reflective sessions in the smaller groups to enable people to be open about their experiences and insecurities. Over time, trainees would become more familiar in discussing difficult topics and this might even lead to a knock-on effect for trainees carrying those discussions into their placements and future places of work.

Altogether, if the IATs is seen as a useful tool to encourage self-reflections (and not as a judgement tool, which provides unchangeable feedback on the level of biases an individual has), it would help facilitate honest conversations about biases that can have an impact on therapy and service provisions. It would also enable trainees to learn more about themselves and engage in more open but focused exploration that can lead to steps to overcome biases. This might lead to committed actions, which could form part of a broader change in clinical psychology.

6.3.2. Service Provision

In line with previous research, this investigation found TCPs to hold broadly the same negative implicit biases against minority groups as the general population, the notable difference being attitudes towards LGBT people. This might have implications for service provision. It had been shown that members of minority groups can experience difficulties accessing therapy (Shin et al., 2016) or due to problems with the referral system (Williams et al., 2006). Furthermore, research has shown that therapists multicultural competency has an impact on the experience of therapy (Hook et al., 2016). A Eurocentric framework of interpreting presenting problems has also been shown to influence therapeutic relationship negatively (Williams et al., 2006).

Recent focus groups with participants from Black Asian and Minority Background by Memon and colleagues (2016) have identified two types of barriers to access mental health services: a) personal and environmental (including recognition of mental health problems, financial implications, sex differences, cultural stigma and identity as well as social networks) and b) the

relationship between clients and health care providers (including waiting time, language and communication, power and authority, cultural insensitivity and discrimination). The focus groups recognised the relationship between health care provider and client as pivotal and listed problems like being “talked down to” as negatively impacting on the relationship (Memon et al., 2016). This is in keeping with findings from the medical professions whereby black patients consistently rated the interactions with health care providers with high pro-white bias as negative on a number of levels: patient centredness, supportiveness and interpersonal treatment provision (Blair et al., 2013; Penner et al., 2016). One example discussed was the use of more dominant verbal behaviour by clinicians with a pro-white bias towards patients from ethnic minorities (Cooper et al., 2012; Hagiwara et al., 2013). FitzGerald and Hurst (2017) concluded their review article that health care providers held the same level of implicit biases as the general population and that those negative biases may influence diagnosis, and treatment decisions and level of care. So far, only one study has used indirect measures to analyse variables that are considered relevant for therapeutic alliance with psychologists (Katz & Hoyt, 2014). It has been suggested that the difficulty of measuring implicit biases might be the reason why it is not wider discussed in the psychotherapeutic literature (Boysen, 2009). However, the importance of implicit biases on therapeutic alliance and outcome has been demonstrated and would warrant further investigation to improve experiences and outcomes for people from minority groups.

Research has also shown, that men show lower health seeking behaviour for depression and might struggle more when engaging with therapy, especially when subscribing to a more traditional interpretation of masculinity (House et al., 2018; Seidler et al., 2016). More research into how implicit biases, as shown as female preference in the current study, impact on therapeutic relationship is needed.

As discussed previously, findings to service provision in the UK indicate that there currently is a problem in providing equal support for people from diverse backgrounds even though equal access is a stated goal of the BPS and the wider NHS. If no measures are implemented, this will increase the difference in experiences of mental health services and lead to more people not receiving the

help they might want. One way to raise awareness for this difficult topic might be to initiate discussions about implicit biases and their implications with trainees in all professions.

6.3.3. Interventions to Address Implicit Biases

The findings that negative implicit biases towards dark-skinned people, disabled people and older people were found in TCP samples might feel disheartening. However, there is also the opportunity to establish whether educational interventions can reduce negative biases over a longer period of time.
So far, studies trying to reduce implicit biases have shown mixed results and were mainly short term. Devine et al. (2012) found providing participants with feedback about their IAT performance and providing education, including strategies on how to reduce bias, to be effective over eight weeks. Another successful intervention was a reduction in white preference by white participants when they lived with a black roommate over a few months (Shook & Fazio, 2008). In a first systematic analysis of 17 short term interventions to reduce negative implicit bias, only eight were found to be effective (Lai et al., 2014) and none of them remained effective the following day (Lai et al., 2016). Reinterpreting the data of this study, Vuletich and Payne (2019) suggested that the data reflected the level of bias of their respective universities and not of the individual students. They would want to see interventions to aim at a structural rather than individual level, as is currently the dominant practice.

A recent meta-analysis found that it was possible to induce small changes in implicit biases when using strategies like goal setting, association procedures or taxing mental resources (Forscher et al., 2019). Others found exposure to counterstereotypes to be promising (FitzGerald et al., 2019). However, the changes in implicit biases did not translate into observed behaviour or explicit biases.

It might be interesting to investigate the characteristics of participants who do not show negative biases compared to those who do. It has been suggested that raising awareness about implicit biases might be a first step, however, on its own awareness does not induce change (Chapman et al., 2013).

Nevertheless, when approached sensitively, feedback on IAT performance might initiate reflections and could open up discussion (Hofmann et al., 2005).

6.4. Strength and Limitations

Altogether this preliminary study showed that it is possible to engage TCP into research to implicit biases in the UK utilising more engaging and appropriate stimuli.

This study improved and extended the work of two previous theses. Blencowe (2017) had named as one of the limitations of her study the use of stimuli by Project Implicit. Hearn (2018) had developed new stimuli for five categories. However, there was uncertainty about the level of validation employed. Therefore, in the current study new stimuli for three IATs were developed and validated. In the validating study participants were presented with a range of possible stimuli for the sexuality, disability, and skin-tone categories. Only those pictures found to be most representative of the categories (disabled/abled, homosexual/heterosexual, and dark skin-tone/light skin-tone and not found to represent attractiveness) were then used in the IAT study.

Assessing the level of implicit bias against people with disability in a TCP sample provided new insights into this domain and has implications for future research.

6.4.1. Predictive Validity of the IAT

Since the IAT was originally introduced in 1998 it has been exposed to scientific debate and scrutiny. This has led to open and ongoing discussion and improved the administration and scoring procedures (e.g. Greenwald et al., 2003). One consistent criticism has been that scores obtained by IATs are not directly related to predictive behaviour. The meta-analyses published so far have come to different conclusions regarding the magnitude of predictive validity of the IAT, but generally have found a positive association. Kurdi et al. (2019) concluded that attitudes, stereotypes, and identity are systematically related to behaviour in intergroup domains. They suggest that IAT scores can be robust predictors of behaviour and show incremental validity, especially when focusing on studies

using standard IATs with large sample size. So far only one study has evaluated how far biases shown by psychologists' impact on the therapeutic relationship or therapeutic outcomes. This would be a worthwhile, though difficult, study to conduct in the future.

The debate whether biases reflect personal attitudes or aggregated biases on a broader level is still ongoing. Proponents of the aggregated level of biases theory suggest that any changes to biases would have to come from changes at the societal and institutional level (Payne et al., 2017). Others suggested that it is nevertheless appropriate to give participants feedback on the level association shown during the test, as this might increase their level of reflection and awareness of own biases. Most researchers agree that IAT scores should not be used as tools for diagnosis or hiring decisions on an individual basis, but are useful in the context of education and training (Greenwald & Lai, 2020; Jost, 2019; Kurdi et al., 2019). Especially as it has been demonstrated that IAT scores can be affected by recoding of stimuli (participants not responding according to the instructions given but by recoding the stimuli according to a criteria that is salient to them) (Rothermund et al., 2009) cautious interpretation of scores is appropriate. Recently it has been suggested that IATs are measures of "liking" and not "wanting", with wanting potentially having a more direct influence on behavioural outcomes (Meissner et al., 2019). However, this line of research seems to be at the developmental stage and so far, is mainly focused on choice behaviour as for example drinking or smoking. As discussed earlier, IATs assess associations between given categories and attributes but do so without providing a context. This has been criticised as the context is important for outcome in a given situation and thus influences behaviour (Blair, 2002). If IATs were to be used in specific context, as for example in recruitment situation, participants knowledge about what kind of expectation the recruiter has might influence task fulfilment by intentionally slowing down responses to eliminate bias detection. Before considering to employ indirect measures like the IAT in recruitment situations it would be advisable to explore how they work in combination with other assessment tools that might map more directly onto behaviour in a given situation (Meissner et al., 2019).

6.4.2. Online Research

Online research can offer several benefits to the researcher when compared to laboratory studies: it enables greater recruitment from diverse groups over wider geographical areas (Nosek et al., 2002) but affords participant the freedom to complete the study at a time and place that is convenient for them (Barak & Buchanan, 2004). Another advantage is greater speed and accuracy in the data collection and scoring (Naglieri et al., 2004). However, there are also some difficulties with internet research. For example, certain groups (older or socio-economic disadvantaged) might be underrepresented as they might have less access to the internet.

Furthermore, there is no possibility to control the environment in which the test is taken and external factors like noisy environment or distraction during the test administration have shown to influence performance (Teige-Mocigemba et al., 2016). Participants motivational and emotional states have also been shown to influence IATs scores (Gawronski & Sritharan, 2010). Additionally, there is an increased chance of participants discontinuing the study or incorrectly completing the study as there is higher likelihood of misunderstanding in the absence of an experimenter (Nosek et al., 2002), and participants are less likely to contact the experimenter for clarification.

This study offered participants a choice in how many tasks they completed. This was done with the intention to encourage participation as knowing that all five IATs would have to be completed might have felt like a substantial time commitment. However, this also led to a small sample (per group) for the individual IATs. The presentation of the IATs was randomised in the hope of ensuring a proportionate distribution across categories however, this might have led to higher levels of discontinuation when participants were not presented with the IAT matching their interest. Nevertheless, this design ensured 151 participants took part and completed 506 individual IATs, which might have been lower with a forced requirement to complete all.

6.4.3. Stimuli

This study employed newly developed and validated stimuli for three IATs. However, the stimuli were limited to royalty free and approved-to-use pictures

and symbols that could be found on the internet. Attractiveness was controlled for as a confounding factor by including this criterion in the validation stage. Other confounding factors could unfortunately not be avoided. For example, in the disability and ability IAT most of the stimuli were pictures of people engaged in a sporting activity (running, basketball, tennis, table tennis, skiing). Research has shown that people with a disability are frequently rated as more competent when they are depicted as engaging in a valued physical activity (for an overview see Clément-Guillotin et al., 2018). A suggestion to circumvent this might be to create stimuli using computer technology, but this had not been possible for the current study. Another criticism might be that this study included pictures and symbols depicting physical and visual impairment and was not limited to one category only. However, it was felt important to establish a broad stimulus set when establishing if implicit biases towards people with disabilities are present in TCPs.

6.4.4. Sample

As noted above, online research offers the advantage of gathering data of large and diverse samples. However, this might not necessarily be representative of the general population, which then limits the generalisability (Greenwald et al., 2003). In this study, females were overrepresented in the TCP sample. This was in keeping with the sex-ratio of successful applicants for training, but it might lead to an underestimation of implicit biases overall. Nosek et al. (2007) had shown that male participants demonstrate stronger negative implicit biases than females. Unfortunately, the sex imbalance in this sample was too great to draw any firm conclusions. For the current study opportunity sampling had to be used due to time constraints even though it was known that the majority of trainee clinical psychologists are female. However, after careful consideration and discussion with supervisor, it was considered too time consuming to attempt matched sampling in this study, even though this is a clear limitation of this study. However, it would be interesting to investigate whether sex has an influence on TCPs negative biases as well and it might be worth specifically targeting male trainees. Interestingly, the Non-TCP sample had an even split between female and male participants, but no difference in negative biases could be detected.

Even though this sample had representatives of the wider UK, it was a predominantly white and heterosexual sample. A more diverse sample would be required to draw firm conclusions about the influence of ethnicity and sexuality on negative implicit biases. Furthermore, the Non-TCP sample of this study was highly educated and mainly in higher professions, therefore it cannot legitimately be considered as a representation of the UK general population. This might be a reflection of the researcher's social environment as recruitment was conducted online via social media as for example Facebook and WhatsApp which might have kept it in the researcher's "bubble" of connections. This might also be one of the reasons for the uneven age distribution for the two samples, as I have come to training later in life than most other trainees. The two samples in this study had an uneven age distribution, with the Non-TCP being significantly older than the TCP sample. However, age was not found to be associated with difference in implicit bias scores. Nevertheless, it might be informative to compare an age-matched sample when investigating further.

6.5. Future Research

In general, it would be important for future research to derive true representative norms of the general UK population from a properly stratified sample. This might be possible by advertising in other areas than only those accessible to the individual researcher, e.g., fee paying marketing platforms, and over longer duration than the short time frame of a thesis.

In regard to TCP's attitudes, now that this study has established that TCP hold negative implicit biases towards people with disabilities, males and older adults on a comparable level to the general population it would be interesting to investigate further. For example, it might be appropriate to evaluate whether training has an impact on the different biases. All trainees are expected to develop competencies in working with people with a learning disability and with older adults. This can be achieved through a combination of the teaching module and completing a placement in the respective field or demonstrating that you had to adjust your work accordingly in other services (for example when working in Child or health services).

It would be useful to see if this repeated engagement has an impact on implicit biases. This could be assessed by asking all newly starting trainees to participate in a number of IATs (for example age, disability, sexuality) as well as a specially developed learning disability IAT. All participants would then be encouraged to complete the same measures at the end of year 2 (after the learning disability and older adults' modules were taught and most trainees had placements in those areas) and then at the end of training again. This would allow for comparison whether teaching and exposure to the group (as in Allport (1954) contact hypothesis) led to changes in the implicit biases towards elderly and people with a learning disability whilst the disability and sexuality IATs would evaluate changes in the pattern in the general population.

Another area of interest would be if and how negative implicit biases impact on the therapeutic relationship in the actual clinical interaction. Due to adjustments in working due to Covid more therapeutic interactions are taking place using remote communications and therefore, it might be easier to arrange for those interactions to be recorded. This would enable analysis of the actual behaviour to see if biases are having an influence on real world interactions. Not as most research thus far on vignette based or other hypothetical questions.

7. CONCLUSION

The aim of this study has been to update IAT stimuli to be more appropriate for the UK context. More appropriate stimuli for the disability, sexuality and skin-tone domain have been developed and validated, before being used in an investigation into implicit biases against minority groups in the UK. These improved IATs established comparable levels of bias in the current sample to those reported by previous studies. All participants had endorsed positive explicit attitudes toward the minority groups, which is in keeping with previous research.

In conclusion, the findings from this study indicate TCPs to hold a comparable level of negative biases against minority groups as the Non-TCP. This is in keeping with previous research. Negative implicit bias towards people with a disability had not been investigated in a TCP sample before. This study found TCPs demonstrating negative implicit biases towards people with a disability, though the effect was smaller than for the Non-TCP sample. The implicit pro-young bias was also smaller in the TCP group, supporting the theory that greater awareness and exposure to the impact of these biases might lower negative attitudes. Negative implicit bias towards dark skin-tone was present in both samples, even though there had been frequent media exposure of racism on the media. This is in keeping with research showing a slow but steady trend in reducing implicit negative biases in the domains of race and skin-tone.

The stereotype association of females with positivity and males with negativity, and its implications for therapeutic alliance and outcome, is a so far under researched area. In this study a female preference was found for both samples. The current findings indicate a change in attitudes towards people from LGBT background, showing implicit preference towards people from a minority sexuality in both samples.

The findings may have implications for clinical training and service provision. Particularly the domains of age, disability and skin-tone showed negative implicit biases to be present and might impact on the therapeutic relationship

and outcome measures. It would be warranted for future research to investigate real live outcomes in the therapy room, and the current switch to remote communication for a variety of therapeutic interactions might offer the opportunity to explore further. Limitations of the current study have been named and it would remain important to be cautious about generalisability of the current findings. Nevertheless, the findings of the current study furthered the understanding of biases in applied psychology and confirmed the importance of conducting research into implicit biases in the field of psychology.

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APPENDICES

APPENDIX A: NOTICE OF ETHICS REVIEW DECISION

School of Psychology Research Ethics Committee

NOTICE OF ETHICS REVIEW DECISION

For research involving human participants
BSc/MSc/MA/Professional Doctorates in Clinical, Counselling and Educational Psychology

REVIEWER: [redacted]

SUPERVISOR: **Matthew Jones Chesters**

STUDENT: Heidemarie Grafahrend

Course: Professional Doctorate in Clinical Psychology

Title of proposed study: Implicit Biases towards Minority Groups in the UK

DECISION OPTIONS:

1. **APPROVED:** Ethics approval for the above named research study has been granted from the date of approval (see end of this notice) to the date it is submitted for assessment/examination.

2. **APPROVED, BUT MINOR AMENDMENTS ARE REQUIRED BEFORE THE RESEARCH COMMENCES** (see Minor Amendments box below)**:** In this circumstance, re-submission of an ethics application is not required but the student must confirm with their supervisor that all minor amendments have been made before the research commences. Students are to do this by filling in the confirmation box below when all amendments have been attended to and emailing a copy of this decision notice to her/his supervisor for their records. The supervisor will then forward the student's confirmation to the School for its records.

3. **NOT APPROVED, MAJOR AMENDMENTS AND RE-SUBMISSION REQUIRED** (see Major Amendments box below)**:** In this circumstance, a revised ethics application must be submitted and approved before any research takes place. The revised application will be reviewed by the same reviewer. If in doubt,

students should ask their supervisor for support in revising their ethics application.

DECISION ON THE ABOVE-NAMED PROPOSED RESEARCH STUDY

(Please indicate the decision according to one of the 3 options above)

Approved, but minor amendments are required before the research commences

Minor amendments required *(for reviewer)*:

This is undoubtedly an important study and the findings will potentially be very useful. A minor amendment is required, to be discussed and agreed with the supervisor, prior to recruitment: It would be advisable to provide exclusion criteria for trainee Clinical Psychologists *employed by the NHS.* Or, engage with question 9.1 / 9.2 regarding NHS staff and permission required.

Major amendments required *(for reviewer):*

Confirmation of making the above minor amendments *(for students)*:

I have noted and made all the required minor amendments, as stated above, before starting my research and collecting data. Student's name: Heidemarie Grafahrend Student number: 1826615 Date: 22/10/2020

(Please submit a copy of this decision letter to your supervisor with this box completed, if minor amendments to your ethics application are required)

ASSESSMENT OF RISK TO RESEACHER *(for reviewer)*

Has an adequate risk assessment been offered in the application form?

YES / NO

Please request resubmission with an adequate risk assessment

If the proposed research could expose the researcher to any of kind of emotional, physical or health and safety hazard? Please rate the degree of risk:

☐ HIGH

Please do not approve a high risk application and refer to the Chair of Ethics. Travel to countries/provinces/areas deemed to be high risk should not be permitted and an application not approved on this basis. If unsure please refer to the Chair of Ethics.

☐ MEDIUM (Please approve but with appropriate recommendations)

☐ LOW

Reviewer comments in relation to researcher risk (if any).

Reviewer [redacted]

Date: 17th August 2020

This reviewer has assessed the ethics application for the named research study on behalf of the School of Psychology Research Ethics Committee

APPENDIX B: ETHICAL APPROVAL WITH MINOR AMENDMENTS

School of Psychology

APPLICATION FOR RESEARCH ETHICS APPROVAL

FOR RESEARCH INVOLVING HUMAN PARTICIPANTS

(Updated October 2019)

FOR BSc RESEARCH, FOR MSc/MA RESEARCH, FOR PROFESSIONAL DOCTORATE RESEARCH IN CLINICAL, COUNSELLING & EDUCATIONAL PSYCHOLOGY

1. Completing the application

1.1 Before completing this application please familiarise yourself with the British Psychological Society's Code of Ethics and Conduct (2018) and the UEL Code of Practice for Research Ethics (2015-16). Please tick to confirm that you have read and understood these codes: [x]

1.2 Email your supervisor the completed application and all attachments as ONE WORD DOCUMENT. Your supervisor will then look over your application.

1.3 When your application demonstrates sound ethical protocol, your supervisor will submit it for review. By submitting the application, the supervisor is confirming that they have reviewed all parts of this application and consider it of sufficient quality for submission to the SREC committee for review. It is the responsibility of students to check that the supervisor has checked the application and sent it for review.

1.4 Your supervisor will let you know the outcome of your application. Recruitment and data collection must NOT commence until your ethics application has been approved, along with other research ethics approvals that may be necessary (see section 8).

1.5 Please tick to confirm that the following appendices have been completed. Note: templates for these are included at the end of the form.

- The participant invitation letter [x]
- The participant consent form [x]

- The participant debrief letter [x]

1.6 The following attachments should be included if appropriate. In each case, please tick to either confirm that you have included the relevant attachment or confirm that it is not required for this application.

- A participant advert, i.e., any text (e.g., email) or document (e.g., poster) designed to recruit potential participants.
  Included [x] or
  Not required (because no participation adverts will be used) [ ]

- A general risk assessment form for research conducted off campus (see section 6).
  Included [ ] or
  Not required (because the research takes place solely on campus or online) [x]

- A country-specific risk assessment form for research conducted abroad (see section 6).
  Included [ ] or
  Not required (because the researcher will be based solely in the UK) [x]

- A Disclosure and Barring Service (DBS) certificate (see section 7).
  Included [ ] or
  Not required (because the research does not involve children aged 16 or under or vulnerable adults) [x]

- Ethical clearance or permission from an external organisation (see section 8).
  Included [ ] or
  Not required (because no external organisations are involved in the research) [x]

- Original and/or pre-existing questionnaire(s) and test(s) you intend to use.
  Included [x] or
  Not required (because you are not using pre-existing questionnaires or tests) [ ]

- Interview questions for qualitative studies.
  Included [ ] or
  Not required (because you are not conducting qualitative interviews) [x]

- Visual material(s) you intend showing participants.
  Included [x] or
  Not required (because you are not using any visual materials) [ ]

2. Your details

2.1 Your name: Heidemarie Grafahrend

2.2 Your supervisor's name: Dr Matthew Jones Chesters

2.3 Title of your programme: Professional Doctorate in Clinical Psychology

2.4 UEL assignment submission date (stating both the initial date and the resit date):
May 2021

3. Your research

Please give as much detail as necessary for a reviewer to be able to fully understand the nature and details of your proposed research.

3.1 The title of your study: Implicit Biases towards Minority Groups in the UK

3.2 Your research question:

Implicit biases have been found to influence behaviour in health and mental healthcare setting. Implicit biases might have a direct impact on the quality of care people are experiencing especially when they are from a minority group. Clinical psychologists are trained to work in a wide range of healthcare settings. The code of conduct for psychologists aims to encourage psychologist to treat others with respect and in a fair manner (British Psychological Society, 2018). However, there are indications that clinical psychologists show the same implicit

biases as the general population. Explicit and implicit biases can have an impact on the provision and delivery of health and mental health care.

The Implicit Association Test (IAT) (A. G. Greenwald et al., 1998) has been widely used to investigate implicit biases. The IAT assesses the strength of associations between target categories (e.g. male vs female) and attribute categories (e.g. good or bad) (Teige-Mocigemba et al., 2016). Participants response time to categorise stimuli representing the categories are measured. The underlying assumption is that participants will be faster to categorise stimuli where the target and attribute categories are closely associated in their mind than when they are not.

The IAT has shown to be a good and reliable measure of implicit attitudes and has been used extensively for research (Lane et al., 2007; Nosek, Greenwald, et al., 2007; Teige-Mocigemba et al., 2016). It has been suggested that the IAT's best application might be in education, where it can be used to improve awareness of automatic biases that the individual would not usually be aware of and might want to rectify (Nosek, Greenwald, et al., 2007). The IAT has shown good internal consistency (Lane et al., 2007) and captures construct-related variance on an individual and group level (Teige-Mocigemba et al., 2016). A meta-analysis of 184 studies suggested that the IAT might be more predictive of socially sensitive behaviours (e.g. interracial and intergroup), whereas explicit measures might be more predictive for socially acceptable attitudes as brand liking in consumer behaviour (Greenwald et al., 2009).

In the US research into implicit attitudes of health care professionals, including trainee psychologists, has shown that implicit biases are found in these groups (S. R. Jackson, 2014). However, so far very little research has been conducted to evaluate this more broadly or for a UK sample. One unpublished study by a UK clinical psychology trainee investigated implicit attitudes of qualified and trainee clinical psychologist when compared to the general population using the original IAT stimuli (Blencowe, 2017) looking at biases in gender, sexuality, disability, skin-tone and age. In a follow up study, another UK clinical psychology trainee built on this by developing new stimuli for the UK (Hearn, 2018). The results are suggestive of a broadly similar trend between trainee clinical psychologists and the general population.

However, limitations of these studies were that the sample size was small and that the stimulus sets used were derived from the rather old and out-dated US-based materials. If the IAT is especially useful in educational settings, it seems opportune to evaluate implicit biases in trainee clinical psychologists in the UK. To do so, UK-relevant stimuli (images and words) ought to be developed and used, and for these purposes should be validated using a large UK sample before use.

Thus, the aims of this study are twofold.

- First, to develop and validate appropriate stimuli for UK version of IATs, addressing biases based on gender, sexuality, disability, skin-tone and age (Study 1).

- Second, to evaluate implicit biases to age, disability, gender, skin-tone and sexuality that might be present in samples of trainee clinical psychologists and the UK general population (Study 2).

3.3 Design of the research:

The study will use a quantitative, quasi-experimental between groups design.

Study 1
An online survey will be used to validate stimuli sets for the age, disability, skin-tone and sexuality IAT in a general population sample. The best validated stimulus sets for each of the above IAT and the original gender-attitude IAT will be used in the second phase.

Study 2
The dependent variables will be participants scores for each measure of implicit and explicit attitudes towards age, disability, gender, skin-tone, and sexuality. Participant type (general population or trainee clinical psychologist) will be the independent variable. The relationship between implicit and explicit measures will be explored using a correlational design.

3.4 Participants:

Study 1

For the first phase of the study, testing the appropriateness of the suggested stimuli, at least 100 members of the general population will be recruited. Participants need to be over 18 years old, live in the United Kingdom and have proficient English to understand the task requirements.

Study 2

In the second phase of this study the aim is to recruit at least 67 trainee clinical psychologists and 67 non-psychologist adults per IAT. Participants are required to be residents in the United Kingdom with proficient English language ability to understand the task requirement and be 18 years or older.

3.5 Recruitment:

Study 1

Recruitment will be online via social media (e.g., Facebook, Twitter, WhatsApp) and email .

Study 2

Information about the second part of the study will be posted in clinical psychology forums as well as recruiting online via social media (e.g Facebook, Twitter, WhatsApp) and email.

3.6 Measures, materials, or equipment:

Implicit Bias

The Implicit Associations Test (IAT) (Greenwald et al., 1998) is going to be employed in this study. The aim of the IAT is to measure relative strength of association between pairs in a category (e.g. young and old) and attribute concepts (e.g. pleasant or unpleasant). The IAT measures the difference in response time when responding to combinations of the category and value labels. The assumptions being that it takes participants longer to respond when the combination does not reflect their biases.

Study 1

New stimuli will be developed for the skin-tone, disability, and sexuality categories to redress previously acknowledged limitations and make them more relevant. For the age IAT two previously developed sets of stimuli will be validated. The survey will be developed and displayed using Qualtrics.

Study 2

The best validated stimuli sets from Study 1 will be used in this study. For the gender-attitude IAT (A. G. Greenwald et al., 2000) the original set of stimuli will be used and the study will utilise word stimuli as suggested by the project (Nosek et al., 2007).

Explicit Bias

To establish self-reported attitudes towards each of the target items participants will be asked how warm or cold they feel towards the target items e.g. young people and then how warm or cold they feel towards old people on a 9- point scale (Nosek & Smyth, 2007).

3.7 Data collection:

Study 1

This study will be online. Recruitment will be via social media, online forums, and email. The link to the study will allow potential participants to access information about the aims and procedures of the study. Participants will be invited to read the study information, before being asked to provide limited demographic information about themselves.

Participants will be asked to rate how much different sets of stimuli reflect the categories skin-tone, disability, sexuality, and age on a Likert Scale before being asked to justify their preference in an open text box. They will have the opportunity to provide their email address to take part in a prize draw for £20 Amazon vouchers.

Study 2

This study will be online. Recruitment will be via social media, online forums, and email. The link to the study will allow potential participants to access information about the aims and procedures of the study. Participants will be invited to read the study information, before being asked to provide limited demographic information about themselves.

Participants will be asked to participate in 5 separate IATs. The procedure follows closely that used by Project Implicit at Harvard University. Participant's explicit attitudes to each of the categories will be measured. Participants are required to rapidly classify stimuli (either words, pictures, or symbols) that represent a category and attribute by using two buttons on the computer keyboard. It is anticipated that it will take no longer than 35 minutes to complete all five IATs, however, participants can choose not to complete all five tests. Feedback will be provided after each IAT and a debrief will be offered. Additional, participants can take part in a prize draw to win £20 Amazon vouchers.

3.8 Data analysis:

Study 1

The data of the survey will be analysed using descriptive statistics.

Study 2

To evaluate and compare the implicit attitudes of trainee and non-psychologists in the UK, a series of 5 one-way ANCOVA with group as the between-subjects factor (control, trainee) and IAT score as the dependent variable will be used.

To explore whether implicit attitudes among trainee clinical psychologists are associated with their own demographic statuses, a series of multiple linear regression analyses will be conducted. Predictor variables will be: age, ethnicity, sexuality, and geographic location.

The relationships between implicit and explicit measures will be explored using a cross-sectional correlational design.

4. Confidentiality and security

It is vital that data are handled carefully, particularly the details about participants. For information in this area, please see the UEL guidance on data protection, and also the UK government guide to data protection regulations.

4.1 Will participants data be gathered anonymously?

Yes

Study 1

Participants data will be gathered anonymously. They will be allocated a unique identifying number using cookies on the participants computers. These cookies will not store any information regarding participants preferences. They are only used to avoid participants taking part in the study more than once. If participants choose to take part in the prize draws their email addresses will be stored separately.

Study 2

Participants data will be gathered anonymously. They will be allocated a unique identifying number using cookies on the participants computers. These cookies will not store any information regarding participants reaction times or results. They are only used to avoid participants taking part in the study more than once, or if they return to the study to complete another IAT to avoid repetition. If participants choose to take part in the prize draws their email addresses will be stored separately.

4.2 If not (e.g., in qualitative interviews), what steps will you take to ensure their anonymity in the subsequent steps (e.g., data analysis and dissemination)? **N/A**

4.3 How will you ensure participants details will be kept confidential?

Study 1

The first survey is online, and answers will be anonymous. This means that no emails, names, IP, or geolocation data will be collected. HTTPS survey links (also known as secure survey links) will be used, giving Secure Sockets Layer (SSL) Encryption while a questionnaire is being completed.

Study 2

For the second part participants will be allocated a unique identifying number to collate their results in the study database. No identifying information will be collected when obtaining consent or as part of the research tasks. The data stored on cookies on participants' computers will not contain any study results or reaction time data. Cookies will solely be used to store study progress information to minimize the possibility of participants completing the study more

than once and to ensure participants who complete the study over more than one session do not complete the same task twice.

If participants choose to take part in the prize draws their email addresses will be stored separately.

4.4 How will the data be securely stored?

Study 1

The data will be collected online and stored on an EU-based server, therefore being subject to EU data protection acts and laws.

Study 2

The data will be collected online and stored on an EU-based server, therefore being subject to EU data protection acts and laws.

4.5 Who will have access to the data?

Study 1

Only the researcher and her supervisor will have access to the data.

Study 2

Only the researcher and her supervisor will have access to the data.

4.6 How long will data be retained for?

Study 1

All data collected for this study will be destroyed after three years.

Study 2

All data collected for this study will be destroyed after three years.

5. Informing participants

Please confirm that your information letter includes the following details:

5.1 Your research title: [x]

[x]

5.2 Your research question:

5.3 The purpose of the research: x

5.4 The exact nature of their participation. This includes location, duration, and the tasks etc. involved: x

5.5 That participation is strictly voluntary: x

5.6 What are the potential risks to taking part: x

5.7 What are the potential advantages to taking part: x

5.8 Their right to withdraw participation (i.e., to withdraw involvement at any point, no questions asked): x

5.9 Their right to withdraw data (usually within a three-week window from the time of their participation): x

5.10 How long their data will be retained for: x

5.11 How their information will be kept confidential: x

5.12 How their data will be securely stored: x

5.13 What will happen to the results/analysis: x

5.14 Your UEL contact details: x

5.15 The UEL contact details of your supervisor: x

Please also confirm whether:

5.16 Are you engaging in deception? If so, what will participants be told about the nature of the research, and how will you inform them about its real nature. **No**

5.17 Will the data be gathered anonymously? If NO what steps will be taken to ensure confidentiality and protect the identity of participants? **Yes**

5.18 Will participants be paid or reimbursed? If so, this must be in the form of redeemable vouchers, not cash. If yes, why is it necessary and how much will it be worth?

Study 1

Participants are invited to take part in a prize draw for one Amazon voucher of £20. Offering an incentive of this nature is common to online research and is aimed to be a recognition of the participants' times, as well as an incentive to complete the tests.

Study 2

Participants are invited to take part in a prize draw for four Amazon vouchers of £20. Offering an incentive of this nature is common to online research and is aimed to be a recognition of the participants' times, as well as an incentive to complete the tests.

6. Risk Assessment

Please note: If you have serious concerns about the safety of a participant, or others, during the course of your research please see your supervisor as soon as possible. If there is any unexpected occurrence while you are collecting your data (e.g. a participant or the researcher injures themselves), please report this to your supervisor as soon as possible.

6.1 Are there any potential physical or psychological risks to participants related to taking part? If so, what are these, and how can they be minimised?

Study 1

No risks identified.

Study 2

Participants might find the feedback after taking part in an IAT challenging, therefore this will be brought to their attention in the information sheet before the start of the study. External sources of support will be provided after participation as well as the email of the researcher and her supervisor should they wish to communicate their concern.

6.2 Are there any potential physical or psychological risks to you as a researcher? If so, what are these, and how can they be minimised?

6.3 Have appropriate support services been identified in the debrief letter? If so, what are these, and why are they relevant?

Study 1

Yes, the debrief form will thank the participants for their participation, summaries the aims of the study and provide further information about external organisations that could provide help if they felt affected by their feedback but also put the results into wider context. Sources of support are the participant's GP in the first instance for local support; or in an emergency to seek help via A&E; information for the Samaritans, Sane and Mind are provided should participants need to talk about mental health issues in confidence.

Study 2

Yes, the debrief form will thank the participants for their participation, summaries the aims of the study and provide further information about external organisations that could provide help if they felt affected by their feedback but also put the results into wider context. Sources of support are: the participant's GP in the first instance for local support; or in an emergency to seek help via A&E; information for the Samaritans, Sane and Mind are provided should participants need to talk about mental health issues in confidence.

6.4 Does the research take place outside the UEL campus? If so, where?
Online research

If so, a 'general risk assessment form' must be completed. This is included below as appendix D. Note: if the research is on campus, or is online only (e.g., a Qualtrics survey), then a risk assessment form is not needed, and this appendix can be deleted. If a general risk assessment form is required for this research, please tick to confirm that this has been completed:

☐

6.5 Does the research take place outside the UK? If so, where? **No**

If so, in addition to the 'general risk assessment form', a 'country-specific risk assessment form' must be also completed (available in the Ethics folder in the Psychology Noticeboard), and included as an appendix. [Please note: a country-specific risk assessment form is not needed if the research is online only (e.g., a Qualtrics survey), regardless of the location of the researcher or the participants.] If a 'country-specific risk assessment form' *is* needed, please tick to confirm that this has been included:

☐

However, please also note:

- For assistance in completing the risk assessment, please use the AIG Travel Guard website to ascertain risk levels. Click on 'sign in' and then 'register here' using policy # 0015865161. Please also consult the Foreign Office travel advice website for further guidance.

- For *on campus* students, once the ethics application has been approved by a reviewer, all risk assessments for research abroad must then be signed by the Head of School (who may escalate it up to the Vice Chancellor).

- For *distance learning* students conducting research abroad in the country where they currently reside, a risk assessment must be also carried out. To minimise risk, it is recommended that such students only conduct data collection on-line. If the project is deemed low risk, then it is not necessary for the risk assessments to be signed by the Head of School. However, if not deemed low risk, it must be signed by the Head of School (or potentially the Vice Chancellor).

- Undergraduate and M-level students are not explicitly prohibited from conducting research abroad. However, it is discouraged because of the inexperience of the students and the time constraints they have to complete their degree.

7. Disclosure and Barring Service (DBS) certificates

7.1 Does your research involve working with children (aged 16 or under) or vulnerable adults (*see below for definition)?

No

7.2 If so, you will need a current DBS certificate (i.e., not older than six months), and to include this as an appendix. Please tick to confirm that you have included this: ☐

Alternatively, if necessary for reasons of confidentiality, you may email a copy directly to the Chair of the School Research Ethics Committee. Please tick if you have done this instead: ☐

Also, alternatively, if you have an Enhanced DBS clearance (one you pay a monthly fee to maintain) then the number of your Enhanced DBS clearance will suffice. Please tick if you have included this instead: ☐

7.3 If participants are under 16, you need 2 separate information letters, consent form, and debrief form (one for the participant, and one for ☐

their parent/guardian). Please tick to confirm that you have included these:

7.4 If participants are under 16, their information letters consent form, and debrief form need to be written in age-appropriate language. ☐

Please tick to confirm that you have done this

* You are required to have DBS clearance if your participant group involves (1) children and young people who are 16 years of age or under, and (2) 'vulnerable' people aged 16 and over with psychiatric illnesses, people who receive domestic care, elderly people (particularly those in nursing homes), people in palliative care, and people living in institutions and sheltered accommodation, and people who have been involved in the criminal justice system, for example. Vulnerable people are understood to be persons who are not necessarily able to freely consent to participating in your research, or who may find it difficult to withhold consent. If in doubt about the extent of the vulnerability of your intended participant group, speak to your supervisor. Methods that maximise the understanding and ability of vulnerable people to give consent should be used whenever possible. For more information about ethical research involving children click here.

8. Other permissions

9. Is HRA approval (through IRAS) for research involving the NHS required? Note: HRA/IRAS approval is required for research that involves patients or Service Users of the NHS, their relatives, or carers as well as those in receipt of services provided under contract to the NHS.

NO If yes, please note:

- You DO NOT need to apply to the School of Psychology for ethical clearance if ethical approval is sought via HRA/IRAS (please see further details here).
- However, the school *strongly discourages* BSc and MSc/MA students from designing research that requires HRA approval for research involving the NHS, as this can be a very demanding and lengthy process.
- If you work for an NHS Trust and plan to recruit colleagues from the Trust, permission from an appropriate manager at the Trust must be sought, and HRA approval will probably be needed (and hence is likewise strongly discouraged). If the manager happens to not require HRA approval, their written letter of approval must be included as an appendix.

- IRAS approval is not required for NHS staff even if they are recruited via the NHS (UEL ethical approval is acceptable). However, an application will still need to be submitted to the HRA in order to obtain R&D approval. This is in addition to a separate approval via the R&D department of the NHS Trust involved in the research.
- IRAS approval is not required for research involving NHS employees when data collection will take place off NHS premises, and when NHS employees are not recruited directly through NHS lines of communication. This means that NHS staff can participate in research without HRA approval when a student recruits via their own social or professional networks or through a professional body like the BPS, for example.

9.1 Will the research involve NHS employees who will not be directly recruited through the NHS, and where data from NHS employees will not be collected on NHS premises?

Yes, almost all trainee clinical psychologists are employees of the NHS. However, they will not be recruited via the NHS trust but via their education provider. Furthermore, the survey is conducted anonymously online, there will be no use of NHS resources, or visits to NHS facilities. Participants can undertake the survey online in their own time.

9.2 If you work for an NHS Trust and plan to recruit colleagues from the Trust, will permission from an appropriate member of staff at the Trust be sought, and will HRA be sought, and a copy of this permission (e.g., an email from the Trust) attached to this application?
N/A

9.3 Does the research involve other organisations (e.g. a school, charity, workplace, local authority, care home etc.)? If so, please give their details here. No

Furthermore, written permission is needed from such organisations if they are helping you with recruitment and/or data collection, if you are collecting data on their premises, or if you are using any material owned by the institution/organisation. If that is the case, please tick here to confirm that you have included this written permission as an appendix:

In addition, before the research commences, once your ethics application has been approved, please ensure that you provide the organisation with a copy of the final, approved ethics application. Please then prepare a version of the consent form for the organisation themselves to sign. You can adapt it by replacing words such as ‘my’ or ‘I’ with ‘our organisation,’

or with the title of the organisation. This organisational consent form must be signed before the research can commence.

Finally, please note that even if the organisation has their own ethics committee and review process, a School of Psychology SREC application and approval is still required. Ethics approval from SREC can be gained before approval from another research ethics committee is obtained. However, recruitment and data collection are NOT to commence until your research has been approved by the School and other ethics committee/s as may be necessary.

9. Declarations

Declaration by student: I confirm that I have discussed the ethics and feasibility of this research proposal with my supervisor.

Student's name (typed name acts as a signature): Heidemarie Grafahrend

Student's number: 1826615

Date: 06/08/2020

As a supervisor, by submitting this application, I confirm that I have reviewed all parts of this application, and I consider it of sufficient quality for submission to the SREC committee.

APPENDIX C: STUDY 1 INFORMATION PAGE

Information Sheet for the Survey

My name is Heidemarie Grafahrend and I am a Trainee Clinical Psychologist studying at the University of East London. I would like to invite you to take part in a research study into “Implicit Biases towards Minority Groups in the UK”. The study is part of my Professional Doctorate in Clinical Psychology. Before you decide, you need to understand why the research is being conducted and what it would involve. Please read through the following information carefully before deciding if you would like to take part in the research. Talk to others about the study if you wish. If something needs clarification or you have any unanswered questions, please do not hesitate to contact me using the details provided.

What are the aims of the study?

This study aims help develop better ways to measure attitudes towards minority groups. Attitudes are the feeling we have about things: whether it is good or bad, pleasant, or unpleasant, positive, or negative. Attitudes we are not aware of can affect our behaviour. It is important that the examples (stimuli) we use to represent the categories are reflective of the category. Thus, in this study you will be invited to rate which kind of stimuli sets are better in reflecting certain categories for example age, skin tone, sexuality, and disability. The findings from this research will then form new and better implicit association tests regarding minorities for the UK.

Why do you want me to take part?

I am looking to recruit a range of individuals who live in the UK to gain an understanding of the views of the general public on these issues. To take part in the study, you will need to be at least 18 years of age, live in the UK, and have enough fluency in English to understand and respond to written and verbal instructions.

Do I have to take part?

No, taking part is entirely your choice. If you do decide to take part you can withdraw from the study at any time without giving a reason. If you have not finished the survey yet you can withdraw by closing the browser window and your data will be deleted. If you have already completed the study, you can contact me up until three weeks of taking part with your study identifier so that your data can be deleted. You do not have to give a reason.

What would taking part involve?

If you decide to take part, you will be asked to provide some general information about yourself (e.g. age) and to answer the questions about how much the stimuli represent the given category. It is estimated that the study will take no longer than 20 minutes.

Will my information remain confidential?

All the information you provide will remain confidential and the study database will only be shared with the researcher and supervisor. No personally identifiable information will be collected as part of the study. You will be assigned a unique identifying number which will be displayed on the first page of the study. You are encouraged to write it down. This number will be stored in the study database where your responses will be recorded. It will be the only way in which your data can be linked to you if you wish to withdraw from the study. The database will be stored in a password protected secure network folder.

What will happen to the information that you provide?

The results of the study are planned to be published, with only anonymised information included. Published anonymised data will be readily accessible to the public. All identifiable information will be kept securely, with hard copies stored in a locked cabinet on site and electronic data encrypted. Identifiable information will be destroyed at the end of the study, with anonymised electronic data kept for up to three years post study, for publication purposes. As information is grouped together individual feedback cannot be provided, however we are able to provide feedback of group results on request.

Who can I contact about the study?

If you have any further questions about the study, please contact:

Researcher: Heidemarie Grafahrend, Trainee Clinical Psychologist, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: u1826615@uel.ac.uk

For concerns or complaints about how the study has been conducted, please contact:

Supervisor: Dr Matthew Jones Chesters, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: m.h.jones-chesters@uel.ac.uk

OR

Chair of the School of Psychology Research Ethics Sub-committee: Dr Tim Lomas, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: t.lomas@uel.ac.uk

Thank you for taking the time to read this information. Please save or print this information for your records.

If you would like to take part in the study, please click continue.

APPENDIX D: STUDY 1 CONSENT FORM

Consent to participate in a research study

Evaluating stimuli for Implicit Association Tests

I confirm I have read and understood the information page. I have been given the opportunity to ask questions about the study and have received satisfactory answers. I understand that my involvement in the study is voluntary. I understand that I can withdraw from the study up to the three weeks of taking part without giving a reason.

Please tick [ ]

I understand that if I withdraw during the study all the information I provided will be deleted.

Please tick [ ]

I understand that I will not be able to withdraw my responses if I am unable to provide my unique study identifier.

Please tick [ ]

I understand that the data I provide will be anonymous and will be confidential between the researcher and supervisor.

Please tick [ ]

I understand that all information about the study will be destroyed after 3 years.

Please tick [ ]

I understand that the results of the study will be written up as a doctoral thesis and submitted to an academic journal. All the information you provide will remain anonymous.

Please tick [ ]

I hereby freely and fully consent to participate in the study, which has been fully explained to me. Please indicate your consent by clicking 'YES' below.

APPENDIX E: STUDY 1 DEBRIEF FORM

The survey you just completed aims to establish which stimuli sets best represent a given category, e.g. age or skin tone. The results from this survey will be used to establish better stimuli for research into Implicit Biases in the UK using the Implicit Association Test.

Thank you for your participation!

If you would like to be entered into a random prize draw for a £20 Amazon voucher, please enter your email address. _____ (This information will not be linked to your study responses).

Sources of support

If you feel distressed during or after the study, I encourage you to discuss this with your GP. You could also discuss this with the clinician who is supporting you if you are accessing mental health services. The following charities may also be useful for you:

Samaritans - provide 24-hour support if you would like to talk to someone about how you are feeling.

Contact number- 116 123 Website- www.samaritans.org

Mind - provide information and support about mental health problems from 9am-6pm Monday-Friday.

Contact number- 0300 123 3393 Website- www.mind.org.uk

Sane - provide a national out-of-hours helpline (from 6pm-11pm) for individuals experiencing distress.

Contact number- 0300 304 7000 Website- www.sane.org.uk

A detailed list of other self-help organisations can be found at: www.self-help.org.uk

In an emergency please call for an ambulance or go to your nearest A&E department

Please save or print this information for your records.

APPENDIX F: STIMULI FOR THE CATEGORIES DISABILTY AND ABILITY

Disability









Ability













APPENDIX G: STIMULI FOR THE CATEGORIES HOMOSEXUALITY AND HETEROSEXUALITY

Homosexuality









Heterosexuality









APPENDIX H: STIMULI FOR THE CATEGORIES DARK AND LIGHT SKIN-TONE

Dark Skin-Tone

Light Skin-Tone










APPENDIX I: INFORMATION PAGE MAIN STUDY

My name is Heidemarie Grafahrend and I am a Trainee Clinical Psychologist studying at the University of East London. I would like to invite you to take part in a research study “Implicit Biases towards Minority Groups in the UK”. The study is part of my Professional Doctorate in Clinical Psychology. Before you decide, you need to understand why the research is being conducted and what it would involve. Please read through the following information carefully before deciding if you would like to take part in the research. Talk to others about the study if you wish. If something needs clarification or you have any unanswered questions, please do not hesitate to contact me using the details provided.

What are the aims of the study?

Attitudes are the feeling we have about things: whether it is good or bad, pleasant, or unpleasant, positive, or negative. Attitudes we are not aware of can affect our behaviour. At the moment, there is very little research about implicit attitudes among trainee clinical psychologists. This study aims to compare implicit and explicit attitudes about people among trainee clinical psychologists and members of the general population. The findings from this research may help raise awareness of implicit attitudes and the implications for clinical psychology practice.

Why do you want me to take part?

You have been asked to take part because we would like to gain an understanding of implicit attitudes among psychologists and non-psychologists. To take part in the study, you will need to be at least 18 years of age, live in the UK, and have enough fluency in English to understand and respond to written and verbal instructions.

Do I have to take part?

No, taking part is entirely your choice. If you do decide to take part you can withdraw from the study at any time without giving a reason. If you have not finished any of the tasks yet you can withdraw by closing the browser window and your data will be deleted. If you have already completed part of the study, you can contact me up until three weeks of taking part with your study identifier so that your data can be deleted. You do not have to give a reason.

What would taking part involve?

If you decide to take part, you will be asked to provide some general information about yourself (e.g. age) and to complete at least one of five Implicit Associations Tests (IAT). These tests will look at attitudes towards sexuality, skin tone, age, disability, and gender. It is estimated that the study will take no longer than 35 minutes if you complete all five IATs.

Are there any disadvantages or risks to taking part?

You will be asked to pair positive and negative words together with certain groups for each task. Some people may find the pairings they are asked to make challenging and may feel uncomfortable associating certain words with groups of people. At the end of each section you will receive a summary of your results with possible interpretations based on the research that has already been done. However, the University of East London and the researchers involved in this study make no claim for the validity of these suggested interpretations. Some people may find these interpretations challenging. Information about sources of support will also be provided should you find the suggested interpretations distressing.

Are there any benefits to taking part and what will happen to the results?

Taking part will help develop our understanding of implicit bias among the UK general population, as well as UK psychologists. This may have implications for training and improvements in clinical practice. In appreciation of your contribution, you will also be invited to enter a prize draw to win four £20 Amazon vouchers. The results of the study will be written up as a doctoral thesis and submitted to an academic journal. The results may also be used in conference presentations. All the information you provide will remain anonymous. All the data collected as part of this study will be destroyed after 3 years.

Will my information remain confidential?

All the information you provide will remain confidential and the study database will only be shared with the researcher and supervisor. No personally identifiable information will be collected as part of the study. You will be assigned a unique identifying number which will be displayed on the first page of the study. You are encouraged to write it down. This number will be stored in the study database where your responses will be recorded. It will be the only way in which your data can be linked to you if you wish to withdraw from the study. The database will be stored in a password protected secure network folder.

What will happen to the information that you provide?

The results of the study are planned to be published, with only anonymised information included. Published anonymised data will be readily accessible to the public. All identifiable information will be kept securely, with hard copies stored in a locked cabinet on site and electronic data encrypted. Identifiable information will be destroyed at the end of the study, with anonymised electronic data kept for up to three years post study, for publication purposes. As information is grouped together individual feedback cannot be provided, however we are able to provide feedback of group results on request.

Contact details required to enter the prize draw (i.e. email address) will be stored separately from the research database and will not be linked to your unique study identifier. A cookie will also be saved on your computer. Cookies are small text files saved on your computer when you first visit a website. They help websites recognise you when you come back. The cookie saved on your computer will only store your study identifier and progress information. Your responses will not be stored in this cookie. The use of cookies is necessary to ensure you are not asked to complete the same test more than once and to enable you to complete the tests over more than one session if you choose to.

Who can I contact about the study?

If you have any further questions about the study, please contact:

Researcher: Heidemarie Grafahrend, Trainee Clinical Psychologist, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: u1826615@uel.ac.uk

For concerns or complaints about how the study has been conducted, please contact:

Supervisor: Dr Matthew Jones Chesters, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: m.h.jones-chesters@uel.ac.uk

Chair of the School of Psychology Research Ethics Sub-committee: Dr Tim Lomas, School of Psychology, University of East London, Water Lane, London E15 4LZ Email: t.lomas@uel.ac.uk

Thank you for taking the time to read this information. Please save or print this information for your records.

If you would like to take part in the study, please click continue.

APPENDIX J: CONSENT FORM MAIN STUDY

“Implicit Biases towards Minority Groups in the UK”

I confirm I have read and understood the information page. I have been given the opportunity to ask questions about the study and have received satisfactory answers. I understand that my involvement in the study is voluntary. I understand that I can withdraw from the study up to the three weeks of taking part without giving a reason.

Please tick [ ]

I understand that if I withdraw during the study all the information I provided will be deleted.

Please tick [ ]

I understand that I will not be able to withdraw my responses for completed tests if I am unable to provide my unique study identifier.

Please tick [ ]

I understand that the data I provide will be anonymous and will be confidential between the researcher and supervisor.

Please tick [ ]

I understand that a cookie will be installed on my computer to record my progress through the study and that it will not store any of my responses.

Please tick [ ]

I understand that all information about the study will be destroyed after 3 years.

Please tick [ ]

I understand that the results of the study will be written up as a doctoral thesis and submitted to an academic journal. All the information you provide will remain anonymous.

Please tick [ ]

I hereby freely and fully consent to participate in the study, which has been fully explained to me. Please indicate your consent by clicking 'YES' below.

APPENDIX K: DEBRIEF MAIN STUDY (Example Age IAT)

The test you just completed is called the Implicit Association Test. You categorised good and bad words with representations of young and old people.

Here is your result: The data suggest a slight automatic preference for young people over older people.

Your result is described as an “automatic preference for young people over older people” if you were faster responding when young and good are assigned to the same response key than when old and good are classified with the same key. Your score is described as an “automatic preference for older people over younger people” if the opposite occurred. Your automatic preference may be described as: “slight”, “moderate”, “strong” or “no preference”. This indicates the strength of your automatic preference. The IAT requires a certain number of correct responses to provide results. If you made too many errors, you would get the feedback that there were too many errors to determine a result. Note that the IAT result is based on the sorting task and not on the questions that you answered. If you have questions about your IAT performance or score, please visit https://implicit.harvard.edu/implicit/iatdetails.html. There you will find answers to frequently asked questions, links to related research and additional information about implicit associations. You may also email me with questions or comments at u1826615@uel.ac.uk.

Thank you for your participation

If you would like to be entered into a random prize draw for four £20 Amazon vouchers, please enter your email address. _____ (This information will not be linked to your study responses).

Sources of support

If you feel distressed during or after the study, I encourage you to discuss this with your GP. You could also discuss this with the clinician who is supporting you if you are accessing mental health services. The following charities may also be useful for you:

Samaritans - provide 24-hour support if you would like to talk to someone about how you are feeling.

Contact number- 116 123

Website- www.samaritans.org

Mind - provide information and support about mental health problems from 9am-6pm Monday-Friday.

Contact number- 0300 123 3393

Website- www.mind.org.uk

Sane - provide a national out-of-hours helpline (from 6pm-11pm) for individuals experiencing distress.

Contact number- 0300 304 7000

Website- www.sane.org.uk

A detailed list of other self-help organisations can be found at: www.self-help.org.uk

In an emergency please call for an ambulance or go to your nearest A&E department

Please save or print this information for your records.

APPENDIX L: SELF-RATED ATTITUDE MEASURES

Skin-Tone Feelings Thermometer

How warm or cold do you feel towards dark skinned people?	How warm or cold do you feel towards light skinned people?
10 – Extremely Warm	10 – Extremely Warm
9 – Very Warm	9 – Very Warm
8 – Moderately Warm	8 – Moderately Warm
7 – Somewhat Warm	7 – Somewhat Warm
6 – Slightly Warm	6 – Slightly Warm
5 - Neither Warm nor Cold	5 - Neither Warm nor Cold
4 – Slightly Cold	4 – Slightly Cold
3 – Somewhat Cold	3 – Somewhat Cold
2 – Moderately Cold	2 – Moderately Cold
1 – Very Cold	1 – Very Cold
0 – Extremely Cold	0 – Extremely Cold

Age Feeling Thermometer

How warm or cold do you feel towards Old People?	How warm or cold do you feel towards Young People?
10 – Extremely Warm	10 – Extremely Warm
9 – Very Warm	9 – Very Warm
8 – Moderately Warm	8 – Moderately Warm
7 – Somewhat Warm	7 – Somewhat Warm
6 – Slightly Warm	6 – Slightly Warm
5 - Neither Warm nor Cold	5 - Neither Warm nor Cold
4 – Slightly Cold	4 – Slightly Cold
3 – Somewhat Cold	3 – Somewhat Cold
2 – Moderately Cold	2 – Moderately Cold
1 – Very Cold	1 – Very Cold
0 – Extremely Cold	0 – Extremely Cold

Disability Feeling Thermometer

How warm or cold do you feel towards disabled-bodied people?	How warm or cold do you feel towards able-bodied people?
10 – Extremely Warm	10 – Extremely Warm
9 – Very Warm	9 – Very Warm
8 – Moderately Warm	8 – Moderately Warm
7 – Somewhat Warm	7 – Somewhat Warm
6 – Slightly Warm	6 – Slightly Warm
5 - Neither Warm nor Cold	5 - Neither Warm nor Cold
4 – Slightly Cold	4 – Slightly Cold
3 – Somewhat Cold	3 – Somewhat Cold
2 – Moderately Cold	2 – Moderately Cold
1 – Very Cold	1 – Very Cold
0 – Extremely Cold	0 – Extremely Cold

Sexuality Feelings Thermometer

How warm or cold do you feel towards gay or lesbian people?	How warm or cold do you feel towards straight people?
10 – Extremely Warm	10 – Extremely Warm
9 – Very Warm	9 – Very Warm
8 – Moderately Warm	8 – Moderately Warm
7 – Somewhat Warm	7 – Somewhat Warm
6 – Slightly Warm	6 – Slightly Warm
5 - Neither Warm nor Cold	5 - Neither Warm nor Cold
4 – Slightly Cold	4 – Slightly Cold
3 – Somewhat Cold	3 – Somewhat Cold
2 – Moderately Cold	2 – Moderately Cold
1 – Very Cold	1 – Very Cold
0 – Extremely Cold	0 – Extremely Cold

Gender – Attitude Thermometer

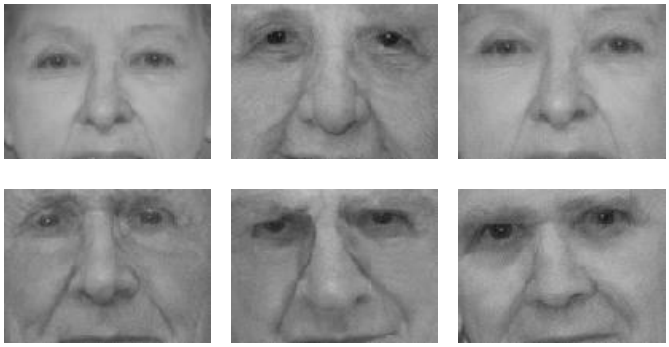
How warm or cold do you feel towards women?	How warm or cold do you feel towards men?
10 – Extremely Warm	10 – Extremely Warm
9 – Very Warm	9 – Very Warm
8 – Moderately Warm	8 – Moderately Warm
7 – Somewhat Warm	7 – Somewhat Warm
6 – Slightly Warm	6 – Slightly Warm
5 - Neither Warm nor Cold	5 - Neither Warm nor Cold
4 – Slightly Cold	4 – Slightly Cold
3 – Somewhat Cold	3 – Somewhat Cold
2 – Moderately Cold	2 – Moderately Cold
1 – Very Cold	1 – Very Cold
0 – Extremely Cold	0 – Extremely Cold

APPENDIX M: IAT STIMULI

Gender-Attitude Implicit Association Test Stimuli

Category	Items
Male:	Male, Man, Boy, Son, Sir
Female:	Female, Woman, Girl, Daughter, Lady
Positive:	Joy, Warmth, Gold, Happy, Smile
Negative:	Gloom, Agony, Pain, Stink, Filth

Age Implicit Association Test Stimuli

Category	Items
Good	Lovely, Glorious, Attractive, Spectacular, Delight, Glad, Friendship, Happy
Bad	Annoy, Yucky, Ugly, Poison, Awful, Selfish, Abuse, Hurtful
Old People	
Young People	

Disability Implicit Association Test Stimuli

Category	Items
Good	Excellent, Delightful, Great, Lovely, Perfect, Happy, Honourable, Decent
Bad	Vile, Repulsive, Revolting, Disgusting, Horrid, Rotten, Nasty, Horrible

Disabled








Non-disabled



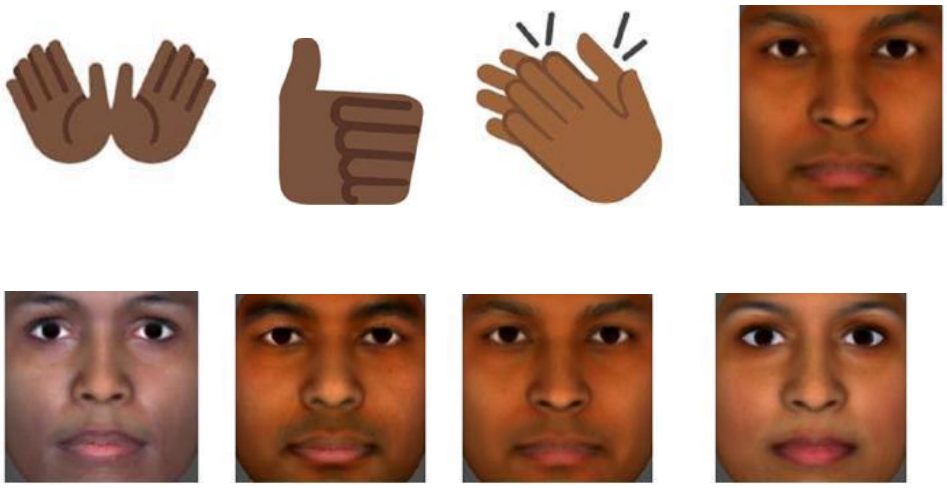




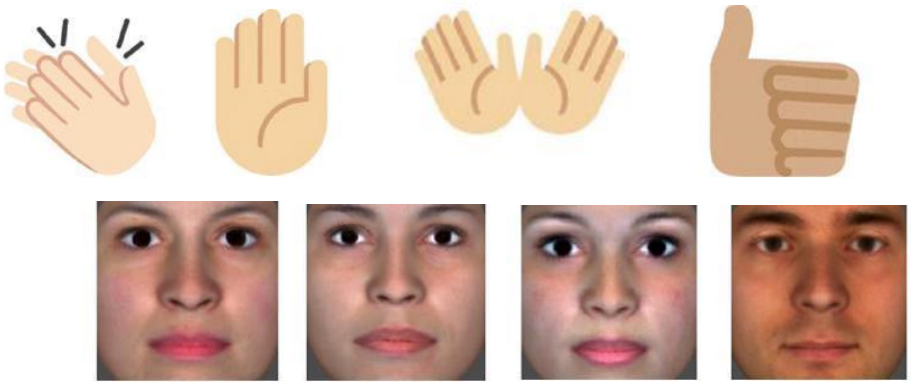

Skin-Tone Implicit Association Test Stimuli

Category	Items
Good	Excellent, Delightful, Great, Lovely, Perfect, Happy, Honourable, Decent
Bad	Vile, Repulsive, Revolting, Disgusting, Horrid, Rotten, Nasty, Horrible

Dark Skin-Tone



Light Skin-Tone

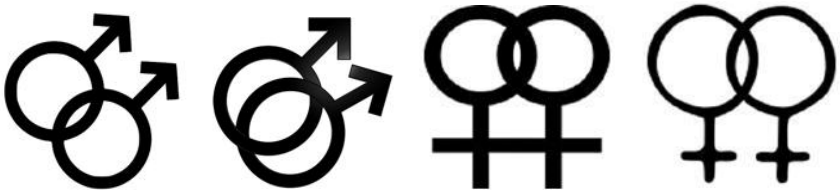


Sexuality Implicit Association Test Stimuli

Category	Items
Good	Excellent, Delightful, Great, Lovely, Perfect, Happy, Honourable, Decent
Bad	Vile, Repulsive, Revolting, Disgusting, Horrid, Rotten, Nasty, Horrible

Homosexual



Heterosexual








APPENDIX N: PARTICIPANTS LOCATION INFORMATION

Table N1

Participants Location Information

	Location	Participant type TCP	Non-TCP	Total
	Bedfordshire	0	1	1
	Berkshire	1	0	1
	Buckinghamshire	1	0	1
	Cheshire	3	1	4
	Cornwall	1	0	1
	Derbyshire	2	2	4
	Devon	0	1	1
	Hampshire	0	1	1
	Hertfordshire	3	1	4
	Kent	1	0	1
	Lancashire	7	0	7
	Leicestershire	5	1	6
	Lincolnshire	2	0	2
	Middlesex	1	1	2
	Norfolk	1	2	3
	Northumberland	1	0	1
	Nottinghamshire	2	0	2
	Oxfordshire	9	0	9
	Suffolk	0	3	3
	Surrey	0	2	2
	Sussex	0	1	1
	Worcestershire	1	0	1
	Yorkshire	5	3	8
	East Lothian	0	1	1
	Lanarkshire	0	1	1
	Caernarfonshire	1	0	1
	Denbighshire	2	0	2
	Flintshire	1	0	1
	Merioneth	0	1	1
	Pembrokeshire	0	1	1
	Greater London	46	21	67
	Greater Manchester	9	1	10
Total		105	46	151

APPENDIX O: PARTICIPANTS AGE HISTOGRAM

Figure O1

Participants Age Box Plot

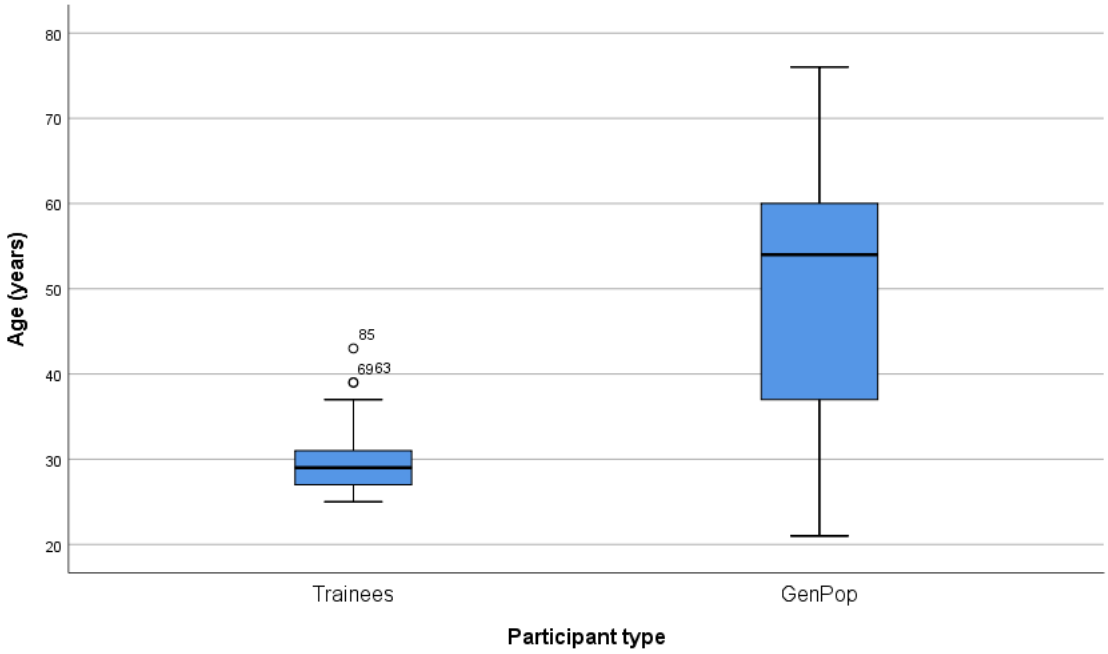


Figure O2

TCP Participants Age Histogram

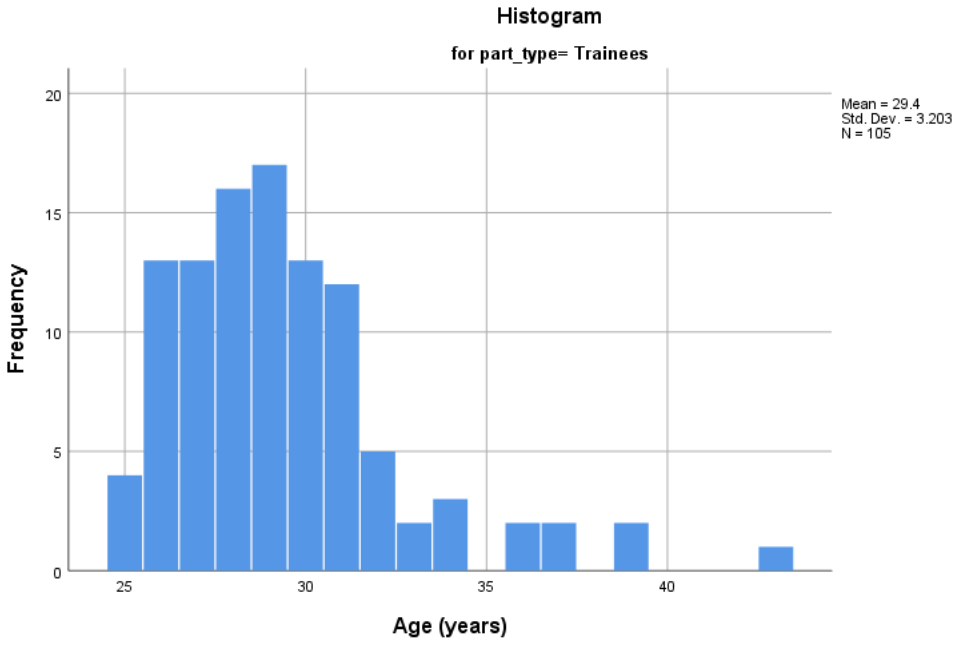


Figure O3

Non-TCP Participants Age Histogram