A cross-cultural study of autism stigma and camouflage in the UK and China

Jiayi Chen

Supervisors: Prof Elizabeth Milne and Dr Megan Freeth

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Department of Psychology

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Abstract

The current PhD thesis is a cross-cultural study between China and the UK, comprising two quantitative studies and one qualitative study, aiming to explore how culture influences the autism stigma and camouflage.

Study 1 (Chapter 2) was a structural equation modelling study that used Chinese and English language versions of questionnaires to measure levels of stigma, cultural orientation and autism-related knowledge in Chinese and British participants. After examining questionnaires validity and cross-cultural consistency, the study's results showed that cultural orientation could influence levels of stigma. Chinese participants had higher levels of autism stigma than the UK (after PSM). More autism-related knowledge and experience can reduce stigma.

Study 2 (Chapter 3) also used two language versions of the questionnaires to measure autism camouflage, broad autism phenotypes and mental health in Chinese and UK participants. The CFA check of the questionnaires questioned the validity and cross-cultural consistency of the CAT-Q and BAPQ. However, subsequent analysis of cross-cultural differences still found that Chinese participants had higher levels of camouflage than in the UK and better mental health at the same camouflage Level (used PSM). Analysis of the mediating and moderating effects found that the camouflage level partially mediated the autistic traits influencing mental health. The cultural background had a moderating effect on autistic traits influencing camouflage.

Study 3 (Chapter 4) conducted a qualitative study on autism camouflage, exploring the differences in understanding of camouflage between Chinese and British participants. Four themes were generated from the content of the interviews: What is camouflage; Motivations for camouflage; Strategies for camouflage; and Consequences of camouflage. These themes and sub-themes are similar to previous British studies, but many differences suggest that the Chinese cultural context influences the understanding of camouflage.

Overall, cultural context plays a vital role in autism stigma and camouflage. Despite its questionable cross-cultural consistency between the English and Chinese versions of the CAT-Q, the current study still makes some valuable comparisons between Chinese and British participants. Subsequent qualitative research explored Chinese participants' experiences of camouflage. Cultural differences may have contributed to the lack of appropriateness of some CAT-Q items for Chinese participants.

Chapter 1 General Introduction

1.1.Autism

1.1.1. What is autism

Autism spectrum condition (ASC), also known as autism, is a neurodevelopmental condition characterised by social communication impairment, interest restriction and behavior repetition. According to The Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the criteria for a diagnosis of autism are 1) persistent difficulties with social communication and interaction across the environment; 2) restricted, repetitive behaviours, interests or activities; 3) symptoms occur at an early stage of development; 4) symptoms result in significant impairment in social, occupational or other areas; and 5) these symptoms cannot be explained by intellectual disability or global developmental delays. The extension below the clinical threshold becomes the Broad Autism Phenotype (BAP), which can refer to more mild autistic symptoms that persist below diagnostic criteria (Sasson et al., 2013). Early studies of BAP focused on relatives of autistic people, but later studies have found that BAP features are also persistently distributed in typically developing populations (Wolff, Narayan & Moyes, 1988; Robinson, 2011; Rubenstein & Chawla, 2018). Happé & Frith (2020) argue that the concept of autism has evolved from discrete to dimensional. They give the example of early autism research focused on the 'pathological' features of autism, intending to help clinicians diagnose autism (Happé & Frith, 2020). In contrast, with the use of the Autism Spectrum Quotient (AQ) measurement

tool and the systematic measurement of subclinical features of autism, the broad autism phenotype was further extended to the general population (Baron-Cohen et al., 2001, Happé & Frith, 2020). Scores on autism features like the Autism Spectrum Quotient (AQ) show that differences between the subclinical autism individuals and autism diagnosis are smoothly continuous and normally rather than bimodally distributed. (Abu-Akel, Allison, Baron-Cohen & Heinke, 2019; Happé & Frith, 2020). This means that autistic traits as a spectrum condition can be smoothly extended from autistic populations to a wide range of typical neurological populations.

1.1.2. Prevalence of autism

With the development of autism concepts and diagnostic tools, the prevalence of autism has transitioned from rare to common (Happé & Frith, 2020). Autism was initially considered a rare condition. Lotter (1966) estimated the autism prevalence firstly to be around 4 in 10,000, and even though Wing (1969) first introduced the concept of the 'autism spectrum', based on her epidemiological study of special education children, autism was thought to have a prevalence of only 22 in 10,000 (Wing & Gould, 1979). A recent systematic review of the global prevalence of autism, reviewing 99 estimates from 71 studies, found that the median prevalence of autism was 100/10,000 (Range: 1.09/10,000 to 436.0/10,000) (Zeidan et al., 2022). Today, it is widely accepted that the prevalence of autism is around one per cent, with some estimates even higher (Happé & Frith, 2020; Zeidan et al., 2022). For example, a 2009 school-based survey in the UK estimated that

the actual prevalence of autism in the UK is 1.57% (Baron-Cohen et al., 2009). A 2020 study showed that from 2010/2011 to 2018/2019, the prevalence of autism among school pupils in England rose from 0.97 % to 2.25% (McConkey, 2020). The reasons for the increased prevalence of autism are complex, and while the early low prevalence reflects an under-diagnosis of autism, some researchers, for example, believe that autism today may be over-diagnosed (Happé & Frith, 2020). Lundstrom et al. (2015) reported that from 1993 to 2002, there was a significant increase in autism prevalence in the Swedish-born population but no significant change in autistic characteristics (Lundstrom et al., 2015). The increased prevalence of autism is the result of a combination of factors, including increased community awareness and public health response regarding autism, expansion of diagnostic criteria, more complex survey methods such as sampling processes, the inclusion of more people, more locations, and the development of diagnostic tools (Fombonne, 2018; Happé & Frith, 2020; Zeidan et al., 2022).

While the rising prevalence of autism may be due to more people having access to a diagnosis, autism remains underdiagnosed in women or some cultural backgrounds (Happé & Frith, 2020; Zhou et al., 2020). A 2017 meta-analysis and systematic review analysed 54 studies that the male and female ratio of autistic children is roughly three to one (Loomes, Hull & Mandy, 2017). Girls who meet the diagnostic criteria for autism may be misdiagnosed or diagnosed late because women are less likely to show obvious symptoms and may be able to mask their social deficits by 'camouflage' (Hull et al., 2017; Hodges, Fealko & Soares, 2020). In addition, the prevalence of autism in some developing

countries or cultural backgrounds, such as China, is also underestimated. A 2013 meta-analysis reviewed autism prevalence change in China, from 0.085% in 2000/2004 to 0.1% in 2005/2009, and even in 2010/2011, the prevalence was only 0.16% (Sun et al., 2013). Zhou et al. (2020) attribute these significantly lower prevalence estimates than most other countries to the lack of use of representative samples and the absence of standard assessment and diagnostic methods. Therefore, Zhou et al. (2020) conducted the largest sample (125,806) of Chinese autism prevalence surveys ever conducted in China, using a more inclusive participant registration system and the DSM-5 as a diagnostic tool. Zhou et al. (2020) claimed they had produced the best estimate of autism prevalence in China, concluding that it was 0.70%. The figures for this conclusion are still lower than the prevalence rates in epidemiological studies in Western countries, such as the 1.57% or 2.25% prevalence rates in the UK mentioned earlier (Baron-Cohen et al., 2009; McConkey, 2020). Zhou et al. (2020) suggest that Chinese culture and public awareness of autism may be responsible for the lower prevalence in China compared to their Western counterparts. The first case of autism was identified in China in 1987, 41 years after Kanner's (1946) first case was reported (Tao, 1987). The lack of awareness of autism among Chinese parents and communities and the stigma that exists in the media can lead parents to fear that their children will be labelled 'negative' or even barred from school because of autism (McCabe, 2007; Tang & Bie, 2015). These may explain the underestimated prevalence of autism in China (Zhou et al., 2020).

1.1.3. Culture and Autism

As mentioned in the previous section, cultural factors may contribute to differences in the prevalence of autism in different backgrounds, suggesting that culture may be an essential factor for autism. The fact that autism research has for quite some time been focused on Western high-income countries and that autism is widespread in a variety of cultural contexts around the world emphasises the need for future autism research to look at a more global perspective (Qian et al., 2012; Wang et al., 2019; de Leeuw et al., 2019). Ignoring the diversity of cultural backgrounds has led to a lack of timely screening and support for autistic people in many regions, especially in middle- and low-income countries such as China (Su et al., 2019; Durkin et al., 2015).

Some autism research from Chinese cultural backgrounds offers some cross-cultural perspectives relative to Western autism research. Research in Western countries has highlighted the importance of early identification and intervention for autism, yet China is described as a country severely under-represented in this area (McCabe, 2007; Qian et al., 2012). Early autism screening tools that are still widely used in China include the Clancy Autism Behavior Scale (CABS), the Autism Behavior Scale (ABC), and the Childhood Autism Rating Scale (CARS), which are considered to be outdated (Wang et al., 2019). Even so, many community workers and parents involved in autism screening in China have very limited knowledge of autistic screening tools (Su et al., 2019). Chinese parents also lack formal channels to learn accurate information about autism. They often learn about

autism through other parents or the internet, which is often inaccurate and even includes many misconceptions about autism (Su et al., 2013). This leads some parents to lose hope for their child's future and to abandon the diagnosis or seek help (zhou & Yi, 2014). At the same time, many parents still have the wrong understanding of the causes of autism. Only a minority of parents believe their child's autism is not their fault (Su et al., 2019). Many still believe that autism is caused by family factors or parenting styles, such as neglect or inadequate interaction (Tait et al., 2016). The shame and stigma associated with these misconceptions may reduce parents' willingness to accept a diagnosis or seek support (Su et al., 2019). These perspectives all emphasise the importance of continuing cross-cultural autism or autism stigma research in Chinese contexts.

1.2.Stigma

1.2.1. What is stigma?

Stigma was first defined by Goffman (1963), who believed that when people or groups' performance did not fit society's expectations, they would be attributed with a stigma that would lead to rejection and hostility from individuals or groups. The theoretical framework adopted in the current study sees stigma as a collection of concepts, including stereotypes, discriminatory behaviours and prejudice (Corrigan, 2006, Werner & Shulman, 2013). Link & Phelan (2001) define stigma as the convergence of a range of associated

components, including the simultaneous occurrence of elements such as labelling, stereotyping, separation, loss of status and discrimination. (Link & Phelan, 2001).

1.2.2. Impact of stigma

Link and Phelan (2001) further note that the stigmatisation process can affect many aspects of people's lives, including income, housing, health, or the distribution of opportunities in many areas. These results may lead to a tendency for those with easily stigmatised health conditions to hide them from others (Phelan et al., 1998). The health consequences are that stigma may prevent people from being aware of their health problems and seeking help, leading to a delay in diagnosis (Weiss et al., 2006). In addition to the typical characteristics of ASC, displaying behaviours that violate emotional and social norms can be perceived by others as potentially dangerous (Pugliesi, 1987). Autistic people and their families are vulnerable to social stigma and often feel rejected by society (Mak & Kwok, 2010). Such stigmatisation is widespread across different cultural contexts. A review from Liao et al. (2019) reviewed 25 studies on parental stigma in children with autism, which were categorised into four cultural contexts. Western context (n=11): including Australia (n=5), the UK (n=3), the USA (n=2) and Ireland (n=1). Asian cultures (n=9): including China (n=7) and India (n=2). Middle East (n=3): includes Israel (n=2) and Iran (n=1). Intercultural (n=2): includes UK/US (n=1) and US/Canada (n=1). Results found that stigma against parents of autistic children is widespread and varies with the severity of symptoms. In addition to the people's negative emotions with stigma, some adverse social effects may also ensue. For example, A mixed-methods questionnaire study in

Australia found that disclosing autistic people's diagnosis status may lead to discrimination and stigma in the workplace, creating severe risks to job security and income (Huang et al., 2022).

1.2.3. Stigma and culture

Research on the stigma of autism has mainly focused on the Western context, but the stigma toward autism exists worldwide, and its levels vary across cultures (Grinker et al., 2012; Mitter, Ali & Scior, 2019; de Leeuw, Happé & Hoekstra, 2020). Stigma stems from deviations from culturally contextually defined norms, which means that levels of stigma may be exacerbated in more collectivist cultures that encourage the subordination of people's individual needs to the group's goals (Papadopoulos, Foster & Caldwell, 2012; Gillespie-Lynch et al., 2019). The concept of individualist and collectivist culture is related to the connection between individuals (Oyserman et al., 2002). Individualist culture describes a society in which people are independent of each other and self-sufficient, in contrast to collectivist culture, which emphasises the interdependence of people (Brewer & Venaik, 2011). The cultural tendency of collectivism is defined as emphasising the close ties of the individual, who sees themselves as part of the collective (family, nation). Collectivism emphasises shared norms and obligations, and people prioritise collective rather than individual goals. Individualism has been defined as a cultural tendency to place individual achievements, preferences and needs above group norms (Triandis, 2001). In Hofstede's (2011) definition, the individualist end of the continuum represents a culture where each individual cares only for himself or his immediate family. In contrast, at the

collectivist pole, people are born into a strong, cohesive group to which they are loyal, and the group protects the individual (Hofstede, 2011; Kotlaja, 2018). China is considered a typically collectivist country, and the traditional Chinese Confucian culture emphasises avoiding bringing shame to the whole family (Steele & Lynch, 2012; Tang & Bie, 2015). In addition, Chinese schools often reject children with autism, which can lead to the marginalisation of children with autism in a Chinese society that places a high value on academic success (Tang & Bie, 2015). By comparing misconceptions about autism among adult public participants in China and the United States, Yu et al. (2020) found that Chinese participants exhibited higher levels of autism stigma compared to the United States.

The Social Distance Scale is a scale that assesses the closeness of people to different groups (Bogardus, 1933). With this scale, it is possible to measure the level of animosity between communities. Many researchers have used the Social Distance Scale for people with autism to assess participants' stigmatisation of autism, and it will be used in Study 1 (Chapter 2). It is an 11-item Likert scale, with higher scores representing higher stigma. When using social distance to reflect the stigma attached to autistic people, college students in Japan and Lebanon have a higher level of stigma attached to autism than college students in the United States (Obeid et al., 2015; Someki, Torri, Brooks, & Gillespie-Lynch, 2018; Gillespie-Lynch et al., 2019). Lebanon and Japan are considered more collectivist countries, while the United States tends to be more individualistic (Ayyash-Abdo, 2001; Kitayama et al., 2009). Obeid et al. (2015) and Someki et al. (2018) accordingly argue that the culture of collectivism has led to an increased stigma of autism. Gillespie-

Lynch et al. (2019) further assessed the cultural orientation of each participant and used multiple regression analysis to assess the relationship between cultural factors and levels of stigma. At the same time, Gillespie-Lynch et al. (2019) add horizontal (de-emphasis on hierarchy) and vertical (emphasis on hierarchy) cultural orientations. Triandis et al. (1998) argue that different types of individualism or collectivism should be distinguished depending on whether the emphasis is on equality or hierarchy. They developed the Cultural Orientation Scale, which divides culture into four mutually independent domains. Vertical Individualism(VI), Horizontal Individualism(HI), Vertical Collectivism(VC) and Horizontal Collectivism(HC) (Singelis et al., 1995; Triandis et al., 1998). Gillespie-Lynch et al. (2019) found that Lebanese participants exhibited a higher stigma towards autistic people than American participants. However, they also found that collectivism-individualism had a limited impact on autism stigma and that more attention should be paid to the impact of the horizontal-vertical dimension (Gillespie-Lynch et al., 2019). Gillespie-Lynch et al. (2019) also found that vertical individualism was associated with higher levels of stigma, while horizontal collectivism meant less. The current study will therefore use the autism social distance scale to measure levels of stigma, the cultural orientation scale to measure participants' cultural background, and explore how cultural background affects stigma.

1.2.4. Other factors affecting stigma

A combination of findings from previous cross-cultural stigma studies found that levels of autism stigma were also related to gender, knowledge about autism, having been

in touch with autistic people, and having received lessons about autism (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019; Yu et al., 2020). When comparing the levels of autism stigma between Chinese and US participants, Yu et al. (2020) found that male participants in China exhibited higher levels of stigma. Obeid et al. (2015) also found that males exhibited higher levels of autism stigma. In addition to gender, previous researchers have noted that contact with autistic people can reduce autism-related stigma. Being in touch with autistic people can reduce prejudice (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019). Participants working in psychology, education and social services with training related to autism also showed lower levels of stigma (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019).

More knowledge related to autism is also associated with lower levels of stigma (Gillespie-Lynch et al., 2019). Obeid et al. (2015) found that knowledge and information about autism were unequal between countries with different levels of development. Participants from Lebanon had less knowledge about autism compared to the United States. The lack of proper knowledge about autism may be another important reason for the higher stigma among the Lebanese participants and their cultural orientation. Both Obeid et al. (2015) and Someki et al. (2018) identified that providing participants with training in autism knowledge could significantly reduce their stigma towards autistic people. Therefore, the current study will consider the impact of gender and participants' experiences or knowledge related to autism on the stigma level.

1.3. Camouflage

1.3.1. What is camouflage?

Autistic camouflage refers to a range of strategies developed by autistic people to hide autistic traits in social settings as a result of perceived social pressures (Lai et al., 2015). Camouflage originally appeared in clinical records or autobiographical accounts and is often used to explain the underdiagnosis or misdiagnosis of the female autistic population or to highlight the lack of autism diagnosis and support for females (Lai et al., 2015, Hull et al., 2017). Thus, in the early stages of autism camouflage research, researchers focused primarily on autistic females. While masking is particularly pertinent to autistic women's experiences, the phenomenon of masking is not female-specific (Hull et al., 2017; Livingston et al., 2019). For example, Tierney, Burns, and Kilbey (2016) interviewed ten autistic girls aged 13-16 who shared their camouflage experiences. Some common themes present in these experiences included the presence of inconvenient social situations, triggering distress or rejection, and a desire for friendship but with difficulties and challenges (Tierney et al., 2016). However, another theme that emerged was that the participants chose to overcome difficulties through observation and imitation, but the consequences that followed were severe and included feeling unhappy or anxious (Tierney et al., 2016).

While the initial qualitative research into the additional difficulties of female autism is a first step, we still need more qualitative research to reveal how common camouflage

is, what the definition of camouflage is, what strategies camouflage involves and what costs camouflage entails (Hull et al., 2019a; Cook et al., 2021). Hull et al. (2017) developed a qualitative questionnaire on camouflage after consulting with autism professionals, including clinical experts, autistic adults and researchers. The questionnaire consisted of 23 closed-ended and 20 open-ended questions focusing on participants' camouflage motivations, experiences, consequences, and attitudes about camouflage. Closed questions, for example: *"31. When you get home after a day of work/school, or an episode of 'pretending' to be neurotypical, do you feel exhausted and in need of isolation? Yes/No"*. Open-ended questions, for example: *"30. How do you feel after camouflaging?"*. (Hull et al., 2017) Ninety-two participants recruited by email completed the online questionnaire on Qualtrics, mainly from the UK or other Western countries. The vast majority of participants, regardless of gender, reported that they would camouflage in their daily lives (Hull et al., 2017). The themes of the qualitative analysis revealed the primary motivations for camouflage, including bonding with others and avoiding negative judgments. Camouflage techniques included masking their autistic traits and compensating for their social and communication difficulties (Hull et al., 2017). Camouflage can have psychological costs, with most participants reporting negative consequences, including fatigue and lowered self-esteem (Hull et al., 2017). Although definitions of camouflage may be varied and evolving, the qualitative study by Hull et al. (2017) forms the basis of the concept of autistic camouflage used in the current study, namely that camouflage involves masking, assimilation and compensation. Masking refers to those strategies used to hide autistic

traits, compensation refers to the development of additional social strategies to compensate for social difficulties, and assimilation refers to those strategies used to try to get along with others in social situations (Hull et al., 2019; Cook et al., 2021).

1.3.2. Quantification of camouflage

The two most widely used methods of measuring camouflage to date are the discrepancy method and the self-report method (Williams, 2021; Hull et al., 2019a; Lai et al., 2020).

1.3.2.1. Discrepancy method

The discrepancy method is also called the internal-external discrepancy method. This method compares differences between an individual's social cognitive performance (e.g., self-reported scales of autistic characteristics) and autistic behaviour (e.g., scores on the autism diagnostic observation schedule ADOS) (Cook et al., 2021). The autism camouflage was operationalised as the magnitude of this difference, which is the extent to which the autistic traits are 'masked' (Cook et al., 2021). However, the discrepancy approaches' assumptions have been subject to criticism (Williams, 2021). Firstly, the internal state of autism is difficult to measure as it involves multiple behavioural, sensory and cognitive domains (Lai et al., 2017). Secondly, most discrepancy method studies are observations in experimental conditions, which may not predict actual social behaviour

outside the lab in autistic or typically developing populations (Morrison et al., 2020; Williams, 2021).

1.3.2.2. Self-reporting method

Compared to the discrepancy method, the self-report questionnaire, specifically the Camouflaging Autistic Traits Questionnaire (CAT-Q; Hull et al., 2019a), is the most commonly used measure of camouflage (Williams, 2021). The CAT-Q is a 25-item Likert-type self-report questionnaire containing three factors: compensation, masking, and assimilation. Camouflage's self-report measures have advantages over discrepancy methods, including collecting data in a wide range of situations rather than observations under laboratory conditions; for example, participants were asked to answer questions about camouflage based on a series of real-life experiences or scenarios. The CAT-Q also has sufficient face validity that self-assessed camouflage experience better reflects actual camouflage behaviour than discrepancy methods and good reproducibility (Williams, 2021). The CAT-Q demonstrated reliable internal consistency in the initial validation study, with four subgroups of participants (autistic males and females and typically developing males and females) having consistency of measurement. Scores on the CAT-Q were positively correlated with reports of autistic traits and psychopathology and showed temporal stability over the three-month retest period (Williams, 2021). Despite the many advantages of CAT-Q, Williams (2021) argues that further tests of measurement invariance across different demographic subgroups (e.g. different ages, educational levels and ethnicities) are needed to check cross-cultural consistency to confirm that the CAT-Q can be used across a broader

range of participants. The current study 2 (Chapter 3) will translate and test the validity and cross-cultural consistency of the Chinese version of the CAT-Q.

1.3.3. Insufficient research on cross-cultural and autism sub-clinical groups

A systematic review of autistic camouflage by Cook et al. (2021) examined 29 studies on camouflage, all of which either recruited participants globally but conducted in English or were restricted to Europe (UK, Poland) or other Western countries (USA, Australia). Studies on camouflage in other cultural contexts, such as Asian countries, are underrepresented. The motivation for the camouflage is related to avoiding pressure from the surrounding social environment or reducing stigma (Hull et al., 2017; Cook et al., 2021). The introduction to autism stigma earlier in the current chapter mentioned that stigma could be different in various cultural contexts, such as the United States and Lebanon (Gillespie-Lynch et al., 2019). Therefore, due to cultural and social expectations differences, people in different countries may choose different strategies and techniques to camouflage autistic traits. For example, increased eye contact has been described as a common compensatory strategy in many studies, but in Chinese culture, abrupt eye contact may be impolite in certain situations (Liu, Rigoulot & Pell, 2015). Finally, the psychological burden of camouflage may vary across cultures, and in Hull et al.'s (2017) qualitative study, participants described their camouflage as a form of 'lying' and as harming self-esteem (Hull et al., 2017). Different cultures may have different tolerance levels for lying or socially

unacceptable behaviour. Therefore, it is necessary to re-examine the concept of camouflage in the context of other cultures.

Subclinical autism groups are under-researched in studies of autism camouflage. The camouflage of autism is not driven by the diagnostic label itself but by the autistic traits (Cook et al., 2021). Livingston et al. (2020) have concluded that adults with high autistic traits need camouflage strategies to help them socialise, regardless of whether they have been diagnosed with autism. While the mechanisms by which high autistic traits lead to higher levels of camouflage will require more research, studies by Cage et al. (2017) and Perry et al. (2021) suggest that stigma and non-acceptance play a role. A systematic review of camouflage studies by Cook et al. (2021) found that most participants in camouflage studies had average or above-average IQs and good language skills. In contrast, 95.9% of all participants in the camouflage study were those who had received a formal autism diagnosis. This implies that the groups with high autistic traits, or subclinical but undiagnosed autism, are underrepresented. This situation may be particularly acute in countries with under-diagnosed autism, such as China, where people with autism who have good IQ or verbal skills are often undiagnosed (Pang et al., 2018). At the same time, there have not been any studies of autistic camouflage in China; therefore, the current study focused on the Chinese participants' subclinical characteristics rather than the diagnosis.

1.4. Quantitative methodology

The first two studies of the current PhD thesis used quantitative methods to analyse the factors influencing autism stigma and camouflage and to make cross-cultural comparisons. The philosophical basis of the quantitative approach is scientific realism, which assumes that the world people wish to study exists independently of our consciousness and can be observed and measured through scientific tools (Little & Haig, 2014; Chakravartty, 2017). In psychology, researchers use a variety of standardised questionnaires to collect quantitative data and to make comparisons between and within groups. The standardised quantitative tools currently used in this PhD thesis are presented below.

1.4.1. Standardised quantitative tools

1.4.1.1. Autism social distance scale (Chapter 2)

The social distance scale (Bogardus, 1933) is a commonly used tool to measure stigma. I adopted the autistic version used by Gillespie-Lynch et al. (2019) to measure the stigma attached to autism. This scale contains 11 items. Six of the items were not reverse-scored items, and five of them were reverse-scored. Participants responded to items on a five-point Likert scale (strongly disagree to strongly agree). The scale is rated between 5 and 55, with a higher score indicating a higher level of the stigma of autism. The internal consistency of the autism Social distance scale was excellent (α=0.911). After translation, the scale's internal consistency was still good in the Chinese sample (α=0.857).

1.4.1.2. Culture orientation scale (Chapter 2)

The culture orientation scale, which was developed and used by Triandis & Gelfand (1998), has four subscales, which measure horizontal individualism (HI, e.g. I often do "my own thing"), horizontal collectivism (HC, e.g. The well-being of my co-workers is important.), vertical individualism (VI, e.g. competition is the law of nature.) and vertical collectivism (VC, e.g. Parents and children must stay together as much as possible.) cultural orientations, respectively. Each subscale consists of four items. Participants responded to items on a nine-point Likert scale (from always to never). The score of each subscale ranged from 9 to 36, and the higher the score, the more strongly the participants tended to be in this dimension of cultural orientation. The definition and structure of the four factors of the Cultural Orientation Scale HI, VI, HC and VC have been proven to exist in many cultural contexts, whether collectivist or individualistic (Triandis & Gelfand, 1998).

The internal consistency of the English culture orientation scale was acceptable (α=0.613). The internal consistency of the Chinese culture orientation scale was acceptable (α=0.727).

1.4.1.3. Autism stigma and knowledge questionnaire (ASK-Q) (Chapter 2)

ASK-Q is a 49-item questionnaire created by Harrison et al. (2017). ASK-Q can be used to assess participants' knowledge of categories such as autism Diagnosis/symptoms (D/S=18), Etiology (ET=16), Treatment (TR=14) and the endorsement of Stigma (ST=7). Each ASK-Q item is an autism statement; participants can agree or disagree. According to the score sheet, participants are awarded one point for making the right choice and no points for making the wrong one. Yu et al. (2020) translated the Chinese version of ASK-Q, which proved that internal consistency and validity were acceptable in China. In this study, the internal consistency of English ASK-Q was acceptable (α=0.671). Moreover, the internal consistency of Chinese ASK-Q was good (α=0.832).

1.4.1.4. The Broad Autism Phenotype Questionnaire (BAPQ) (Chapter 3)

A broad autism phenotype (BAP) is a group of symptoms or personality traits similar to autism but does not meet the criteria for an autism diagnosis. BAP is widely present in close relatives of people with autism or any other typically developing person and is a subclinical state of autism (Wheelwright, Auyeung, Allison & Baron-Cohen, 2010; Landry & Chouinard, 2016). The Broad Autism Phenotype Questionnaire (BAPQ) is an adult self-report survey that can be used to assess levels of BAP (Hurley et al., 2007). The BAPQ is available in English, Chinese and other languages and has been a reliable method for assessing autism spectrum traits in many studies (Sasson et al., 2013; Shi et al., 2015; Kim & Kim, 2022). The BAPQ contains 36 questions belonging to three factors:

aloofness, pragmatic language, and rigidity. Each subscale contains 12 items, and each is scored using a 6-point Likert scale (1=very rare, 6=very frequent). Participants may develop social expectancy bias when responding to questionnaires related to autism. Therefore when the BAPQ questionnaire was used in previous studies, participants were usually told that they were completing a personality and behavioural preference questionnaire and that the answer options were not good or bad (Hurley et al., 2007; Lin et al., 2021). The internal consistency performance of the English and Chinese versions of the BAPQ among current participants is good (UK: α=0.937; Chinese: α=0.881). There has been some research on confirmatory factor analysis in the BAPQ study. In a previous cross-sex consistency test of the BAPQ using multi-group comparisons of confirmatory factor analysis (CFA), Broderick et al. (2015) found that only two model fit indices, the standardised root mean square residual (SRMR) and the root mean square error of approximation (RMSEA), indicated a good fit between the data and the model, which means the CFA of the model is questionable. Bang, Strömberg, Meera & Igelström (2022) translated the BAPQ into Swedish and conducted a CFA, and Bang et al. (2022) considered the fit of their data to the three-factor model of the BAPQ to be "acceptable", but their article only provided incomplete fit indices and did not meet the cut-off point, like X^2=518.495; p=0.985; SRMR=0.088; CFI=1. However, the model is usually considered acceptable when the SRMR is <0.08. In addition, determining whether a model is acceptable usually requires X^2/df and RMSEA, so Bang et al. (2022) 's conclusion is hasty. Kim and Kim (2022) attempted to validate the Korean version of BAPQ in Korea. When

fitting the Korean participants' data to BAPQ's three-factor model, they found that CFA's RMSEA, TLI, and CFI all showed a poor fit of the data to the model. The results of these CFA studies on the BAPQ suggest that the structural model of the BAPQ questionnaire needs to be supported by CFA with more data, while the existence of cross-cultural consistency across different language versions of the questionnaire needs to be tested by CFA with multiple group comparisons. Like Shi et al. (2015), who translated the BAPQ into Chinese, the current study 2 (Chapter 3)also chose the cut-off established by Sasson et al. (2013) with a total self-rated BAPQ score of >3.55 for males and >3.17 for females as the criterion for evaluating whether participants were BAP. Compared to the previous cut-off (3.15) point established by Hurley et al. (2007), the cut-off point chosen for the current study implies maximum specificity at the expense of BAPQ sensitivity. This means reducing the probability of judging a participant as a false positive but increasing the probability of a false negative for BAP (Sasson et al., 2013).

1.4.1.5. The Depression Anxiety Stress Scale 21 (DASS-21) (Chapter 3)

The DASS was first developed to distinguish between the overlapping symptoms of anxiety and depression, and during its development, a new subscale was identified based on exploratory factor analysis and named "Stress" (Lovibond & Lovibond, 1995). The DASS originally had a 42-item version, and the seven items with the best factor loadings from each of the three subscales were selected to form the DASS-21, which is widely used today (Lovibond & Lovibond, 1995). The DASS-21 has good cross-cultural

validity and has been translated into more than 30 languages today (Wang et al., 2016; Bibi, Lin, Zhang & Margraf, 2020). The Chinese version of DASS-21 used in the current study was translated by Taouk et al. (2001). Cultural differences have been considered in the translation, and the forward-backwards translation method has been used. Wang et al. (2016) further validated this Chinese version of the DASS-21 and found that its results in a sample of college students, people with schizophrenia, and healthy controls supported its good reliability. The Chinese version of the DASS-21 is a self-report scale with three subscales measuring depression, anxiety, and stress. Each subscale contains seven items, and participants rate the state, frequency, or severity of the most recent week using a four-point Likert scale (0 = Did not apply to me at all, 3 = applies to me very much or most of the time). Many previous studies on confirmatory factor analysis of DASS21 and Yeung, Yuliawati & Cheung (2020) found that existing CFA studies provide good support for the three-factor model of DASS21. However, there is still a lack of cross-cultural consistency checks between the different language versions of DASS21.

1.4.1.6. The Camouflaging Autistic Traits Questionnaire (CAT-Q) (Chapter 3)

The CAT-Q is an instrument developed and tested by Hull et al. (2019a) to assess and measure camouflage behaviour in autistic and typically developing populations. The questionnaire has 25 items divided into three factors, compensation (9), masking (8) and assimilation (8). Compensation is a strategy to change behaviour and apply it to social situations. Masking is a strategy to hide one's autistic characteristics or establish a new

social role to socialise with others. Assimilation refers to strategies to fit in with others during social activities. Participants responded to each item on a 7-point Likert scale, ranging from strongly disagree to strongly agree (Hull et al., 2019a). Currently, research on the cross-cultural validity of the CAT-Q is limited. Dell'Osso et al. (2022) validated the Italian version of the CAT-Q among Italian university participants, and it showed excellent internal consistency and retest reliability among university participants, which implies that the CAT-Q has cross-cultural validity. The current study is dedicated to translating the CAT-Q into Chinese for the first time and verifying its reliability and validity. The English and the translated Chinese versions of the CAT-Q have initially shown good internal consistency (UK: α=0.923; Chinese: α=0.839). Studies on the CAT-Q's exploratory and confirmatory factor analysis are very limited, Hull et al. (2019a) conducting factor analysis when they developed the questionnaire. However, many subsequent CAT-Q validation studies in other language versions such as the Italian version have also not been tested for CFA or cross-cultural consistency (Dell'Osso et al., 2022).

1.5. Qualitative methodology

Chapter 4 will use a qualitative research approach. The qualitative research approach originates in sociology and the humanities but is now widely used in psychological research (Price et al., 2019). Qualitative research can convey how participants really feel in a specific situation and help researchers generate new research questions and hypotheses (Price et al., 2019).

1.5.1. Reflexive Thematic Analysis

The current study used the Reflexive Thematic Analysis research approach. Thematic analysis (TA) is a method widely used in psychological research. TA is a flexible method, and there are significant differences between TA methods for different study designs and research objectives, which are supported by different conceptual models and values of the study (Elliott et al., 1999; Braun & Clarke, 2022). Braun and Clarke (2022) divided the TA approach cluster into three main categories according to the "small q" and "big Q" spectrums. At one end of the spectrum, "small q" involves qualitative data, but the research values behind it are quantitative or (post-)positivist, concerned with accuracy, reliability and trying to control for the subjective bias of the researcher. The other end of the spectrum, represented by the "big Q", is more concerned with the meaning behind the data rather than the data itself, where the subjectivity of the researcher is unavoidable and essential to the research and where the values are non-positivist or constructivist (Kidder & Fine, 1987; Braun, Clarke & Weate, 2016). Of the three main TA categories, the coding reliability TA is closer to the "small q", while the reflexivity TA is closer to the "big Q", with the codebook TA falling somewhere in between (Braun & Clarke, 2022).

The qualitative data analysis for the current study used reflexive thematic analysis (RTA), which was first introduced by Braun and Clarke (2006) and has been refined in recent years (Braun & Clarke, 2019; Braun & Clarke, 2020). RTA's core features distinguish it from other primary thematic analysis methods (Byrne, 2021). Coding reliability TA

emphasises coding accuracy and typically uses structured codebooks to seek consensus between different coders. However, proponents of RTA argue that seeking consensus on coding does not lead to "better" coding (Byrne, 2021). The coding process should be flexible and evolve throughout the coding process, inevitably influenced by the background and subjective preferences of the researcher, and there is no such thing as 'more accurate' or 'more reliable' coding (Braun & Clarke, 2019; Braun & Clarke, 2020). Braun and Clarke (2016) emphasise that themes do not exist in code waiting to be discovered or verified but are a flexible process constantly evolving and changing, with the meaning of the theme evolving as the coding progresses (Braun & Clarke, 2016; Braun & Clarke, 2020).

1.6. Thesis overview

The current thesis focuses on autism stigma and camouflage, with a comparative study of stigma and camouflage in two cultural contexts, China and the UK. The research aim of Chapter 2 is to investigate the differences in autism stigma among Chinese and British participants. Study 1 translated the questionaries first, like the autism social distance scale (ASDS), Culture orientation scale, and autism stigma and knowledge questionnaire (ASK-Q), and used and validated it for cross-cultural consistency in Chinese. Then, the study compares the differences in autism stigma between Chinese and British participants and explores the impact of cultural values orientations on stigma. Study 2 (Chapter 3) is a cross-cultural study of autism camouflage, aiming to investigate the differences in autism camouflage between Chinese and British participants. Study 2 translated the CAT-Q into

Chinese for the first time and explored the validity and cross-cultural consistency of the CAT-Q among British and Chinese participants. The study also compared differences in autistic camouflage between Chinese and UK participants, using pathway analysis to explore how autistic traits, camouflage levels, and mental health interact and the moderating role of cultural background. CAT-Q did not show cross-cultural consistency among Chinese and British participants, so the researcher conducted a qualitative analysis of Study 3 (Chapter 4). In Chapter 4, the Chinese participants' experiences of camouflage were explored using thematic analysis, aiming to investigate the motivations, strategies and consequences of camouflage in a Chinese cultural context. This thesis also has a general discussion in Chapter 5, including a summary of the findings in the current thesis, current studies' implications, and suggestions for future research.

Chapter 2 A cross-cultural study of autism stigma in the UK and China

2.1. Introduction

As mentioned in Chapter 1, because of the relevance of autism stigma to the autistic population and the lack of cross-cultural research, the current study aims to conduct a cross-cultural study of autism stigma in Chinese and British cultural contexts using structural equation moulding (SEM). In the previous Gillespie-Lynch et al. (2019) study, no significant differences in cultural orientation between the Lebanese and American participants were seen. This may be because the Lebanese participants, native English speakers, are culturally influenced by the West and are closer to the US (Gillespie-Lynch et al., 2019). This means that new research is needed in more typically different cultural contexts, such as China and the UK.

In order to compare Chinese and UK participants for differences in levels of autism stigma, the current study will be divided into three steps. First, the current study plans to translate all questionnaires, including the autism social distance scale, culture orientation scale, and autism stigma and knowledge questionnaire (ASK-Q), into Chinese and ask the recruited Chinese participants to complete the data collection in their native language. The two language versions of questionaries will first be tested for cross-cultural consistency, using multi-group comparisons with confirmatory factor analysis. Strict cross-cultural consistency is a prerequisite for subsequent tests of variability. The current study hypothesises that a

rigorously and accurately translated Chinese version of the material will have good cross-cultural consistency, allowing for subsequent variance tests.

Next, the study plans to examine whether there is a significant difference in the level of autism stigma between participants in China and the UK. It is challenging to ensure that participants from two cultural backgrounds are demographically consistent in similar cross-cultural studies due to the sampling methods chosen (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019; Yu et al., 2020). Previous studies have not attempted to control for differences in, for example, sex ratio, age, and autism-related experiences while concluding that there are differences in levels of stigma between participants from different cultural backgrounds (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019; Yu et al., 2020). Such a conclusion is questionable, as it is impossible to tell whether the differences in stigma stem from cultural backgrounds or differences in the recruitment of participants. The current study plans to use propensity score matching (PSM) to deal with any significant differences in potentially confounding variables between participants that may arise. The hypothesis results that after using PSM to eliminate the effect of differences between participants on the results, participants from China show higher levels of autism stigma than UK participants. The current study will provide new knowledge on whether cultural backgrounds lead to different levels of autism stigma.

Finally, the current study plans to use structural equation modelling (SEM) to test the proposed model based on the previous studies' findings and compare the differences between China and the UK. SEM is more suitable for dealing with latent variables such as cultural orientation and stigma than the multiple regression analysis used in previous studies. At the same time, SEM can check whether the current data support the findings from previous studies by examining how well the data matches the model we developed. The SEM can also be used to visually and effectively analyse how various factors in different cultural contexts affect autism stigma. Based on previous research, the current SEM model assumes that knowledge of autism, cultural orientation, gender, age, knowing someone with autism and having received an autism course affects stigma (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019; Yu et al., 2020). The hypothesis is that the SEM outcome data and model fit indices are good enough to verify the findings of previous studies. At the same time, the differences in the multiple group comparisons between Chinese and UK participants suggest that various factors influence autism stigma differently across different cultural contexts.

2.2. Method

2.2.1. Participants

The current study has been approved by the Ethics Committee of the Department of Psychology at the University of Sheffield. Participants from China were recruited via the

Chinese social networking software WeChat, a widely used application in China that functions similarly to WhatsApp or Facebook. In addition to the essential communication functions, research-related invitations and links to questionnaires can be shared within groups of hundreds of people via WeChat, while everyone can help the researchers post the information and links to their circles so that all their friends can see the invitation. The use of WeChat is a convenient way of allowing research invitations to be disseminated quickly to an extensive group of people so that anyone interested can participate in the study. In Study 1, WeChat was only used to disseminate a link to the recruitment information and questionnaire, and any potential participants who saw the link were free to choose to participate. During this process, no personal information was recorded. The participants from the UK were recruited through the recruitment platform Prolific. Prolific collects personal information from potential participants, but this information only aims to create a demographic group that the researchers can screen. Participants are, therefore, anonymous to the researcher. Prolific's privacy policy satisfies the European data protection law, the General Data Protection Regulation (GDPR). All the participants from China and the UK are typically developed Chinese or UK citizens over 18.

Once participants agreed to participate in the study, they were asked to complete an online questionnaire created by Qualtrics which included the Demographic Questionnaire, ASK-Q, Cultural Orientation Scale and Autism Social Distance Scale. The demographic questionnaire, in addition to including basic demographic information about the participant,

asked about the participant's familiarity with autism and whether they had experienced autism-related training. The questionnaire was available in English and Chinese, and participants were asked to use the version in the same language as their nationality. The current study expects Chinese participants to use the Chinese version of questionnaires in the study, which requires translating the scales into Chinese and retesting their validity at first. In addition to the validated Chinese version of the ASK-Q already available, the current study convened a three-member translation team to translate the other English questionnaires. All three translation team members have a background in psychology and are bilingual in Chinese and English. The translation process considered the WHO recommendations for document translation to ensure that the new Chinese version of the questionnaire had the same meaning as the English version and that there were no cross-cultural misunderstandings ("WHO | Process of translation and adaptation of instruments", 2020). The researcher first translated the English questionnaire into Chinese, emphasising conceptual accuracy rather than literal meaning. The language used in the translation was concerned with simplicity and clarity, avoiding specialist vocabulary and being easily understood by a general audience. The Chinese questionnaire was then translated into English by another translation team member, following the same principles as before. Finally, the three-person translation team discussed all the questionnaire versions, corrected any inappropriate points, avoided cultural ambiguities and obtained the final Chinese translation.

This study set up a three-question lying scale to exclude participants who tended to answer questions in a socially desirable way rather than a factually accurate way. The lie scale used three items from the Eysenck Personality Questionnaire-Revised Lie scale to reduce social desirability bias (Eysenck, Eysenck, & Barrett, 1985). These items were: (1) "Are all your habits good and desirable ones?"; (2) "Have you ever taken anything (even a pin or button) that belonged to someone else?"; (3) "Have you ever said anything bad or nasty about anyone?". The items were scored using a Yes/No format. Total scores ranged from 0 to 3, with higher scores indicating greater social desirability in the responses. Participants with a score of 2 or more were deemed to have responded to social expectations rather than factual accuracy. Therefore, their data were excluded from the analysis. This approach of excluding the interference of social desirability effects was validated by previous studies (Debowska et al., 2015).

A total of 859 Chinese participant data were collected, of which 55 were excluded from the data analysis because their responses were shown to be influenced by social expectations in the Lie Scale. Therefore, 804 Chinese participants entered the data analysis. A total of 1036 British participant data were collected, of which 195 were excluded from the data analysis because their responses were shown to be influenced by social expectations in the Lie Scale. Forty-seven UK participants were excluded from the data analysis to avoid the culture interfering with the results because they were not born in the UK. Therefore, 794 British participants entered the data analysis. (see Table 2.1)

Table 2.1 Descriptive statistics of participants

	N(British)	**N(Chinese)**
Total N	794	804
Number of males, females, and others	291, 498, 5	386, 409, 9
Previous autistic training, no previous autistic training	156, 638	38, 766
Familiar with someone with autism, Unfamiliar	350, 444	103, 701
Mean age (SD), range (years)	33.69 (11.85), 18-74	27.57 (10.66), 18-60

2.2.2. Data analysis

To assess whether data from Chinese and UK participants supported the original questionnaires' structure and whether there was cross-cultural consistency. The translated Chinese and English questionnaires were first tested using multi-group CFA. The indices used to assess the goodness of fit of the CFA model are the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardised root mean square residual (SRMR). The model and data were considered to have a good fit when CFI exceeded 0.9, RMSEA did not exceed 0.08, and SRMR was less than 0.08 (Fan, Thompson & Wang, 1999). The cross-cultural consistency test of the CFA model compares multiple nested models (Sass, 2011). There are four levels from weak invariance to strict invariance: (1) Configural invariance (equal structures across cultures); (2) Metric invariance (equal factor loadings across cultures); (3) Scalar invariance (equal intercepts across cultures); and (4) Residual invariance (equal residuals across cultures). The CFA model was first built to test for structural invariance, and then each level of the model's invariance was compared to the previous level to test for stricter invariance (Putnick &

Bornstein, 2016). ΔCFI less than 0.01 was the most reliable test marker, as the significance of the chi-square was affected by the sample size.

To examine whether there are differences in autism stigma between China and the UK independent of covariates, propensity score matching (PSM) was first used. Propensity score matching is increasingly used in psychological research to create equivalent groups, whereas the data collection phase does not allow this (Lawrence & Peyton, 2006). The matched equivalence groups allow the effects of experimental treatments to be assessed without the effects of covariates (Werth, Nickerson, Aloe & Swearer, 2015). Propensity scores are calculated by logistic regression of covariates and represent the likelihood of each data being assigned to either the “treatment group” or the “control group” (Rosenbaum and Rubin, 1985). Propensity score matching refers to matching participants by propensity score, resulting in a “treatment group” and “control group” that are approximately non-different in terms of covariates (Debowska et al., 2016). The UK participants were defined as the “treatment group” in the current study. This definition is intended to facilitate PSM use and does not imply that British nationality is a “treatment”. Under this assumption, British citizenship was a “treatment” for British participants, and it was assumed that this treatment would significantly change the level of autism stigma. To achieve the ability of PSM to eliminate interference, the covariates that need to be matched must be carefully selected (Debowska et al., 2016). Based on previous research on the influences of stigma, participants’ age, gender, experience with autism, and knowledge

about autism will be used as covariates to generate propensity scores in this study (Papadopoulos, Leavey & Vincent, 2002; Gillespie-Lynch et al., 2019). These factors are thought to be related to the level of stigma attached to autism. Use the matchIt package in R to match participants from China and the UK. The current study used logistic regression to estimate propensity scores, and the matching method was greedy matching (nearest-neighbour matching with a one-to-one matching ratio, setting caliper = 0.2). Usually, caliper=0.2 ensures the best match without significantly increasing the risk of type one errors (Austin, 2011). The caliper value can limit the range of propensity scores, which will exclude more treatment participants that do not have suitable matching values but will give better matching results (Austin, 2011).

In order to explore how various factors influence stigma, SEM was used to test the theoretical hypothesis that cultural factors can influence the stigma of autism. SEM allows for a better exploration of the interrelationships between latent variables. Similar to CFA, SEM uses CFI, RMSEA and SRMR as indicators to test the fit of the data and the model. The data and model fit indices reach cut-off, implying that the data support the previous theoretical hypothesis. Multiple comparisons of SEM allow testing whether data from different countries fit the same model. The test process is similar to the CFA's multiple group comparisons. The multi-group comparison of SEM is based on all data, not the data after PSM matching in the previous step.

2.3. Results

Multi-group confirmatory factor analysis

The current model with multiple CFA consistency to be tested is shown in Figure 2.1. The results of the structural invariance test show that the model and the data have good fitness. (See Table 2.2)

Figure 2.1 Cross-cultural consistency test for multi-group CFA (Chapter2)

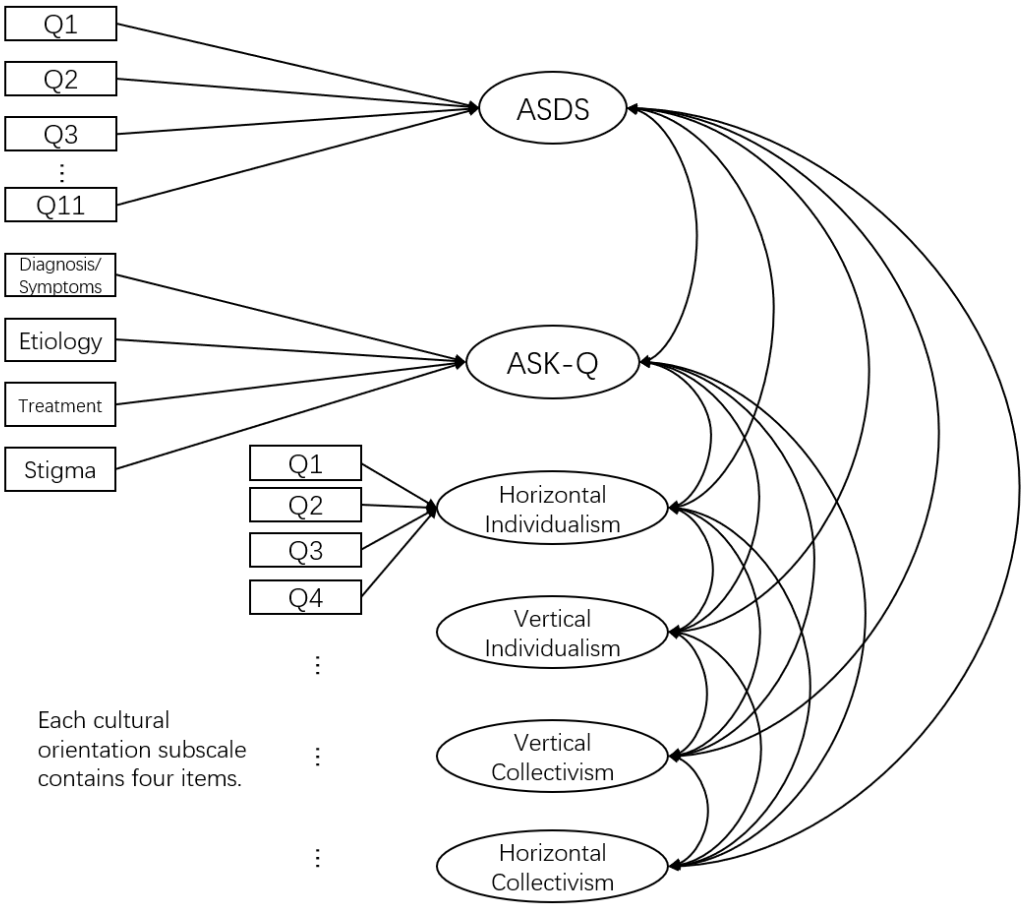


Table 2.2 The fit indices of data from China and the UK with the CFA model

Configural invariance	X²/df	CFI	SRMR	RMSEA

	3536.49/780=4.53***	0.913>0.9	0.068<0.08	0.067<0.08

Note, Robust statistics are reported; N=1584; nChinese=795; nBritish=789; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

The CFA multi-group comparison tests the cross-cultural consistency of different language versions of all questionnaires in the current study and finds that the Chinese and UK data and CFA models have configural consistency, metric consistency, partial scalar consistency and residual consistency. This implies that the Chinese version of the instrument used in the current study has good cross-cultural consistency with the original English version, and the collected data can be compared across cultures (Putnick & Bornstein, 2016). (See Table 2.3)

Table 2.3 Multi-group comparison of CFA models and cross-cultural consistency

Models	χ^2	$\Delta\chi^2$	df	CFI	ΔCFI	
Configural invariance	3536.49	——	780	0.913	——	Accept
Metric invariance	3778.06	214.57	804	0.906	0.007<0.01	Accept
Scalar invariance	4425.99	647.93	850	0.887	0.019>0.01	Reject
Partial scalar invariance	4000.61	222.55	847	0.901	0.005<0.01	Accept
Residual invariance	4191.45	190.84	866	0.895	0.006<0.01	Accept

Note, Robust statistics are reported; N=1584; nChinese=795; nBritish=789; χ^2=chi squared; $\Delta\chi^2$=chi square difference; df=degrees of freedom; CFI=Comparative Fit Index; ΔCFI=CFI difference.

Propensity score matching and test of variance

In the current study, participants from the UK and China differed significantly in the descriptive variables (Table 2.4). Results from *t*-tests and Chi-square tests showed that

Chinese participants included a larger proportion of males, a smaller proportion with autism-related experience, and were younger than British. These variables may influence autism stigma. The significant differences in these covariates demonstrate the need for PSM.

Table 2.4 Tests for differences in descriptive statistics between the UK and Chinese participants

	The UK	**Chinese**	**p-value**
%male	36.6	48.0	p<0.001
%Familiarity with autistic people	44.1	12.8	p<0.001
%Trained in autistic knowledge	19.6	4.7	p<0.001
Age	33.69(11.85)	27.57 (10.66)	p<0.001

The original sample contained UK participants (n=794) and Chinese participants (n=804). After matching, get the matched sample (n=328) containing UK participants (n=164) and Chinese participants (n=164). The matching quality can be assessed visually using jitter plots and histograms (Randolph et al., 2014).

Figure 2.2 is a jitter plot showing the quality of the matches. Each circle represents the propensity score for a participant's data. The first row shows the UK participants who were not successfully matched, concentrated at the end of the propensity score=1. The bottom row shows the Chinese participants who were not successfully matched, mainly at the propensity score=0. The circles concentrated at either end represent participants with very different propensity scores. The middle two rows of circles show the Chinese and UK participants with matched propensity scores. The matched “control” and “treatment” groups

do not contain these data to ensure no significant covariance differences between the two matched groups.

Figure 2.2 Distribution of propensity scores.

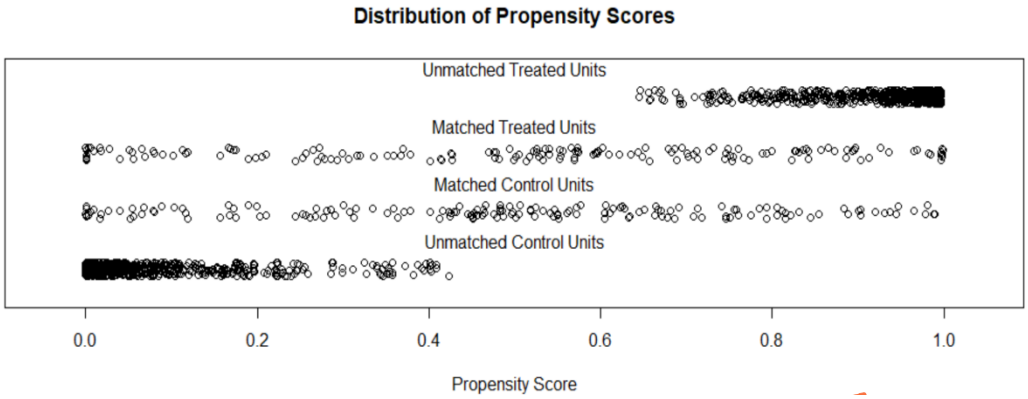


Figure 2.3 shows the histogram of the distribution of propensity scores before and after matching. The unmatched histograms are very different, while the matched histograms are mostly similar. Figures 2.2 and 2.3 show that the matching was successful.

Figure 2.3 Histograms of propensity scores before and after matching.

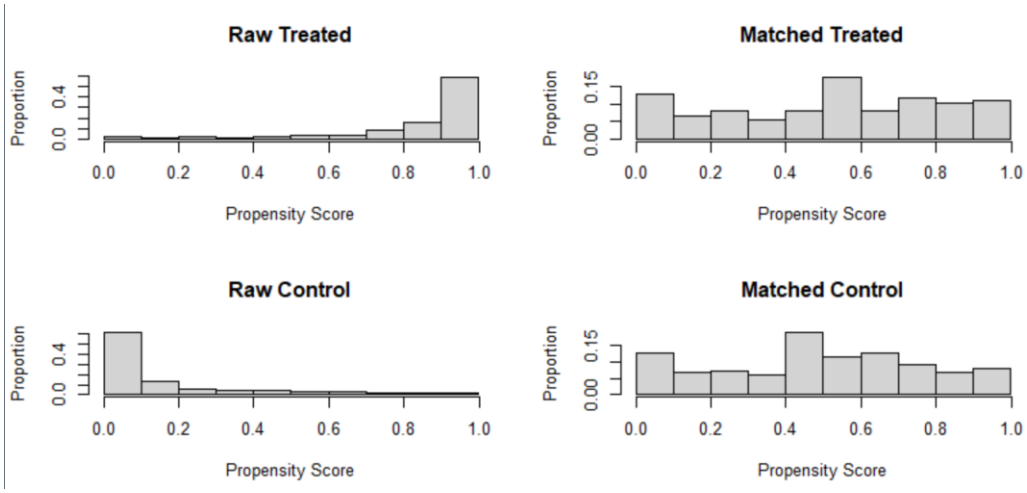


Table 2.5 presents t-tests to assess potential differences in the matched data. The results show that none of the covariates to be matched significantly differ. This means that the propensity score matching was successful.

Table 2.5 Tests of difference between Chinese and UK participants after matching

	The UK	**Chinese**	**p**
%male	42.1	43.3	χ2=0.296; p=0.955
%Familiarity with autistic people	28.0	23.8	χ2=0.778; p=0.378
%Trained in autistic knowledge	12.2	11.0	χ2=0.119; p=0.730
Age	29.8(10.69)	30.51 (11.74)	p=0.57
ASDS	**19.41(7.50)**	**27.24(6.83)**	**p<0.001**
ASK-Q-S	**5.95(1.39)**	**4.76(1.23)**	**p<0.001**
ASK-Q-T	11.41(2.03)	11.15(1.60)	p=0.194
ASK-Q-E	12.35(1.94)	12.05(2.01)	p=0.172
ASK-Q-D	13.80(2.61)	13.67(1.97)	p=0.601

Note, ASDS: Autism Social Distance Scale; ASK-Q: Autism Stigma and Knowledge Questionnaire; S: Stigma; T: Treatment; D: Diagnosis/symptoms; E: Etiology

On the other hand, the two indicators related to autism stigma, ASDS, and the stigma subscale of the ASK-Q questionnaire showed significant differences. The results showed that after removing the confounding of additional covariates, there were still significant differences in the level of stigma between participants from the UK and China. Therefore, the overall conclusion is that Chinese participants had higher levels of stigma towards autism.

Multi-group structural equation modelling

The multi-group SEM fit indices for all participants from China and the UK do not reach the cut-off (CFI=0.893<0.9), implying no structural consistency between the Chinese and UK models. (See Table 2.6) The absence of structural consistency means that the

individual variables in the current study interact in different ways across Chinese and UK participants.

Table 2.6 The fit indices of data from China and the UK with the SEM model

Configural invariance	X^2/df	CFI	SRMR	RMSEA
	4074.374/1012=4.03***	0.893<0.9	0.064<0.08	0.062<0.08

Note, Robust statistics are reported; N=1584; nChinese=795; nBritish=789; χ^2=chi squared; df=degrees of freedom; CFI=Comparative Fit Index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

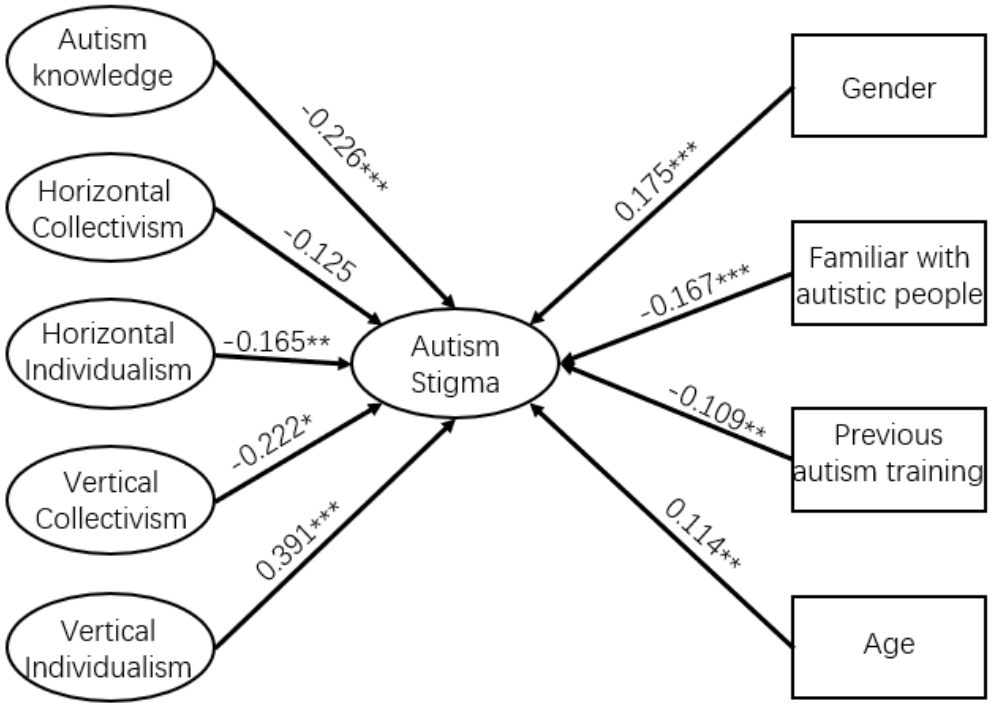
The UK participants' data were fitted separately to the SEM model. The SEM model to be tested is shown in Figure 2.4. The results show that the data and the model fit well. (See Table 2.7) The factor loadings and model plots for the UK participant data are plotted in Figure 2.4. The direction of the arrows in Figure 2.4 represents a factor that can influence autism stigma, so the model demonstrates which factors current research believes can influence autism stigma. The model is based on previous research and existing theory. The data from the UK participants and the good model fit imply that the data support the conclusions represented by the model. The numbers on the arrows represent the extent and direction to which a variable affects autism stigma. Current data-supported models suggest that greater knowledge of autism, familiarity with autistic populations, autism-related training, and higher levels of horizontal individualism and vertical collectivism can reduce autism stigma. Conversely, vertical individualism increases the level of stigma. Also, males had higher levels of stigma than females, and older participants had higher levels of stigma than younger participants.

Table 2.7 The fit indices of data from the UK with the SEM model

SEM for the UK Data	X²/df	CFI	SRMR	RMSEA
	1678.398/506=3.32***	0.938>0.9	0.062<0.08	0.054<0.08

Note, Robust statistics are reported; nBritish=789; χ²=chi squared; df=degrees of freedom; CFI=Comparative Fit Index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

Figure 2.4 Structural equation model diagram for UK data



The data from China participants were next fitted separately to the SEM model. The results show that the data and the model were not fit well. (See Table 2.8) This means the Chinese participants' data does not support the current model. In other words, the model built in the current study reflected the UK participants but not the Chinese

participants. This is why the model diagram for the Chinese participants is not presented here.

Table 2.8 The fit indices of Chinese data with the SEM model

SEM for Chinese Data	X^2/df	CFI	SRMR	RMSEA
	2373.393/506=4.69***	0.805<0.9	0.067<0.08	0.068<0.08

Note, Robust statistics are reported; nChinese=795;χ^2=chi squared; df=degrees of freedom; CFI=Comparative Fit Index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

2.4. Discussion

The current study first confirmed the cross-cultural consistency between the translated Chinese and English versions of the questionnaire, which means that their results can be directly compared. Most previous cross-cultural studies of autism stigma have used English questionnaires. For example, Obeid et al. (2015) and Gillespie-Lynch et al. (2019) recruited native English-speaking participants in Lebanon. In fact, English-speaking Lebanese may be more westernised than Arabic-speaking Lebanese. Some studies have demonstrated that native Arabic-speaking Lebanese are more inclined towards collectivism (Gillespie-Lynch et al., 2019). Therefore, Gillespie-Lynch et al. (2019) suggest that future research should be conducted in countries where the culture is more representative, using local languages. Although the study by Someki et al. (2018) in Japan and the USA translated the questionnaire into Japanese following a strict procedure, they

did not examine the cross-cultural consistency of the Japanese and English versions of the questionnaire. The current study demonstrates with greater confidence that after translating and examining the cross-cultural consistency of the English and Chinese versions of these questionnaires, the data better reflect the cultural background of Chinese and British participants and allow for more strict comparisons.

In addition, the current study used PSM to further confirm the relationship between cultural background and autism stigma without covariate effects. Previous research has found that the level of autism stigma differs between participants from different cultural backgrounds (Obeid et al., 2015; Someki et al., 2018; Gillespie-Lynch et al., 2019; Yu et al., 2020). For example, Gillespie-Lynch et al. (2019) found lower levels of autism stigma among US participants than in Lebanon, and Yu et al. (2020) found lower levels of autism stigma among US participants than in China. However, none of these studies attempted to eliminate demographic or autism experience-related differences between participants from different cultural backgrounds. Therefore, knowing whether these stigma differences come from cultural backgrounds or other random differences is difficult. The current study used propensity score matching to eliminate the differences between participants that would affect autism stigma as much as possible. Therefore, the results of this study give greater confidence that the differences in stigma stem from different cultural backgrounds rather than gender ratios, age or knowledge. The autism stigma level was higher for Chinese participants than for the UK.

Finally, the current study identifies how various factors influence autism stigma in UK participants through SEM. Current research supports previous findings, such as that more awareness about autism or the experience of interacting with autistic people reduces the stigma of autism. The findings of the current study also support the conclusion of Gillespie-Lynch et al. (2019) that vertical individualism is associated with higher levels of stigma, but at the same time, what is new to the current study is that vertical collectivism and horizontal individualism are associated with lower levels of stigma, and horizontal collectivism and stigma are not significantly related. The vertical and horizontal orientations reflect the extent to which participants endorsed hierarchy or equality, with a greater tendency toward vertical representation being more supportive of hierarchy. Gillespie-Lynch et al. (2019) suggest that vertical-horizontal cultural orientations are more likely to account for differences in stigma, with vertical cultures being associated with higher stigma. However, the current findings suggest that vertical collectivist cultural orientations are instead associated with lower stigma, reflecting that individualist-collectivist cultural orientations are also associated with stigma. Data from UK participants suggest that the more pronounced the tendency toward vertical collectivism, the lower the stigma of autism, which may imply that collectivism reduces the level of stigma, although the tendency toward verticality also increases. The vertical individualist orientation usually reflects an individualism that values social class differences. This orientation perhaps represents a disproportionate emphasis on differences between groups, such as autistic or non-autistic, while participants are less concerned about others, which may increase stigma. In contrast,

horizontal individualism emphasises personal identity alongside equality between people, which may account for the ability of horizontal individualist orientations to reduce stigma. The fit indices for Chinese participants suggest that data from China do not support the current SEM model. This implies that the factors influencing autism stigma in the Chinese cultural context differ from those in the UK. What unique factors among Chinese participants may influence the stigma of autism still needs to be explored, but current researchers speculate that perhaps factors such as socioeconomic status, education, and religion may influence stigma. For example, China is a country with a wide gap between the rich and the poor, and the stigmatisation of autism might lead to autistic people having a lower socio-economic status by affecting their employment and education, which in turn would lead to a more disadvantageous position in society and exacerbate the stigma (McDonald, 2020; Tang, 2013). The relationship between socio-economic status and autism stigma in China requires further research. Meanwhile, a U.S. study found that greater access to religious resources reduced mental health stigmatisation. The Chinese cultural context is characterised by a number of Eastern religions such as Buddhism and Taoism, and it is important that future research explores the particular impact of these religions on the autism stigma (Pederson et al., 2021).

Chapter 3 Validation of the Chinese CAT-Q and a cross-cultural study of autism camouflage

3.1. Introduction

The findings from the previous chapter suggested that participants in Chinese and British cultural contexts exhibited different levels of autism stigma. Previous research has pointed to the fact that avoiding stigma is one of the major motivations for camouflage (Hull et al., 2017). Therefore, the current chapter hopes to investigate further whether there are differences in the levels of camouflage between participants from China and the UK.

So far the CAT-Q has been translated into other languages such as Dutch and Italian (Van der Putten et al., 2021; Dell'Osso et al., 2022). However, the CFA results of many studies do not support the original 3-factor model of Hull et al. (2019) and the cross-cultural consistency of the CAT-Q also needs further testing (Lundin Remnélius & Bölte, 2023). This study will translate the CAT-Q into Chinese for the first time and test its consistency and validity. The process of translating the CAT-Q into Chinese will follow the forward-backwards translation. In addition to validating the Chinese version of the CAT-Q, the current study also sought to compare the differences in CAT-Q scores between Chinese and UK participants.

Next, previous research has identified an association between higher autistic traits and

higher reported camouflage and a connection between self-reported camouflage levels and worse mental health (Hull et al., 2021; Hull et al., 2019a). In turn, autism can lead to higher levels of depression and anxiety in addition to the core symptoms of autism (Joshi et al., 2012). The current study plans to use pathway analysis research methods to explore whether autistic camouflage has a mediating effect in the way autism affects mental health in a mediation model furthermore, whether cultural context plays a moderating role in the mediating model.

The current recruitment criteria for participants also differ from the other research. The current quantitative study will recruit 800 participants each in China and the UK. The sample size is determined by the number of participants required for the structural equation modelling analysis. The cohort in the current study did not have autistic and non-autistic subgroups, as previous research has argued that autistic traits rather than diagnostic labels determine autism camouflage (Cage & Troxell-Whitman, 2020; Cook et al., 2021). In contrast, the broad autism phenotype (BAP) is widespread in the population and can be measured by the Broad Autism Phenotype Questionnaire (BAPQ) (Hurley et al., 2007). The current study, therefore, chose to recruit participants from the broadest possible group and assess their BAP levels rather than focus on their autism diagnostic status. Another reason is that camouflage is mainly observed in autistic people with better language skills. In China, autistic people with good language skills are often undiagnosed and do not know they belong to the autistic population (Pang et al., 2018). The current study, therefore,

chose to use the BAP to respond to participants' autistic tendencies rather than a diagnosis.

The current quantitative study will answer the following questions,

1. Does the Chinese version of the CAT-Q have good reliability and validity? Is there cross-cultural consistency?
2. Do the Chinese and English versions of the BAPQ and DASS-21 pass the CFA test? Is there cross-cultural consistency?
3. Does camouflage mediate the relationship between autistic traits and mental health? Does culture play a moderating role?

3.2. Methodology

3.2.1. Participants

The study was conducted among participants from China and the UK. Participants in the UK were invited through the Prolific platform and asked to complete an anonymous questionnaire on Qualtrics. Chinese participants were invited to participate in the anonymous psychological questionnaire through the Chinese recruitment and questionnaire platform "Questionnaire Star" and were asked to complete the questionnaire. Participants were not asked to provide information about their psychiatric status or other health and medical conditions because, as mentioned in the previous introductory chapters, the current study focused more on the participants' autistic traits rather than their diagnostic

status. All participants were over 18 years of age, which means they could legally complete informed consent independently. A total of 1,648 people completed the questionnaire, including 843 participants from China and 805 from the UK. The University of Sheffield Ethics Committee reviewed and approved the recruitment and assessment procedures for the current study.

3.2.2. Materials translation

The current study has assembled a team of three translators to produce a Chinese version of the CAT-Q. The translation team consists of three native Chinese speakers who have a Master's degree in psychology and are fluent in English. The translation process considers WHO's recommendations to avoid cultural misunderstandings and ambiguities. According to the WHO recommendations, the intercultural translation of the questionnaire should be forward and reverse translated. The translation process should ensure that the concepts remain consistent across cultures without concern for exact linguistic and textual correspondence.

The current study's translators followed WHO's recommendations that the CAT-Q was first translated into Chinese. The translation process adapts some words or phrases to suit the understanding of Chinese participants, ensuring that the meaning of the original words is not changed. The translated text does not contain technical vocabulary and is accessible for all participants to read and understand. Without being able to refer to the original English

version of CAT-Q, another member of the team read and checked the translated Chinese version to ensure that there were no unintelligible or ambiguous words or phrases before retranslating the Chinese back to the English version. Finally, a third team member joins us, and all three group members came together to compare all the translated versions and discuss their differences and similarities. After final revisions, the translation team obtained a final version of the Chinese CAT-Q questionnaire, ensuring that it was not inconsistent with the English version and was easy to understand for the Chinese participants.

3.2.3. Statistics analysis

3.2.3.1. Confirmatory factor analysis and exploratory factor analysis of the CAT-Q

According to Hull et al.'s (2019a) exploratory and confirmatory factor analysis, the CAT-Q included three factors: compensation, masking and assimilation. For the current study's CAT-Q, a CFA was conducted using data from Chinese participants with an estimator of maximum likelihood (ML). The indicators used to assess the goodness of fit are the Chi-square to degrees of freedom (df) ratio ($\chi_2/df < 5$), Comparative Fit Index (CFI > 0.9), Standardised Root Mean Square Residual (SRMR < 0.08) and Root Mean Square Error of Approximation (RMSEA < 0.08) (Fan, Thompson & Wang, 1999). If the CFA results show that the data and model do not fit, additional exploratory factor analysis will be required.

3.2.3.2 Reliability and Validity of the Chinese CAT-Q

The internal consistency of the Chinese version of CAT-Q was estimated using Cronbach's alpha. Using Pearson's correlation coefficient to check the internal structural validity of the Chinese version, this step will examine the correlations between the three subscales and between them and the total score. Convergent validity was tested by investigating the Pearson correlation between the total and subscale scores of the Chinese CAT-Q, BAPQ, and DASS-21. This step of the data analysis was performed in SPSS version 26.

3.2.3.3. Multi-group CFA comparison of BAPQ and DASS-21 in English and Chinese

The internal consistency of the Chinese and English versions of DASS-21 is excellent in the current study (UK: α=0.954; Chinese: α=0.914). Although the Chinese versions of the BAPQ and DASS21 used in the current study have been considered credible and valid in previous studies, no studies to date have attempted to conduct confirmatory factor analyses of the Chinese versions of the DASS21 and BAPQ or further examine their cross-cultural consistency with the English versions. The measurement constancy tests for the Chinese and English versions of the BAPQ and DASS-21 can be assessed using a multi-group CFA analysis. The multi-group CFA test compares multiple nested models (Sass, 2011). There are four levels from weak invariance to strict invariance: (1) Configural invariance (equal structures across cultures); (2) Metric invariance (equal factor loadings

across cultures); (3) Scalar invariance (equal intercepts across cultures); and (4) Residual invariance (equal residuals across cultures). Configuration invariance is first modelled, and the latter model is always compared with the former model. The ΔCFI < 0.01 for both models is the most reliable indicator of invariance (Cheung and Rensvold, 2002).

3.2.3.4. Propensity score matching and CAT-Q score comparison

The current study attempted to compare whether there were differences in CAT-Q scores between Chinese and UK participants. Before, PSM was used to remove covariate confounding of the results. The UK participants were defined as the “treatment group” in the current study. This definition is intended to facilitate PSM use and does not imply that British nationality is a “treatment”. Under this assumption, British citizenship was a “treatment” for British participants, and it was assumed that this treatment would significantly influence the participants’ CAT-Q score. To achieve the ability of PSM to eliminate interference, the covariates that need to be matched must be carefully selected (Debowska et al., 2016). Based on previous research on camouflage, participants’ age, gender, and the autistic traits will be used as covariates to generate propensity scores in this study (Hull et al., 2019b). These factors are thought to be related to the level of the CAT-Q score. Use the MatchIt package in R to match participants from China and the UK. The current study used logistic regression to estimate propensity scores, and the matching method was greedy matching (nearest-neighbour matching with a one-to-one matching ratio, setting caliper=0.2). Usually, caliper=0.2 ensures the best match without significantly

increasing the risk of type one errors (Austin, 2011). The caliper value can limit the range of propensity scores, which will exclude more treatment participants that do not have suitable matching values but will give better matching results (Austin, 2011).

3.3. Results

A total of 1,648 people completed the questionnaire. The demographic information of the participants is shown in Table 3.1. The UK participants comprised 250 males, 547 females and eight non-binary individuals. The Chinese participants consisted of 356 males and 487 females. The average age of the UK participants was 40.06 (12.90), and the average age of the Chinese participants was 29.72 (6.30). Figures 3.1a and 3.1b show the age histograms for the Chinese and UK participants. Figures 3.2a and 3.2b are the histograms for the BAPQ scores of the UK and Chinese participants. With only eight UK participants providing a non-binary gender, the data may not be representative, and therefore data from these eight participants were not included in the data analysis of gender differences. There were significant differences in participants' mean age and gender ratio between the UK and China (See Table 3.2).

Table 3.1 Participant's descriptive data

	Total	**UK**	**CH**
N	1648	805	843
Gender (Male/Female/Other)	606/1034/8	250/547/8	356/487/0
Mean Age (SD)	34.74 (11.31)	40.06 (12.90)	29.72 (6.30)
Age Range	18-76	18-76	18-60

Figure 3.1a Age of UK participants

Figure 3.1b Age histogram of Chinese participants

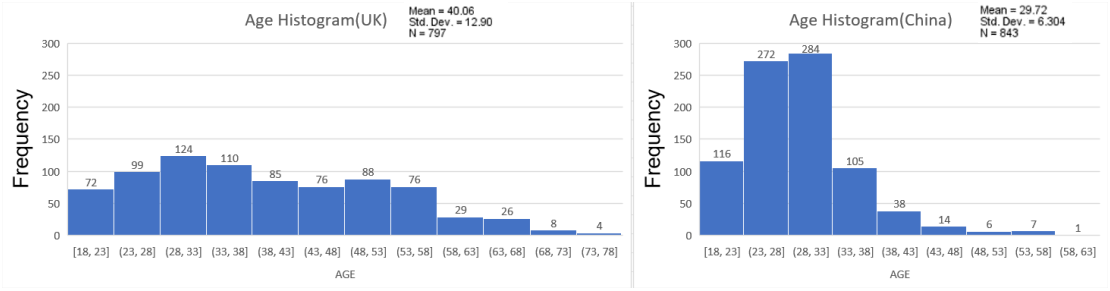


Figure 3.2a BAPQ scores for UK participants

Figure 3.2b BAPQ scores for Chinese participants

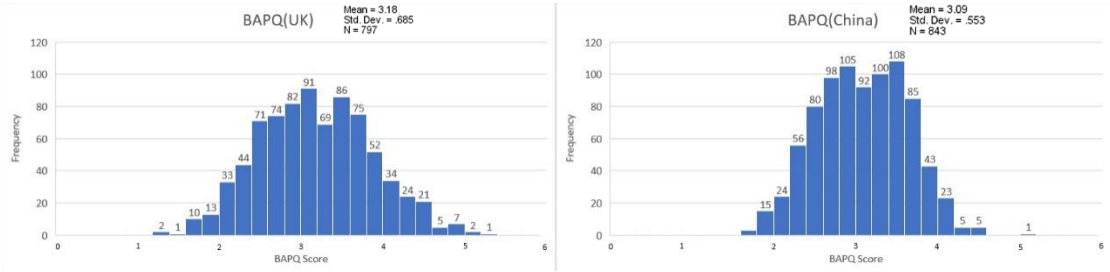


Table 3.2 Differences in age and gender ratios between Chinese and UK participants

	The UK	**Chinese**	**p**
%Male	31.37	42.23	p<0.001
Age	40.06	29.72	p<0.001
BAPQ-TOTAL	3.18	3.08	p<0.01

3.3.1. CAT-Q's Reliability

The Chinese version of the CAT-Q questionnaire showed good internal consistency with a Cronbach α of 0.839. The Cronbach α values for each factor were, respectively,

Compensation: α = 0.808; Masking: α = 0.690; and Assimilation: α = 0.798. Except for the masking factor, which is questionable, all other factors are above the acceptable α standard (See Table 3.3a). The total CAT-Q score was strongly correlated with the three factors. Among the three factors, there was a strong correlation between masking and compensating factors (r=0.638), a weak but significant correlation between compensating and assimilating factors (r=0.229), and the weakest correlation between assimilating and masking factors (0.114) (See Table 3.4a).

Data from the UK also showed that the English version of the CAT-Q showed good internal consistency in the current study, with similar correlations between the factors as the Chinese participants (See Table 3.3b, Table 3.4b).

Table 3.3a The Chinese version of CAT-Q's internal consistency(Cronbach α)

CAT-Q (Chinese)	**Cronbach α**
Compensation	0.808
Masking	0.690
Assimilation	0.798
Total	0.839

Table 3.3b The English version of CAT-Q's internal consistency(Cronbach α)

CAT-Q (the UK)	**Cronbach α**
Compensation	0.889
Masking	0.813
Assimilation	0.913
Total	0.923

Table 3.4a Correlation between the subscales and total scores of the Chinese CAT-Q

CAT-Q (Chinese)	Compensation	Masking	Assimilation	Total

Compensation	-	0.638**	0.229**	0.841**
Masking	0.638**	-	0.114**	0.748**
Assimilation	0.229**	0.114**	-	0.634**
Total	0.841**	0.748**	0.634**	-
***. Correlation is significant at the 0.01 level (2-tailed)*				

Table 3.4b Correlation between the subscales and total scores of the English CAT-Q

CAT-Q (the UK)	Compensation	Masking	Assimilation	Total
Compensation	-	0.517**	0.588**	0.876**
Masking	0.517**	-	0.349**	0.724**
Assimilation	0.588**	0.349**	-	0.825**
Total	0.876**	0.724**	0.825**	-
***. Correlation is significant at the 0.01 level (2-tailed)*				

3.3.2. Convergent validity

Convergent validity was tested by comparing the correlation between the Chinese and UK CAT-Q questionnaire's total score and factor scores and the other two scales, BAPQ and DASS21. The use of convergent validity allows for the assessment of the correlation between the individual subscales of the CAT-Q and the other two questionnaires and can be used to some extent to assess the validity of the CAT-Q. The results of the comparison are shown in Table 3.5a and 3.5b.

Table 3.5a Convergent validity of the Chinese version CAT-Q and BAPQ, DASS-21

	Correlation (Chinese)							
	BAPQ(AL)	**BAPQ(PL)**	**BAPQ(R)**	**BAPQ(T)**	**DASS(D)**	**DASS(AN)**	**DASS(S)**	**DASS(T)**
BAPQ(AL)	1	.456**	.561**	.842**	.504**	.379**	.372**	.466**
BAPQ(PL)	.456**	1	.642**	.824**	.455**	.506**	.431**	.514**
BAPQ(R)	.561**	.642**	1	.839**	.482**	.430**	.439**	.500**
BAPQ(T)	.842**	.824**	.839**	1	.577**	.521**	.490**	.588**
CATQ(C)	-.140**	.211**	.132**	0.059	0.042	.217**	.200**	.167**
CATQ(M)	-.227**	-0.016	-0.002	-.117**	-.081*	.072*	.075*	0.022
CATQ(AS)	.618**	.552**	.545**	.691**	.518**	.506**	.484**	.558**
CATQ(T)	.141**	.361**	.324**	.314**	.238**	.376**	.358**	.357**
DASS(D)	.504**	.455**	.482**	.577**	1	.691**	.711**	.893**
DASS(AN)	.379**	.506**	.430**	.521**	.691**	1	.754**	.899**
DASS(S)	.372**	.431**	.439**	.490**	.711**	.754**	1	.912**
DASS(T)	.466**	.514**	.500**	.588**	.893**	.899**	.912**	1

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

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

Table 3.5b Convergent validity of the English version CAT-Q and BAPQ, DASS-21

	Correlation (the UK)							
	BAPQ(AL)	**BAPQ(PL)**	**BAPQ(R)**	**BAPQ(T)**	**DASS(D)**	**DASS(AN)**	**DASS(S)**	**DASS(T)**
BAPQ(AL)	1	.518**	. 651**	.890**	.408**	.350**	.378**	.417**
BAPQ(PL)	.581**	1	.532**	.804**	.439**	.487**	.461**	.505**
BAPQ(R)	. 651**	.532**	1	.859**	.419**	.435**	.446**	.475**
BAPQ(T)	.890**	.804**	.859**	1	.493**	.490**	.498**	.541**
CATQ(C)	.342**	.519**	.395**	.481**	.308**	.441**	.388**	.411**
CATQ(M)	.069	.148**	.181**	.152**	.177**	.235**	.281**	.252**
CATQ(AS)	.788**	.662**	.663**	.830**	.482**	.480**	.504**	.535**
CATQ(T)	.527**	.574**	.532**	.635**	.411**	.488**	.492**	.506**
DASS(D)	.408**	.439**	.419**	.493**	1	.701**	.763**	.910**
DASS(AN)	.350**	.487**	.435**	.490**	.701**	1	.779**	.896**
DASS(S)	.378**	.461**	.446**	.498**	.764**	.779**	1	.929**
DASS(T)	.417**	.505**	.475**	.541**	.910**	.896**	.929**	1

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

The current study used Cohen's (1988) criteria to define the size of the correlation coefficient. A correlation coefficient r with a value between 0.1 and 0.3 is considered to have a small correlation, a medium correlation between 0.3 and 0.5, and a large correlation greater than 0.5. In Chinese data (see Table 3.5a), there was a significant moderate positive correlation between the total CAT-Q score and the total BAPQ and DASS21 scores. In particular, there was a significant large positive correlation between the assimilation factor of CAT-Q and the total score of BAPQ and all other factors. Also, the assimilation factor showed significant large positive correlations with the DASS21 total score and the depression and anxiety subscales and a significant medium positive correlation with the stress subscale. The compensation factor of the CAT-Q showed a significant small positive correlation with the pragmatic language and rigidity factors of the BAPQ. The compensation factor also showed a significant small positive correlation with the stress and anxiety factors as well as the total score on the DASS21. It is worth noting that the current data show a significant but weak negative correlation between the compensation and masking factors of the Chinese version of CAT-Q and the Aloof factor of BAPQ.

The English version of the CAT-Q total score had a significantly large positively correlation with the BAPQ and DASS21 total scores (see 3.5b). The compensation factor of CAT-Q showed a significant medium positive correlation with the total score of BAPQ and the rigidity and Aloof factors and a significant large positive correlation with pragmatic language. There was a significant medium positive correlation between the compensation factor of

CAT-Q and the total score of DASS21 and all three sub-factors. The masking subscale of the CAT-Q showed significant small positive correlations with the total score and rigidity and pragmatic subscales of the BAPQ. The masking subscale also had small positive correlations with the total score and three subscales of the DASS21. The assimilation subscale of the CAT-Q showed a significant large positive correlation with the total score and the three subscales of the BAPQ. The assimilation subscale showed significant large positive correlations with the total score and stress subscales of the DASS21 and significant medium positive correlations with the depression and anxiety subscale.

3.3.3. CFA results of CAT-Q

The confirmatory factor analysis was conducted on the Chinese version of the CAT-Q, using Chinese participants' data (nChinese=843). The CFA model of CAT-Q to be tested is shown in Figure 3.3. The CFA results show that the model fit indices are unacceptable and that the data from the Chinese participants do not support the Chinese version of the CAT-Q model, and the model must be discarded (see Table 3.6).

Figure 3.3 CFA model for CAT-Q

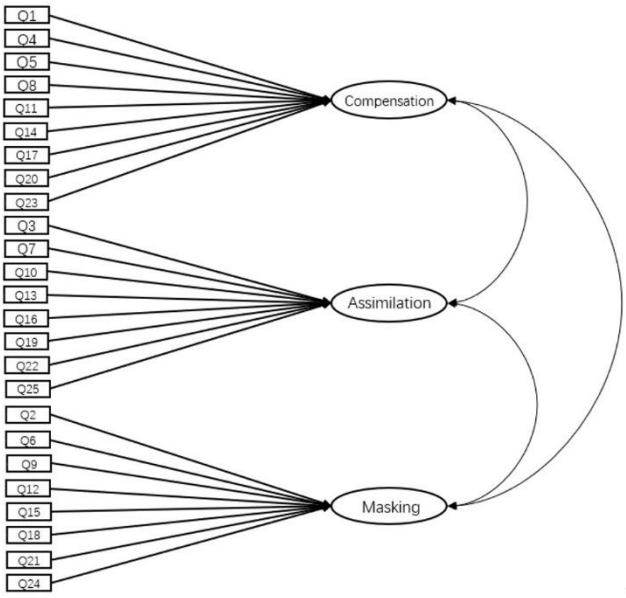


Table 3.6 The fit indices of data from China with the CAT-Q CFA model

X²/df	CFI	SRMR	RMSEA
1675.70/272=6.16***	0.776 < 0.9	0.09 > 0.08	0.078<0.08

Note, nChinese=843; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

To further test why the Chinese version of the CAT-Q could not be fitted, the current study used data from UK participants to conduct a CFA of the English version of the CAT-Q. The results showed that the data from the UK participants also did not fit the English version of the CAT-Q model. (See Table 3.7)

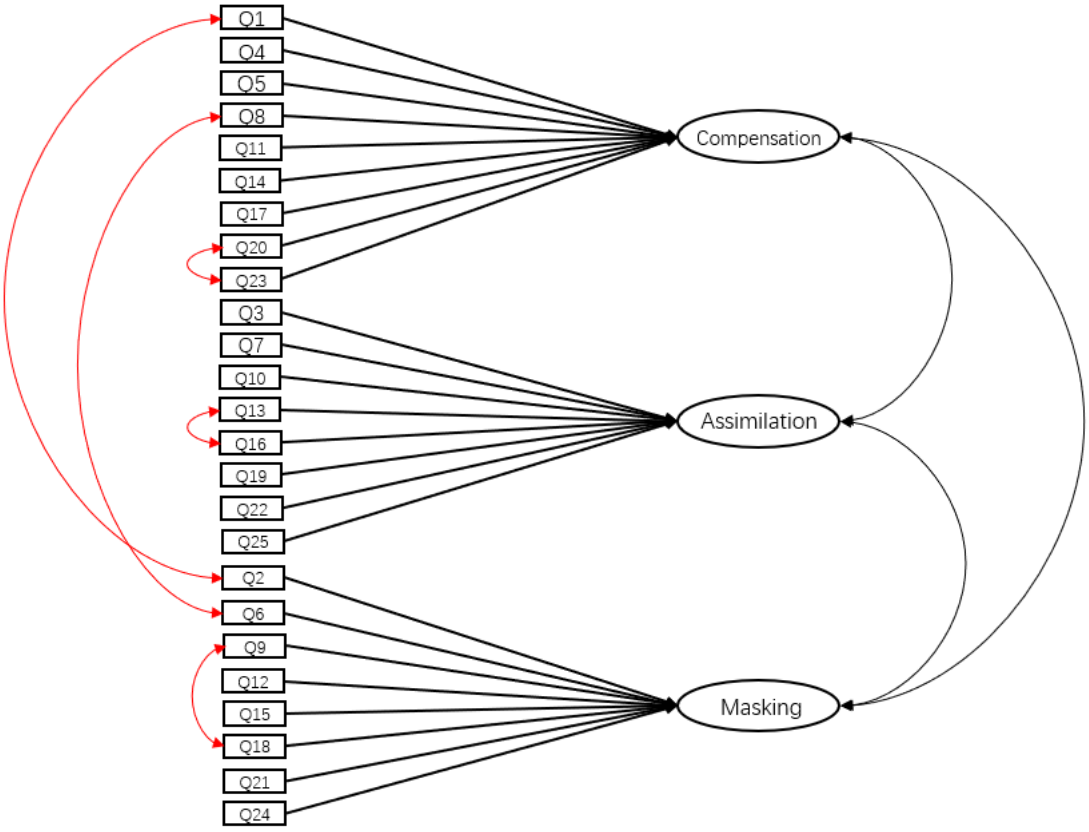
Table 3.7 The fit indices of data from the UK with the CAT-Q CFA model

X²/df	CFI	SRMR	RMSEA
1931.2/272=7.1***	0.849 < 0.9	0.077 < 0.08	0.087 > 0.08

Note, nUK=797; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

The model's modification index can tell the researcher which parameters in the model affect the fitness between the data and the model. The modification index of CAT-Q's UK CFA model was viewed in R. The model met the fit criteria after five modifications based on the index size. These five adjustments to the model were made by adding five relevant pathways to the 25 items in the CAT-Q. (See Figure 3.4)

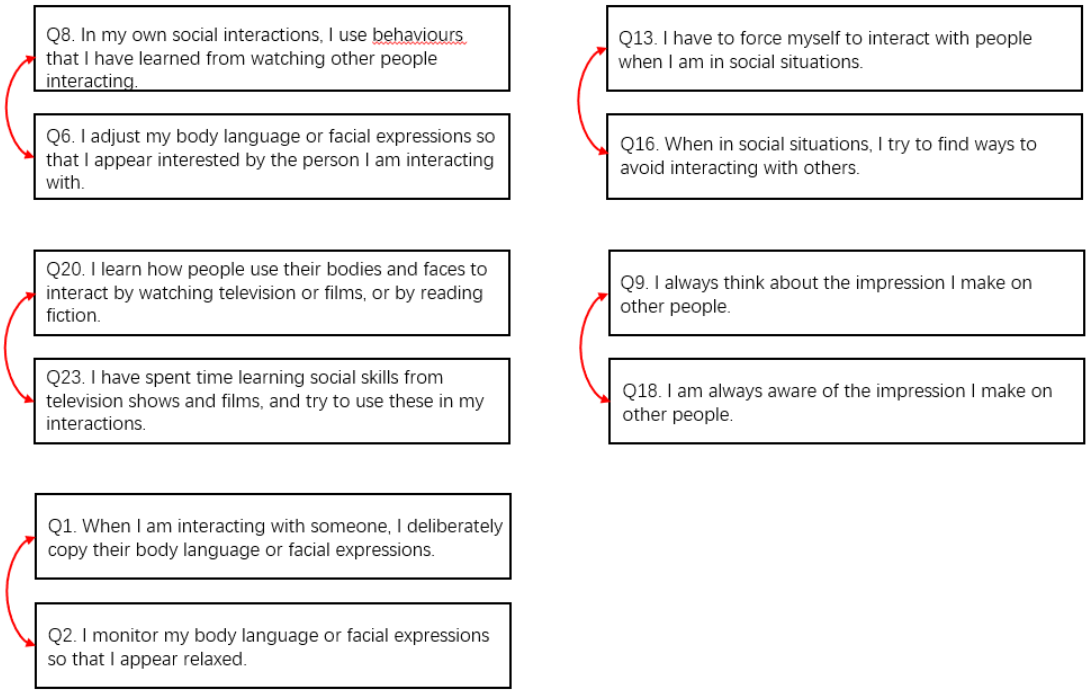
Figure 3.4 Modified UK Data CFA Model



Q1 (1. When I am interacting with someone, I deliberately copy their body language or facial expressions.) and Q2 (2. I monitor my body language or facial expressions so that I appear relaxed.) belong to compensation and masking, respectively, but they both mention

body language and facial expressions, which may be the reason why the data fit the model better after adding relevant paths to these two items. The reasons why adding correlation paths in the middle of the other four pairs (Q8 and Q6; Q20 and Q23; Q13 and Q16; Q9 and Q18) of questions can increase the fitness of the data to the model are similar to Q1 and Q2. (See Figure 3.5)

Figure 3.5 Five pairs of items with correlation after model modification



3.3.4. Exploratory factor analysis of the CAT-Q in the UK and Chinese data

The results of the CFA showed that the data from the current study did not support the model on CAT-Q proposed by Hull et al. (2019a); therefore, a new EFA was necessary. The KMO and Bartlett's tests indicated that the current UK data were suitable for factor

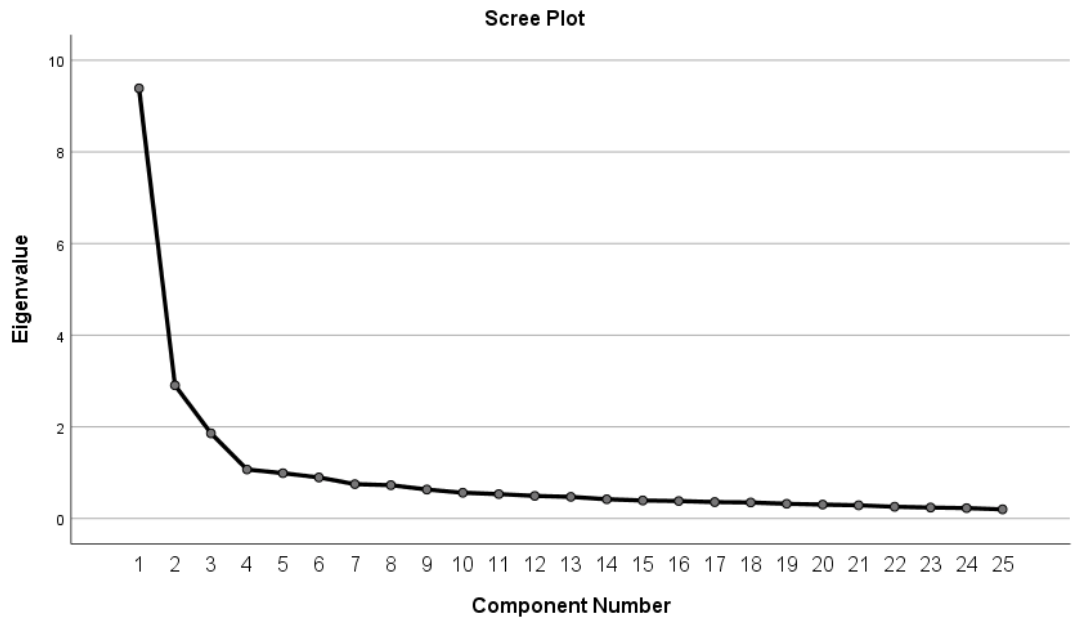
analysis (KMO = 0.935, p<0.001) (See Table 3.8).

Table 3.8 KMO and Bartlett's Test about UK Participants' CAT-Q Data

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.935
Bartlett's Test of Sphericity	Approx. Chi-Square	11163.919
	df	300
	Sig.	.000

The results of the parallel analysis suggested that four factors be extracted, but by looking at the scree plot (Figure 3.6) and the eigenvalues of the factors, the current study chose to extract three factors. This is simple in structure and consistent with the study by Hull et al.(2019a). Three factors explained 56.60% of the variance of the UK participants.

Figure 3.6 The Scree Plot about EFA for the UK CAT-Q data



Similarly, the results of CAT-Q data from Chinese participants suggest that KMO and

Bartlett's test support data are available for EFA (KMO=0.894, p<0.001). (see Table 3.9). The parallel analysis results suggested extracting five factors, but three factors were chosen based on the scree plot and eigenvalues. Three factors explained 43.60% of the variance among Chinese participants (see Figure 3.7)

Table 3.9 KMO and Bartlett's Test about Chinese Participants' CAT-Q Data

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.894
Bartlett's Test of Sphericity	Approx. Chi-Square	6477.100
	df	300
	Sig.	.000

Figure 3.7 The Scree Plot about EFA for Chinese CAT-Q data

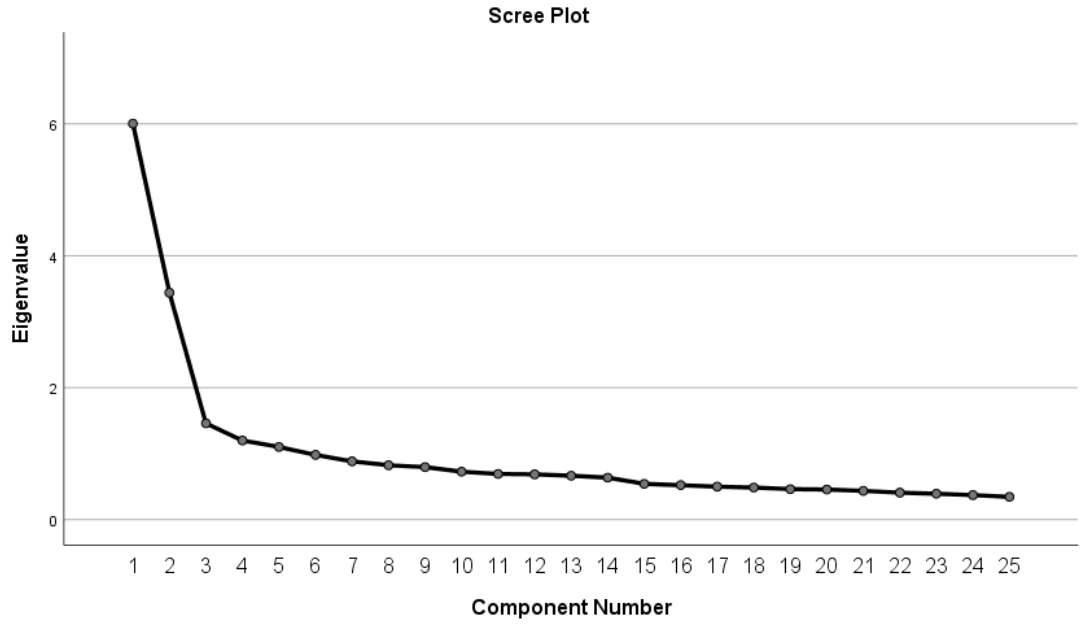


Table 3.10 uses green colour to show only those UK parts of the loading values above the absolute value of 0.3 for the individual items. The exploratory factor analysis of the current

study's CAT-Q for UK data was very similar to the results of Hull et al. (2019a) (Blue), except that item 1 loaded on a masking factor (Hull et al.'s (2019a)study item 1 loaded on compensation factor). The red numbers in Table 3.10 reflect the loadings on the three factors for each item of the CAT-Q for China data. Although the Chinese version of the CAT-Q could also extract the three factors, the Chinese data loaded too few items on the compensation factors to support the compensation subscale of the Chinese CAT-Q. This may reflect that the current Chinese CAT-Q's compensation scale does not effectively assess Chinese participants' compensating factors or that compensating factors are not present in the Chinese context in camouflage.

*Table 3.10 Loading values for CAT-Q item on the three extracted factors after rotation (**UK** and **China** and **Hull et al., 2019a**)*

Pattern Matrix[a]			
	Component		
	Assimilation	Masking	Compensation
1. When I am interacting with someone, I deliberately copy their body language or facial expressions.	.367	.415	0.58
2. I monitor my body language or facial expressions so that I appear relaxed.		.778(.606) 0.75	
3. I rarely feel the need to put on an act in order to get through a social situation.	.667(.404) 0.71		
4. I have developed a script to follow in social situations.		.472	.479 0.48
5. I will repeat phrases that I have heard others say in the exact same way that I first heard them.	.419	.328	.629 0.57
6. I adjust my body language or facial expressions so that I appear interested		.751(.722) 0.69	

by the person I am interacting with.			
7. In social situations, I feel like I'm 'performing' rather than being myself.	.721(.657) 0.75		
8. In my own social interactions, I use behaviours that I have learned from watching other people interacting.		.592	.608 0.73
9. I always think about the impression I make on other people.		.661(.441) 0.52	
10. I need the support of other people in order to socialise.	.621(.681) 0.66		
11. I practice my facial expressions and body language to make sure they look natural.		.666	.728 0.61
12. I don't feel the need to make eye contact with other people if I don't want to.	.363	.480 0.52	
13. I have to force myself to interact with people when I am in social situations.	.862(.565) 0.77		
14. I have tried to improve my understanding of social skills by watching other people.		.606	.598 0.73
15. I monitor my body language or facial expressions so that I appear interested by the person I am interacting with.		.679(.693) 0.66	
16. When in social situations, I try to find ways to avoid interacting with others.	.840(.702) 0.75		
17. I have researched the rules of social interactions to improve my own social skills.		.678	.847 0.56
18. I am always aware of the impression I make on other people.		.664(.431) 0.54	
19. I feel free to be myself when I am with other people.	.882(.496) 0.81		.586
20. I learn how people use their bodies and faces to interact by watching television or films, or by reading fiction.		,638	.914 0.77
21. I adjust my body language or facial expressions so that I appear relaxed.		.688(.700) 0.69	

22. When talking to other people, I feel like the conversation flows naturally.	.898(.551) 0.85		.432
23. I have spent time learning social skills from television shows and films, and try to use these in my interactions.		.696	.919 0.79
24. In social interactions, I do not pay attention to what my face or body are doing.		.679(.416) 0.69	.633
25. In social situations, I feel like I am pretending to be 'normal'.	.777(.736) 0.74		
Extraction Method: Principal Component Analysis. *Rotation Method: Oblimin with Kaiser Normalization.*			

3.3.5. Multi-group CFA comparison of BAPQ and BAPQ'S EFA

BAPQ

A multi-group CFA was conducted on the Chinese and English versions of the BAPQ to test the cross-cultural consistency of the two versions. The CFA model of the BAPQ to be tested is shown in Figure 3.8. The results show no cross-cultural consistency between the Chinese and English versions of the BAPQ. (See Table 3.11)

Figure 3.8 CFA model for BAPQ

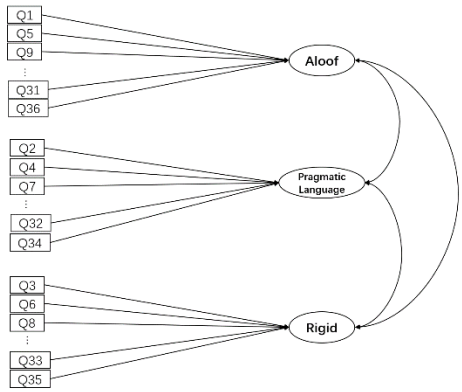


Table 3.11 The fit indices of data from the UK and China with the BAPQ CFA model

X^2/df	CFI	SRMR	RMSEA	
6953.063/1182=5.88***	0.749 < 0.9	0.089 > 0.08	0.077 < 0.08	Reject

Note, nUK=797; nChinese=843; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

CFA was conducted using BAPQ data from Chinese and UK participants respectively, and the data was found not to support the original model (See Table 3.12a and 3.12b).

Table 3.12a The fit indices of data from China with the BAPQ CFA model

X^2/df	CFI	SRMR	RMSEA	
3176.287/591=5.37***	0.706 < 0.9	0.103 > 0.08	0.072 < 0.08	Reject

Note, nChinese=843; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

Table 3.12b The fit indices of data from the UK with the BAPQ CFA model

X^2/df	CFI	SRMR	RMSEA	
3776.776/591=6.39***	0.776 < 0.9	0.079 < 0.08	0.082 > 0.08	Reject

Note, nUK=797; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

In the current study, both the Chinese and English versions of the BAPQ did not pass the CFA, and the two language versions of the BAPQ did not pass the cross-cultural consistency test, meaning that direct comparisons of Chinese and UK participants' BAPQ scores are questionable.

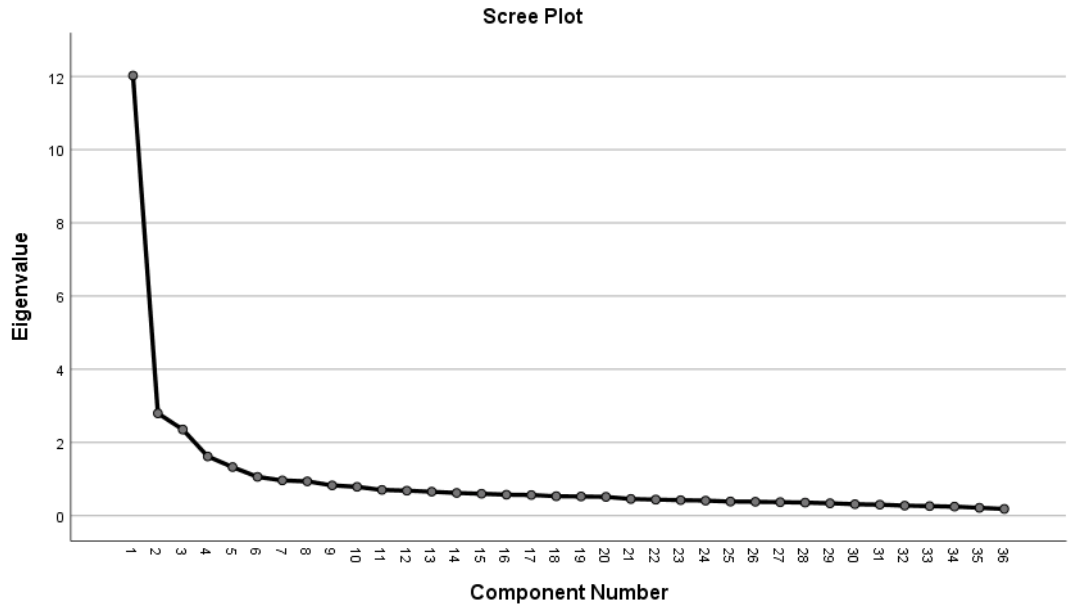
3.3.6. Exploratory factor analysis of the Chinese and English versions of the BAPQ

Because neither the Chinese nor English BAPQ in the current study passed the CFA, an EFA was necessary. The KMO and Bartlett's Test indicated that the BAPQ data from the UK participants were suitable for exploratory factor analysis (KMO=0.946, p<0.001) (See Table 3.13). Based on the scree plot, three factors were chosen to be extracted (see Figure 3.9).

Table 3.13 KMO and Bartlett's Test about UK Participants' BAPQ Data

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.946
Bartlett's Test of Sphericity	Approx. Chi-Square	14571.488
	df	630
	Sig.	.000

Figure 3.9 The Scree Plot about EFA for UK BAPQ data



Similarly, the Chinese version of the BAPQ data suggests that the KMO and Bartlett's test supports the data for EFA (KMO=0.926, p<0.001). (see Table 3.14). Based on the scree plot, three factors were selected for extraction (see Figure 3.10).

Table 3.14 KMO and Bartlett's Test about Chinese Participants' BAPQ Data

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.926
Bartlett's Test of Sphericity	Approx. Chi-Square	9280.185
	df	630
	Sig.	.000

Figure 3.10 The Scree Plot about EFA for Chinese BAPQ data

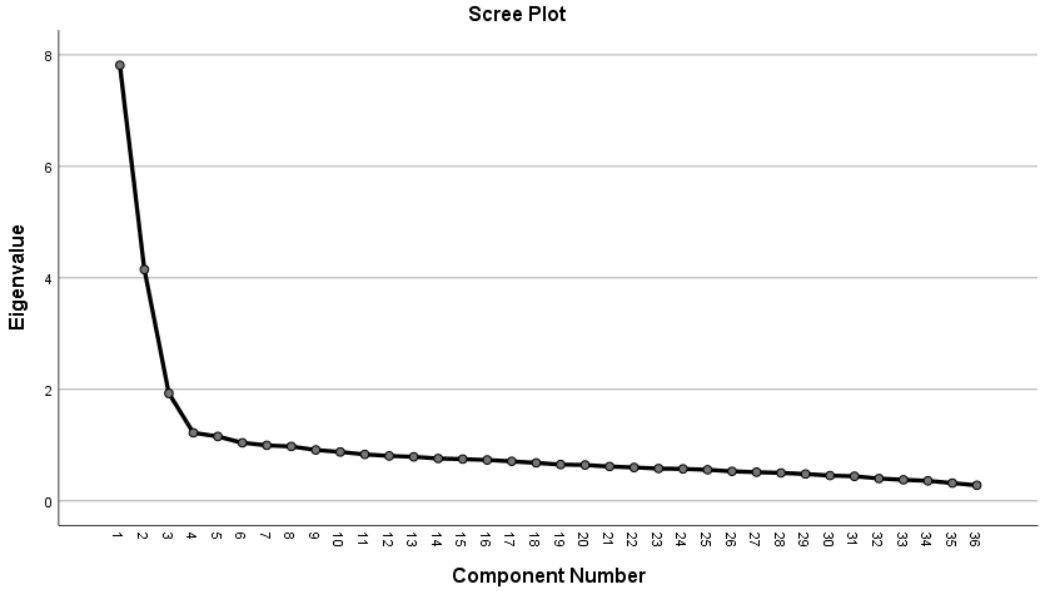


Table 3.15 adds the EFA data from the UK, China and Sasson et al. (2013) on BAPQ in a single table for comparison. The exploratory factor analysis of the UK BAPQ data generally supports the previous study, with the items falling under the aloof, pragmatic language and rigid factors. Some items do not distinguish well between the three factors, with items 7,21 and 34, which were initially pragmatic language, being considered aloof in the current study. Item 26, initially rigid, was considered aloof. Also, the UK data showed that items 10, 11 and 29 of the BAPQ in the current study do not distinguish well between the Aloof and Pragmatic Language factors. Item 19 does not distinguish well between the Aloof and Rigid factors (See Table 3.15). It is worth knowing that, In the table, EFA data from Sasson et al. (2013) on BAPQ are added in blue to compare with the current study's UK data. The results show that Sasson et al.'s (2013) BAPQ for Q7, Q10, Q11, Q19, Q21, Q26, Q29, and Q34 also show an inability to distinguish between the two factors. This suggests that these questions from the original BAPQ questionnaire

by Hurley et al. (2007) may have been innately deficient.

The exploratory factor analysis of the Chinese version of the BAPQ also allowed for the extraction of 3 factors: Aloof, pragmatic language, and Rigid. However, unlike the English version and the findings of previous studies, items 5, 18, and 27, originally belonging to Aloof, were loaded on pragmatic language, and items 7, 21, and 34, originally belonging to Pragmatic language, were loaded on Rigid. The Rigid dimension, which initially had 12 items, only loaded four items correctly in the current Chinese version of the data analysis, so it may not be stable enough.

*Table 3.15 Loading values for BAPQ items on the three extracted factors after rotation (**UK** **and** **China** **and** **Sasson et al., 2013**)*

Pattern Matrix[a]			
	Component		
	Aloof	**Pragmatic Language**	**Rigid**
1. I like being around other people	.771(.721) 0.751		
2. I find it hard to get my words out smoothly		.472(.616) 0.419	
3. I am comfortable with unexpected changes in plans	.450		.601 0.534
4. It's hard for me to avoid getting side-tracked in conversation		.640(.612) 0.540	
5. I would rather talk to people to get information than to socialise	.397 0.518	.351	
6. People have to talk me into trying something new		.563	.621 0.512
7. I am "in-tune" with the other person during conversation	.744(.337) 0.469	0.421	.359
8. I have to warm myself up to the idea of visiting an unfamiliar place			.613(-.383) 0.498
9. I enjoy being in social situations	.773(.851) 0.810		
10. My voice has a flat or monotone sound to it	.345 0.354	.368(.388)	

11. I feel disconnected or “out of sync” in conversations with others	.493 0.518	.376(.712) 0.482	
12. People find it easy to approach me	.693(.507) 0.574		
13. I feel a strong need for sameness from day to day		.587	.874 0.680
14. People ask me to repeat things I’ve said because they don’t understand		.602(.659) 0.534	
15. I am flexible about how things should be done	.374		.526(.339) 0.522
16. I look forward to situations where I can meet new people	.706(.746) 0.751		
17. I have been told that I talk too much about certain topics		.613(.649) 0.486	
18. When I make conversation it is just to be polite	.370 0.458	.456	
19. I look forward to trying new things	.363(.604) 0.443		.492 0.557
20. I speak too loudly or softly		.655(.441) 0.495	
21. I can tell when someone is not interested in what I am saying	.357		.577
22. I have a hard time dealing with changes in my routine		.692	.818 0.735
23. I am good at making small talk	.764(.702) 0.663		
24. I act very set in my ways			.755(-.506) 0.590
25. I feel like I am really connecting with other people	.759(.677) 0.731		
26. People get frustrated by my unwillingness to bend		.309(.678) 0.310	0.372
27. Conversation bores me	.541 0.583	.570	
28. I am warm and friendly in my interactions with others	.767(.429) 0.615		
29. I leave long pauses in conversation	.440 0.319	.397(.698) 0.389	
30. I alter my daily routine by trying something different	.497		.540 0.520
31. I prefer to be alone rather than with others	.513(.521) 0.616	.343	

32. I lose track of my original point when talking to people		.645(.658) 0.544	
33. I like to closely follow a routine while working			.835(-.508) 0.527
34. I can tell when it is time to change topics in conversation	.570 0.349	0.370	.516
35. I keep doing things the way I know, even if another way might be better		.315(.470)	.573 0.385
36. I enjoy chatting with people	.863(.836) 0.845		
Extraction Method: Principal Component Analysis. *Rotation Method: Oblimin with Kaiser Normalization.*			

3.3.7. A multi-group CFA and cross-cultural consistency test for the Chinese and the UK DASS21

The baseline model of DASS21 to be tested is shown in Figure 3.11. The data from Chinese and UK participants on DASS21 fit the baseline model well (see Table 3.16), and subsequent multiple-group comparisons revealed partial residual consistency. This means that the Chinese and English versions of DASS21 pass the CFA, and there is cross-cultural consistency. It is possible to directly compare the magnitude of DASS21 scores between Chinese and British participants (see Table 3.17).

Figure 3.11 Baseline model for multi-group CFA testing for DASS21

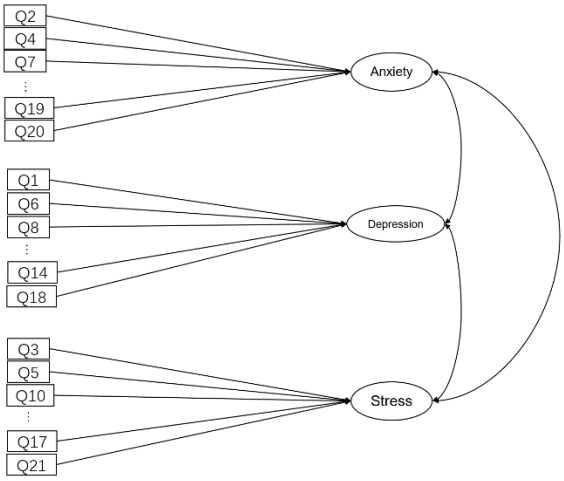


Table 3.16 The fit indices of data from the UK and China with the DASS21 CFA model

X²/df	CFI	SRMR	RMSEA
1853.02/372=4.98***	0.917 > 0.9	0.042 < 0.08	0.070 < 0.08

Note, nUK=797; nChinese=843; CFI= Comparative fit index; RMSEA= the root mean square error of approximation; SRMR= standardised root mean square residual.

Table 3.17 Multi-group CFA about Chinese and UK DASS21

Models	χ²	Δχ²	df	CFI	ΔCFI	
Configural invariance	1853.02		372	0.917		Accept
Metric invariance	1933.50	80.48	390	0.913	0.004<0.01	Accept
Scalar invariance	2973.86	1040.36	408	0.856	0.057 > 0.01	Reject
Partial scalar invariance	2099.64	166.14	403	0.905	0.009 < 0.01	Accept
Residual invariance	2383.95	284.31	424	0.890	0.015 > 0.01	Reject
Partial residual invariance	2264.07	164.43	422	0.896	0.008 < 0.01	Accept

3.3.8. PSM and cross-cultural comparison

The Chinese and UK participants in the current study differed significantly in the covariates related to CAT-Q scores, as shown in Table 3.2. Before conducting the PSM, Table 3.18

summarises the covariates, and the Mean Diff column shows differences in the covariates, all of which indicate that PSM is necessary before comparing differences in CAT-Q scores.

Table 3.18 The Mean Diff. difference before PSM

Summary of Balance for All Data:

	Means Treated	Means Control	Std.	Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max
distance	0.6144	0.3646		0.9569	2.6666	0.2659	0.4694
锘緽ENDER	1.6863	1.5777		0.2340	0.8825	0.0543	0.1086
AGE	40.0627	29.7153		0.8021	4.1875	0.1814	0.4414
BAPQ_TOTAL	114.4768	111.1839		0.1335	1.5333	0.0341	0.0940

After matching, get the matched sample (n=896) containing UK participants (n=448) and Chinese participants (n=448). Matching eliminated significant differences in covariates between matched Chinese and UK participants. The matching quality can be assessed visually using jitter plots and histograms (Randolph et al., 2014). Figure 3.12 is a jitter plot showing the quality of the matches. Each circle represents a propensity score for the data. Figure 3.13 shows the distribution of propensity scores before and after matching. The unmatched jitter and histograms are very different, while the matched ones are mostly similar. Figures 3.12 and 3.13 show that the matching was successful.

Figure 3.12 Distribution of propensity scores

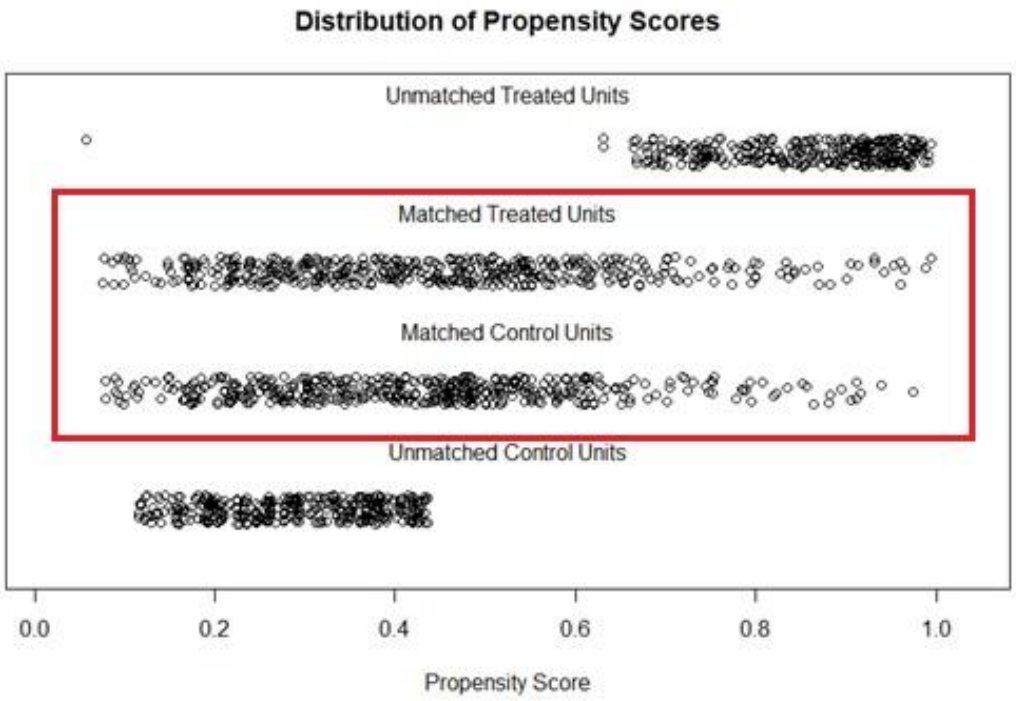


Figure 3.13 Histograms of propensity scores before and after matching

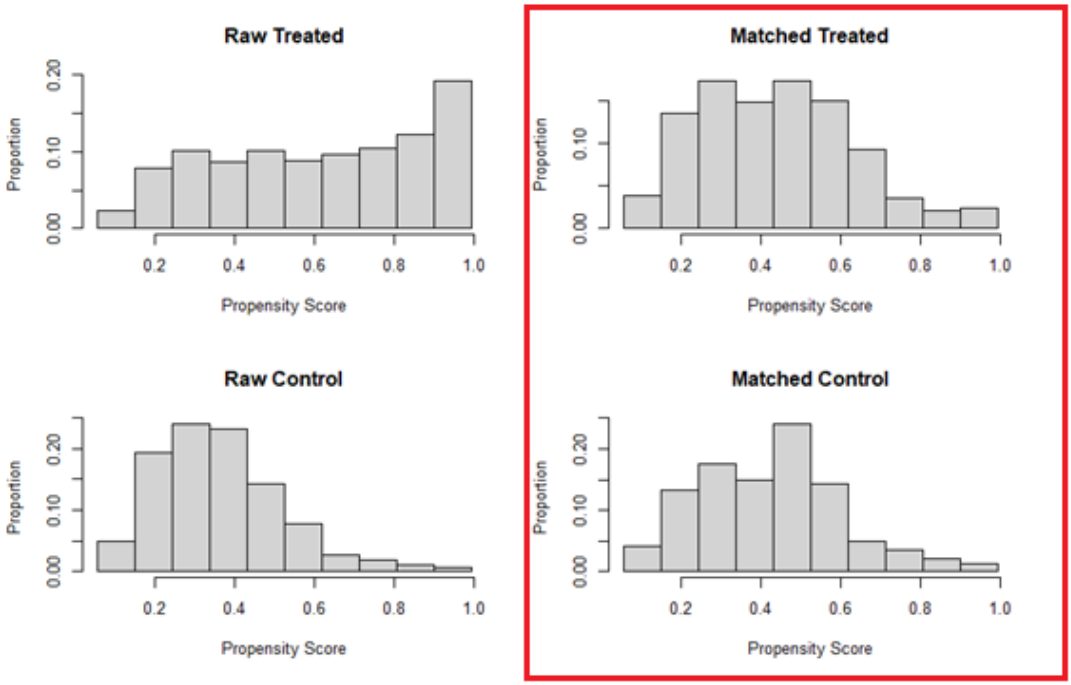


Table 3.19 also shows that the mean difference after matching is minimal, meaning that

matching to eliminate the effect of covariates is successful.

Table 3.19 The Mean Diff. difference after PSM

Summary of Balance for Matched Data:

	Means Treated	Means Control	Std.	Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	Std. Pair Dist.
distance	0.4422	0.4253		0.0649	1.2041	0.0158	0.0733	0.0659
锘緽ENDER	1.6659	1.6315		0.0743	0.9559	0.0172	0.0345	0.5663
AGE	31.9634	31.4828		0.0373	1.4035	0.0190	0.0690	0.2738
BAPQ_TOTAL	114.0754	113.2931		0.0317	1.3820	0.0208	0.0560	0.8583

Table 3.20 shows that despite eliminating significant differences in covariates, compensation, assimilation, and total scores on the CAT-Q still differed significantly between Chinese and UK participants. In particular, compensation scores were significantly higher for Chinese participants than for the UK, which resulted in higher overall camouflage scores for Chinese participants than for the UK, despite higher assimilation scores for UK participants. The masking scale was not significant among Chinese and English participants.

Table 3.20 CAT-Q differences between Chinese and UK participants after PSM

	The UK	Chinese	p
%male	33.4	36.9	$\chi 2=1.211$; p=0.271
Age	31.96(8.53)	31.48 (7.20)	p=0.35
BAPQ_TOTAL	3.17(0.66)	3.15(0.56)	p=0.589
CATQ-C	**28.32(10.74)**	**37.09(7.78)**	**p<0.001**
CATQ-M	35.34(8.01)	35.93(6.08)	p=0.205
CATQ-AS	**29.98(10.24)**	**27.57(7.97)**	**p<0.001**
CATQ-TOTAL	**93.54(23.87)**	**100.59(15.73)**	**p<0.001**

Another PSM was conducted to further control for differences in CAT-Q and to test whether Chinese and UK participants showed significant differences on DASS21. The second PSM looked at the total CAT-Q score as another covariate, matched in the same way as before, and yielded 896 participants after matching, with 448 participants in each Chinese and UK

subgroup. Table 3.21 shows the differences in each factor between Chinese and UK participants after the second matching. Without significant differences in BAPQ and CAT-Q scores, UK participants exhibited higher DASS21 scores than the Chinese. In particular, UK participants exhibited higher depression and stress scores but no significant difference in anxiety scores.

Table 3.21 DASS21 differences between Chinese and UK participants after PSM

	The UK	Chinese	p
%male	33.4	36.9	χ2=1.211; p=0.271
Age	32.13(9.10)	31.39 (7.22)	p=0.18
BAPQ-TOTAL	3.189(0.66)	3.185(0.56)	p=0.925
CATQ-TOTAL	96.92(23.4)	98.21(16.93)	p=0.342
DASS21-D	**6.57(5.60)**	**4.47(3.88)**	**p<0.001**
DASS21-AN	4.94(4.87)	4.56(3.43)	p=0.183
DASS21-S	**7.60(5.28)**	**6.32(3.81)**	**p<0.001**
DASS21-TOTAL	**19.11(14.26)**	**15.35(10.03)**	**p<0.001**

3.3.9. Analyses of Moderating and Mediating Effects

3.3.9.1. Mediating Effects

A path analysis model was built using SEM to examine how the factors interacted with each other, and a multi-group path analysis was conducted to examine whether nationality mediated the model's path. The path analysis model was based on previous knowledge that scores on the BAPQ affect the CAT-Q and DASS21, while scores on the CAT-Q also affect the DASS21. The results of the data fit and path analysis models for the Chinese

and UK participants are shown in Figures 3.14a and 3.14b. The factor with an arrow pointing to it in the model diagram for path analysis indicates that another factor influences it. For example, the model was set up so that BAPQ scores influenced CAT-Q and DASS21 scores. Also, CAT-Q scores affect DASS21 scores. The numbers on the arrows are standardised regression coefficients and reflect the magnitude of the interaction between the factors.

Figure 3.14a The path analysis model for UK participant data

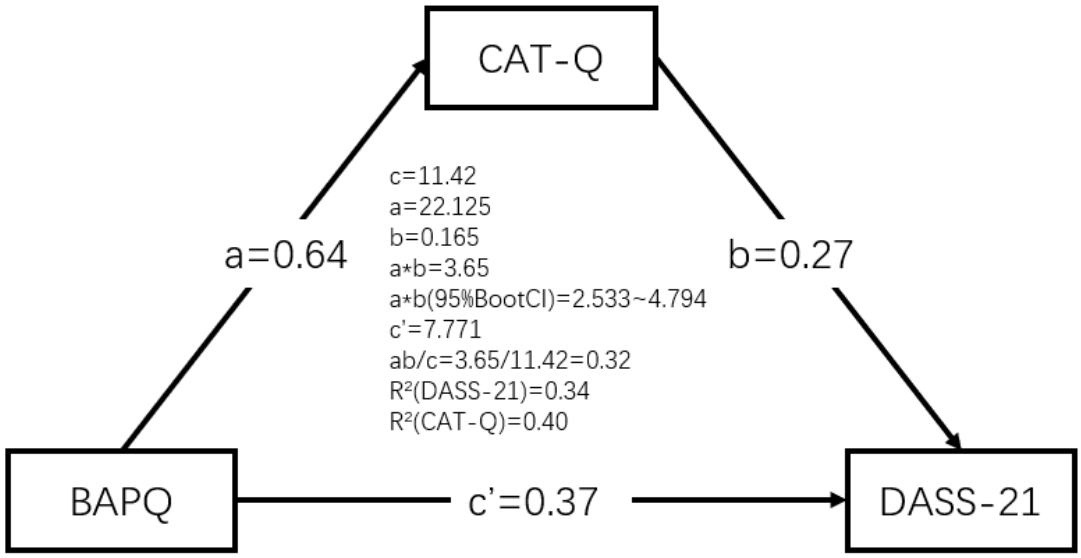


Figure 3.14b The path analysis model for Chinese participant data

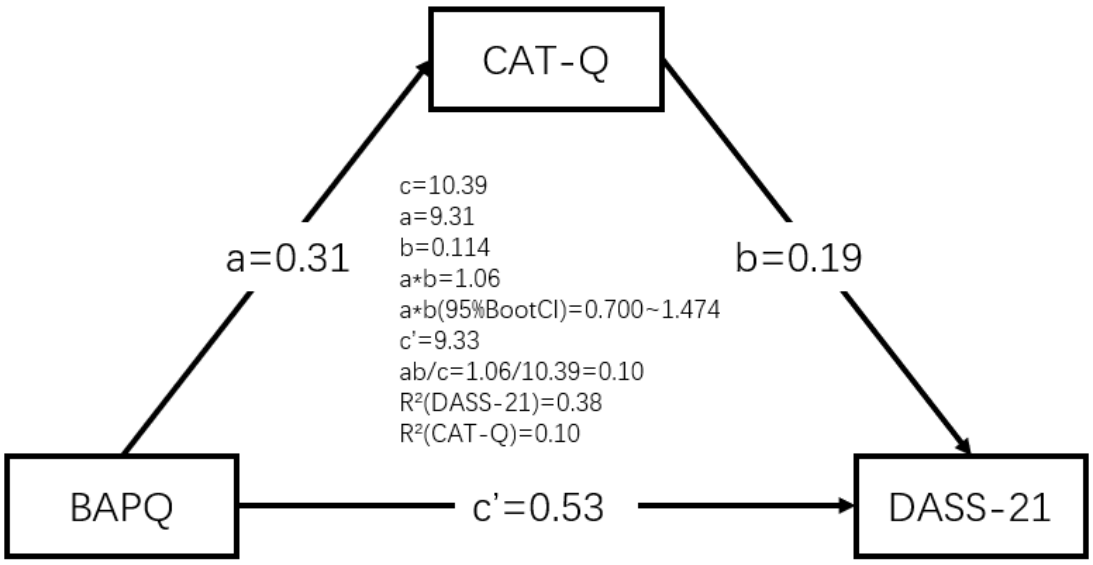


Table 3.22a Partial mediating effects of CAT-Q among UK participants

UK	Unstandardised β (standardised b)	95% CI	
Total, Direct, and Indirect Effects		Lower	Upper
c(Total Effect): BAPQ→DASS-21	11.42*** (0.54)	10.185	12.660
c'(Direct Effect): BAPQ→DASS-21	7.77*** (0.37)	6.044	9.409
a*b(Indirect Effect): BAPQ→CAT-Q→DASS-21	3.65*** (0.17)	2.533	4.794

Table 3.22b Partial mediating effects of CAT-Q among Chinese participants

China	Unstandardised β (standardised)	95% CI	
Total, Direct, and Indirect Effects		Lower	Upper
c(Total Effect): BAPQ→DASS-21	10.39*** (0.59)	9.420	11.396
c'(Direct Effect): BAPQ→DASS-21	9.33*** (0.53)	8.280	10.339
a*b(Indirect Effect): BAPQ→CAT-Q→DASS-21	1.06*** (0.06)	0.700	1.474

The mediation analysis results suggest a partial mediating effect of autistic camouflage in the process by which autistic tendencies affect mental health. Autistic tendencies affected mental health both directly and by influencing participants' camouflage. Data from UK participants showed that higher scores on the BAPQ were more likely to exhibit more autistic camouflage ($b=0.64$, $p<0.001$) and that autistic camouflage led to higher mental health scores ($b=0.27$, $p<0.001$). Also, higher scores of broad autistic tendencies directly led to poorer mental health ($b=0.37$, $p<0.001$). The 95% confidence interval CI for the indirect effect ($b=0.17$, $p<0.001$) was entirely above 0 (2.533-4.794). Mediating effects constitute 32% of the total effect among UK participants (See Figure 3.14A and Table 3.22A).

The data for Chinese participants also show significant partial mediating effects. Higher BAPQ scores predicted higher CAT-Q scores ($b=0.31$, $p<0.001$), while higher CAT-Q scores predicted higher DASS-21 scores ($b=0.19$, $p<0.001$). Higher BAPQ scores also directly lead to higher DASS-21 scores ($b=0.53$, $p<0.001$). The 95% confidence interval CI for the indirect effect ($b=0.06$, $p<0.001$) was above 0 (9.420-11.396). The mediating effect accounted for 10% of the total effect. (see Figure 3.14b and Table3.22b)

3.3.9.2. Moderating Effects

A multi-group path analysis was used to test whether nationality moderated the model. Multi-group analyses for path analysis also used comparisons of nested models. By

restricting the three regression coefficients in each of the two models, significant differences (X^2 (df=3)=86.64, p<0.001) were found between the new and unrestricted models when the regression coefficients between the CAT-Q and BAPQ scores were fixed. This implies that nationality has a significant moderating effect on the interaction between CAT-Q and BAPQ. Further analysis of how nationality moderates the pathway model. Participants from China and the UK were divided into a high BAPQ group with BAPQ scores above the cut-off point and a low BAPQ group below it. Comparing their mean CAT-Q scores revealed that while Chinese participants had higher CAT-Q scores than UK participants in both the high and low groups, the effect of BAPQ scores on CAT-Q scores was more pronounced in UK participants (See Figure 3.15). Figure 3.16 illustrates the impact of the high and low grouping of BAPQ on DASS21 in different countries. It can be seen that the moderating effect of cultural background is not significant here.

Figure 3.15 The moderating effect of cultural background (CAT-Q)

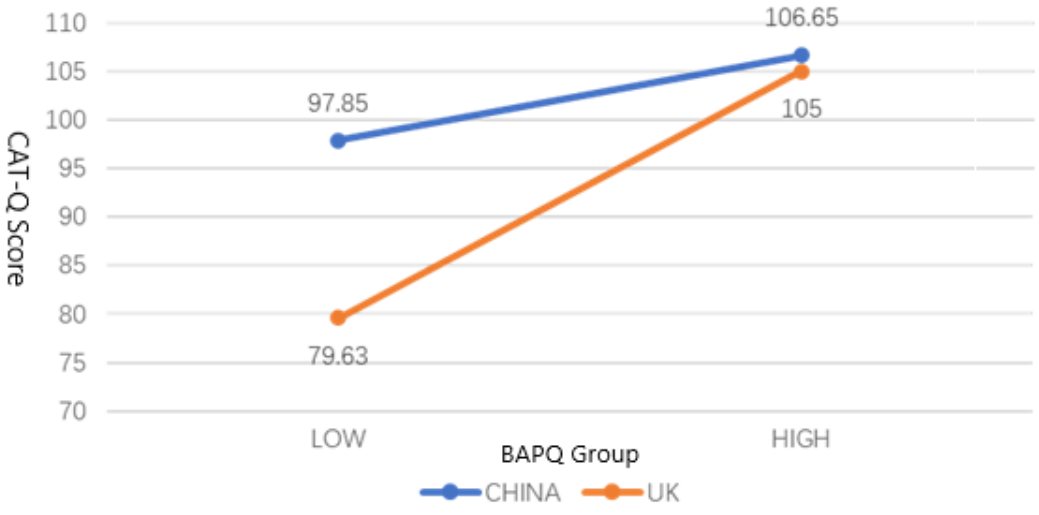
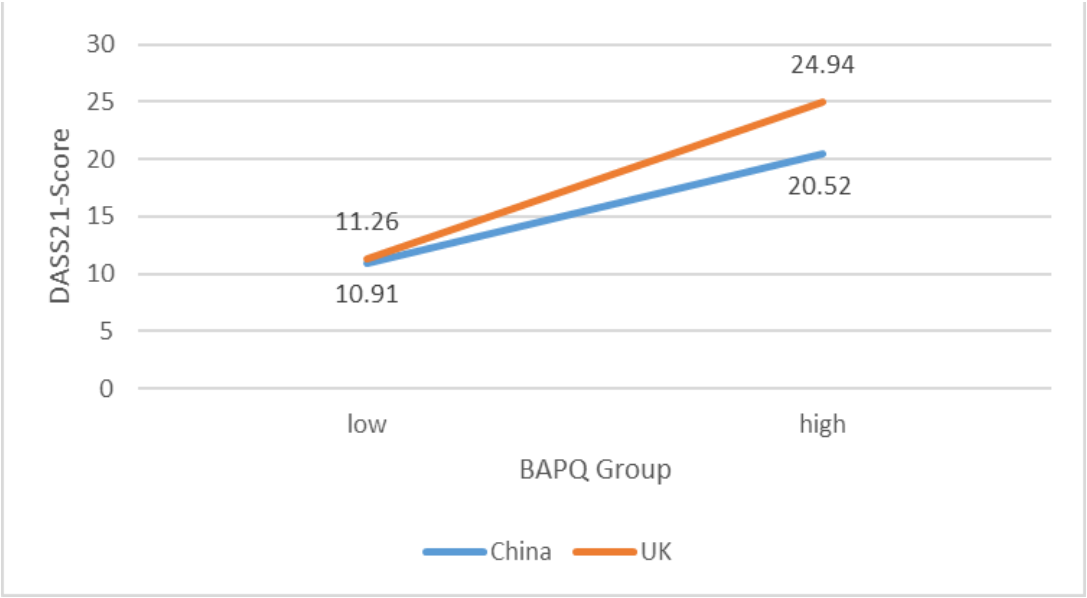


Figure 3.16 The moderating effect of cultural background (DASS-21)



3.4. Discussion

3.4.1. The Chinese version of the CAT-Q has good reliability and validity but does not pass the CFA

The current study tested the reliability and validity of the Chinese version of the CAT-Q. The results showed a significant correlation between the Chinese version of the CAT-Q subscales, indicating that the Chinese version has good internal consistency. Also, there were significant correlations between the scores of the Chinese version of the CAT-Q subscales and total scores and the BAPQ and DASS21 subscales and total scores. This implies that the Chinese version of the CAT-Q has good convergent validity. However, the

next CFA found that the fit indices of the Chinese participant data and the Chinese CAT-Q model did not meet the criteria. A subsequent CFA on the English version of the CAT-Q produced results that also failed to fit. The data from Chinese participants did not support the CFA model of the CAT-Q probably because cultural differences caused the Chinese version of the CAT-Q not to have the three factors claimed by Hull et al. (2017). In contrast, the UK participants did not support the CAT-Q's CFA model, probably because the CAT-Q, as a newly developed questionnaire, is not good enough for all participants, even UK participants. It still needs more CFA studies to prove that it is a reliable questionnaire.

A subsequent revision of the CFA model for the UK CAT-Q revealed a correlation path between Q1 and Q8 in the compensation subscale and Q2 and Q6 in the masking subscale. This may suggest that these questions need more revision and validation. However, it is important to note that the CFA model’s modification indices only tell the researcher how to modify them to make the data and model fit better at a statistical level, and it is not suggested that the questionnaire be modified this way. The current study then compared the CAT-Q data from Chinese and UK participants separately for EFA with the study by Hull et al. (2019a). The results showed that both the English and Chinese versions of the CAT-Q of the current study suggested the extraction of three factors, with the English version loading the same factors as the previous study by Hull et al. (2019a), except that Q1 loaded on a different masking factor than the compensatory factor found by Hull et al. (2019a). EFA of CAT-Q data from Chinese participants found that while the Chinese data

were also able to extract three factors, there were too few items loaded on the compensation factor to support compensation as a separate factor. This may mean that these items in the CAT-Q are not representative of the compensatory characteristics of Chinese participants in the Chinese cultural context. Alternatively, it may also mean that the Chinese autism camouflage does not share the same three factors as in the UK but only includes masking and assimilation. One possibility is that compensation and masking, the two main means of camouflage, are not clearly separable concepts in Chinese culture. Hull et al. (2017) argue that although masking and compensation are associated with motivations to fit in and to connect with others, perhaps the two constructs are not entirely separable, and that it may be possible to use the same strategies to achieve both goals. Another possibility is that CAT-Q's item content such as eye contact was not appropriate for the Chinese cultural context, resulting in the inability to explicitly find the two constructs of masking and compensating among the Chinese participants. Therefore, more qualitative and quantitative research is needed to explore autism camouflage in the Chinese context.

3.4.2. Multi-group comparison of CFA for BAPQ and DASS-21

A multi-group comparison of the CFAs of the Chinese version of the BAPQ and the DASS-21 shows that the Chinese version of the DASS-21 is cross-culturally consistent, and the BAPQ is not. The Chinese and English versions of the BAPQ failed the CFA test, and subsequent EFA tests showed that both the English and Chinese versions could extract the three factors as in previous studies. In the English version, all items were loaded in the

original version of the factors, which is consistent with Sasson et al.'s (2013) study, except Q7, Q10, Q11, Q19, Q21, Q26, Q29, and Q34. It is worth noting that these problematic items in the current study were also found to have problems distinguishing between the different factors in the previous study by Sasson et al. (2013). This suggests that these items in the original version of the BAPQ may not be of high quality. The EFA results for the Chinese BAPQ showed that only seven items were loaded on the rigid factor, although three factors could also be extracted. This result is similar to the EFA results for this Chinese version of the BAPQ by Lin et al. (2021). They suggest that the rigid factor is not appropriate for the Chinese cultural context and that possible reasons for this are rigid perceptions and the fact that the Chinese culture is conservative and lacks a sense of adventure (Lin et al., 2021). The Chinese and English versions of DASS-21 have passed the multi-group CFA, which means there was cross-cultural consistency. The DASS-21 scores of participants from the UK and China in the current study can be directly compared.

3.4.3. PSM and cross-cultural factor comparison

After removing the covariance effect, the current study compared Chinese and UK participants' CAT-Q and DASS-21 scores. After balancing gender differences, age, and BAPQ scores, the current study found that Chinese participants scored significantly higher on the CAT-Q compensation scale than British participants. The British participants scored significantly higher on the Assimilation Scale than the Chinese participants. There was no significant difference between the two countries on the masking scale, and the final CAT-

Q total score was significantly higher in China than in the UK participants. This means that Chinese participants exhibited more autistic camouflage than the UK when autistic traits were consistent. The CAT-Q scores were then matched on this basis, and it was found that the UK participants showed significantly higher levels of depression and stress compared to the Chinese participants. This means that UK participants showed higher levels of depression and stress when autistic traits and camouflage were consistent. This outcome may be because Chinese culture encourages or expects people to hide their actual inner state more, especially when it is not socially acceptable. For the same reason, Chinese culture may have a greater tolerance for camouflage than British culture. Some studies of autism in Western cultural contexts have shown that suppressing emotional expression (similar to autism camouflage in the current study) enhances negative emotions. However, this finding has been challenged in studies from Eastern contexts, where participants from the East appear more willing to suppress their expression to achieve interpersonal harmony than in the West (Murata et al., 2013, Wei et al., 2013). This phenomenon suggests that suppressing one's expression is considered a neutral or beneficial strategy in Eastern cultures (Zhao et al., 2020). These findings support the finding of this study that cultural reasons contribute to the greater willingness of Chinese participants to camouflage when autistic traits are the same and also to the fact that camouflage has less impact on mental health among Chinese participants when the degree of camouflage is the same.

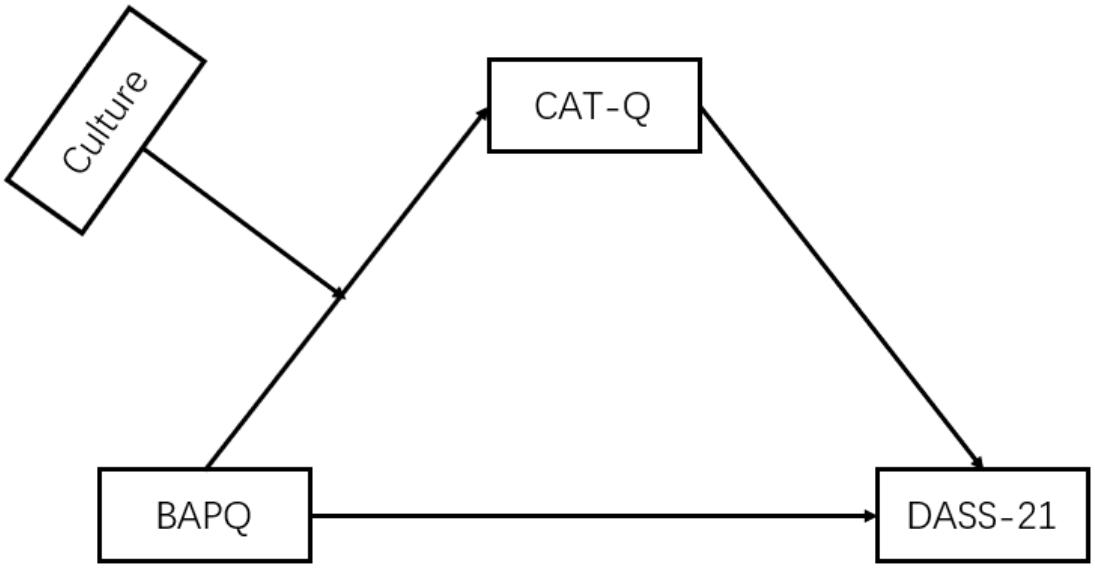
3.4.4. Path analysis of mediating and moderating effects

The current study sought to explore whether there is a mediating effect of camouflage between autistic traits and psychological well-being. Previous research has identified the effect of autistic traits on camouflage and the effect of camouflage on mental health, but no study has attempted to examine how the factors interact using a pathway analysis approach. The pathway analysis of mediating effects showed that both the direct and indirect effects of autistic traits on mental health were significant in both UK and Chinese participants, implying that autistic camouflage was partially mediated. Autistic traits can, directly and indirectly, affect psychological well-being by influencing autistic camouflage. The model diagram of the mediating effects regarding the UK participants shows that when a UK participant's BAPQ score increases by one standard deviation, their CAT-Q score is expected to increase by 0.64 standard deviations, and the DASS-21 is expected to increase by 0.37 + 0.64*0.27 = 0.54 standard deviations. Among UK participants, partial mediation effects accounted for 32% of the total effect. This means that of all the effects of autistic traits on mental health, the mediating effect of influencing mental health by influencing camouflage accounts for 32%. Similarly, the mediated effects graph for Chinese participants showed that when a Chinese participant's BAPQ score increased by one standard deviation, their CAT-Q score is expected to increase by 0.31 standard deviations, and the DASS-21 is expected to increase by 0.53 + 0.31*0.19 = 0.59 standard deviations. Partial mediation effects account for 10% of the total effect among Chinese participants. This means that of all the effects of autistic traits on mental health, the mediating effect of

influencing mental health by influencing camouflage accounts for 10%.

The results of the moderating role analyses suggest that the Chinese and English cultural contexts have a moderating effect on the processes that autistic traits affect camouflage. As shown in Figure 3.15, the Chinese participants consistently scored higher on the CAT-Q than the UK participants. However, the British cultural context led to more dramatic changes in CAT-Q scores with changes in BAPQ scores. Participants in the British culture with low subgroups of autistic traits had significantly lower levels of camouflage than Chinese participants. However, when autistic traits increased, the level of camouflage also increased rapidly for UK participants. In contrast, levels of camouflage were consistently higher in the Chinese culture than in the UK, and participants' levels of camouflage did not change as dramatically with autistic traits. Therefore, the model of various factors resulting from the path analysis of the current study can be shown in Figure 3.17 below. This figure shows the moderating effect of cultural background on the effect of BAPQ scores on CAT-Q scores.

Figure 3.17 Moderating effects of cultural background on BAPQ influencing CAT-Q



Chapter 4 The thematic analysis of autism camouflage in the Chinese context

4.1. Introduction

The results of Chapter 3 suggest that culture may influence autism camouflage, while the Chinese and English versions of the CAT-Q did not show good cross-cultural consistency. And the data from Chinese participants did not support the three-factor model of the CAT-Q. This means that some of the CAT-Q questions do not reflect the actual situation of the

Chinese participants, especially the compensatory factors. This is perhaps because camouflage in the Chinese cultural context is not like Hull et al.'s (2017) study with three factors but only masking and assimilation. More qualitative research is needed to explore autism camouflage in the Chinese context. The current chapter, therefore, hopes to conduct an online interview to investigate Chinese participants' experiences of camouflage.

There are three main innovations in the current study. The first is that the current qualitative research on autism camouflage is the first to be conducted in a Chinese cultural context. This will help researchers to understand whether Chinese participants also camouflage and how the definition, strategies, and consequences of camouflage differ in Chinese culture. The second innovation is that the current study adopts Cook et al.'s (2021) suggestion to examine autism characteristics rather than autism diagnosis as a criterion for screening participants into the study. This is a more appropriate criterion for China, where autism is underdiagnosed. The third innovation is that current research can test the suitability of camouflaged measurement tools such as the CAT-Q for the Chinese cultural context. The current primary camouflage measurement tools have been developed based on the cultural context of the UK or other Western countries. It is challenging to test cross-cultural consistency when translating measurement tools such as the CAT-Q to other languages (van der Putten et al., 2021; Dell'Osso et al., 2022). This may imply that CAT-Q is unsuitable for other cultural contexts, suggesting that more qualitative research on the cross-cultural aspects of camouflage is necessary.

Current qualitative research looks to address the following questions:

1, What are the definitions, motivations, strategies and consequences of camouflage among Chinese participants?

2, What are the similarities and differences between the Chinese participants' camouflage and the previous Hull's (2017) British study?

4.2. Methodology

4.2.1. Participants

The current study hopes to recruit 16 participants to participate in semi-structured interviews with BAPQ scores above the cut-off point (Male > 3.55; Female > 3.17) (Sasson et al., 2013). Two hundred forty-three adult participants from China were therefore pre-recruited, and participants were asked to provide their age and gender, including "female", "male", and "other". Then they were asked to complete a Chinese version of the BAPQ (Hurley et al., 2006; Shi et al., 2015). The demographic information and BAPQ scores of these 243 participants are shown in Table 4.1. The researcher sent interview invitations to eligible participants in order of highest to lowest BAPQ score, and some participants did not respond. In total, the researcher eventually sent interview invitations to 51 participants who scored above the cut-off line on the BAPQ, 35 of whom did not respond, and 16 of whom eventually participated in the final online voice semi-structured interview. See Table

4.2 for the status of interview invitations sent and responses.

Table 4.1 Participant demographic information and BAPQ scores

	CH Total	**Male**	**Female**	**Other**
N	243	97	145	1
Mean Age (SD)	25.70 (8.75)	24.43 (7.73)	26.57 (9.32)	22
Age Range	18-76	18-53	18-68	22
Mean BAPQ (SD)	3.66 (0.48)	3.63 (0.61)	3.67 (0.38)	4.06
BAPQ Range	1.00-5.25	1.00-5.25	2.53-5.00	4.06

Table 4.2 Response status of participants with the highest BAPQ

Sort by score	Participant Number	Gender	Invitation Status	Interview Number
1	42	M	No reply	
2	109	M	No reply	
3	19	F	No reply	
4	143	M	AGREE	1
5	3	F	No reply	
6	223	M	AGREE	14
7	214	M	No reply	
8	98	M	No reply	
9	213	M	No reply	
10	172	M	AGREE	2
11	70	M	No reply	
12	227	F	AGREE	16
13	239	F	No reply	
14	91	F	AGREE	4
15	195	F	No reply	
16	226	M	No reply	
17	78	F	AGREE	5
18	133	F	No reply	
19	147	F	AGREE	6
20	153	M	AGREE	7
21	159	M	No reply	
22	102	F	No reply	
23	191	F	No reply	

24	29	F	No reply	
25	68	F	No reply	
26	52	M	No reply	
27	184	F	No reply	
28	240	F	No reply	
29	132	F	No reply	
30	201	F	No reply	
31	32	M	No reply	
32	166	F	No reply	
33	241	F	No reply	
34	10	F	AGREE	3
35	12	F	No reply	
36	87	M	AGREE	10
37	156	M	AGREE	12
38	188	O	No reply	
39	224	F	AGREE	15
40	41	M	No reply	
41	57	F	No reply	
42	14	F	No reply	
43	17	M	No reply	
44	178	F	AGREE	13
45	183	M	No reply	
46	219	F	No reply	
47	28	M	AGREE	8
48	60	F	AGREE	9
49	93	M	No reply	
50	105	F	No reply	
51	134	M	AGREE	11

Although all 16 participants scored above the cut-off line on the BAPQ (mean value = 4.25), the current study did not ask them to provide any information about whether they had ever been diagnosed with or are self-suspected of having autism because the current study focused on participants' autism characteristics, such as BAPQ scores, rather than their diagnostic status. Demographic information and BAPQ scores for the 16 participants are included in Table 4.3. Eight female and eight male participants completed the semi-

structured interviews. There are no widely accepted criteria for determining the size of participant samples in qualitative research (Sim et al., 2018; Braun & Clarke, 2022). The selection of 16 participants to be recruited for the qualitative study was an appropriate choice after considering the depth of data processing, the aims and the time constraints of the study.

Table 4.3 Participants' demographic information

Interview No. (Participant No.)	Gender	Age	BAPQ Score
1(143)	M	19	4.97
2(172)	M	23	4.44
3(10)	F	21	4.06
4(91)	F	20	4.33
5(78)	F	19	4.31
6(147)	F	20	4,31
7(153)	M	28	4.31
8(28)	M	21	3.97
9(60)	F	22	3.97
10(87)	M	20	4.06
11(134)	M	25	3.97
12(156)	M	23	4.06
13(178)	F	20	4.00
14(223)	M	20	4.75
15(224)	F	24	4.06
16(227)	F	27	4.39
BAPQ: Broad Autism Phenotype Questionnaire			

4.2.2. Material

In addition to the demographic questionnaire and the Chinese version of the BAPQ, the semi-structured interview phase used 12 questions about the participants' experiences of

camouflage, including motivations, strategies, and how the camouflage made them feel. The semi-structured interview was not limited to answering these 12 questions; participants were encouraged to talk freely and give more information or details about any experiences of camouflage that came to mind, and further questions were asked when the researcher felt it was necessary. For example, unique insights mentioned by participants are not always within the researcher's vision or the scope of previous research. Once innovative experiences or insights are brought to the researcher's attention, the researcher may ask for more details to obtain richer qualitative research material. These 12 questions in the current study were derived from a questionnaire containing 23 closed and 20 open questions used by Hull et al. (2017) in a camouflage qualitative study in the UK. The current study removed those questions that were not relevant to the purpose of the current study, resulting in a concise 12-question semi-structured interview outline. (See Table 4.4)

Table 4.4 Questionnaire on camouflage used in online interviews

Camouflaging Questionnaire
Camouflage means hiding your true thoughts and behaviour in your everyday social interactions with others. For some reason, you do not want others to see you as you really are. This study wants to investigate whether you engage in camouflage in your daily life and find out about your experiences of camouflage through an online interview.
1. Have you ever had the experience of 'camouflage'? Yes/No
2. In what situations do you camouflage (for example, when meeting new people, in large groups, during job interviews etc.)?
3. In social situations, how do you camouflage/what do you do when you camouflage? Please provide details and examples, for instance, the behaviours and thoughts you experience. Note: we would like you to share your personal experiences about what you do without presuming what these might be, so we have not listed any examples of common behaviours here.
4. Why do you camouflage during social situations?
5. How do you know if your camouflaging works or not?

6. How do you feel after camouflaging?
7. When you get home after a day of work/school or an episode of 'pretending/camouflaging', do you feel exhausted and need isolation? Yes/No
8. What are the skills that are needed for successful camouflaging?
9. How did you learn to camouflage?
10. What are the negative consequences of camouflaging for you?
11. What are the positive consequences of camouflaging for you?
12. Have you ever decided not to camouflage in social situations? Why?

4.2.3. Procedure

The current study was approved by the University of Sheffield Ethics Committee. The researchers posted an invitation link to an online study, “Lifestyle and personality traits influence camouflage”, on the Chinese social media WeChat, created on the Chinese questionnaire platform Questionnaire Star. Upon entering the link, all potential participants could see the current study’s information sheet and consent form. They were informed about the current study’s basic information and were free to choose whether to participate or withdraw at any time. After completing the consent form, all potential participants would provide their age, gender and WeChat ID and completed the Chinese version of the BAPQ. They were told about a 10% chance of receiving a further invitation to an online interview about camouflage.

The scores of all researchers who completed the BAPQ were ranked from highest to lowest, and invitations were sent to the top 16 participants to invite them to participate in the following online interviews. If the invited participant declined or did not respond, subsequent participants were invited in turn until 16 participants were willing to participate

and schedule an interview. In the end, eight males and eight females agreed to participate and finalised the interviews. In response to the first question of the interview, "*Have you ever had the experience of 'camouflage'?.*" all 16 participants answered yes.

4.2.4. Analysis

The current study used reflexive thematic analysis. Unlike other thematic analyses, RTA emphasised the researcher's bidirectional understanding of participant-provided material to discover the experiences and meanings implicit in the language (Byrne, 2021). At the same time, RTA emphasises the meaning given to the material by the participants, rather than the researcher attempting to uncover deeper claims from it (Braun & Clarke, 2014). RTA is also predominantly data-driven inductive analysis, which means that coding should be based on participant-provided material (Braun & Clarke, 2014). However, some theory-driven deductive analysis was also adopted, with the researcher ensuring that meaningful themes were generated from the coding (Braun & Clarke, 2014). RTA also emphasised the discovery of underlying meanings behind the semantics of the participant-provided material. The analysis and coding of any material is the result of a combination of the semantic meanings expressed by the participants and the underlying meanings understood by the researcher (Braun & Clarke, 2020). The researcher of the current study comes from a Chinese cultural background, so the use of RTA helps the researcher to analyse the materials provided by the participants based on the Chinese cultural background, and the researcher's unique Chinese cultural perspective helps to uncover valuable potential codes

behind the semantics. This will help to generate more valuable themes.

Current data analysis uses a six-stage process proposed by Braun and Clarke (2020), 1) familiarise with the data, 2) generate initial code, 3) generate themes, 4) review potential themes, 5) define and name themes, and 6) generate reports. While the sequence of the six stages is fixed, the analysis is not linear (Braun & Clarke, 2020). Themes and codes often need to be changed due to new findings or perceptions by the researcher (Braun & Clarke, 2020). During stage 2, the transcribed interview transcripts were further highlighted with code-related information and assembled into a codebook. An example of this process and the codebook can be found in appendix 1 and 2. As the current interviews were conducted in Chinese, so the process of thematic analysis was also conducted in Chinese and English was only used to present the results after the analysis. This aims to avoid, as far as possible, any cross-cultural misunderstandings in the translation process that may affect the results. Table 4.5 provides an example of how the interview transcripts were analysed and summarised into themes.

Table 4.5 Examples of analysis, from quote to theme

Initial quotes	**Codes**	**Sub-themes**	**Theme**
Sometimes a teacher at school would come to me and ask me if I was free and if I could do something for him. Sometimes I might not be willing to do it, but in order to maintain my image in front of the teacher, I would lie and tell him I was free and say yes, I will do the	Reluctant works	Reluctance to give	Strategies

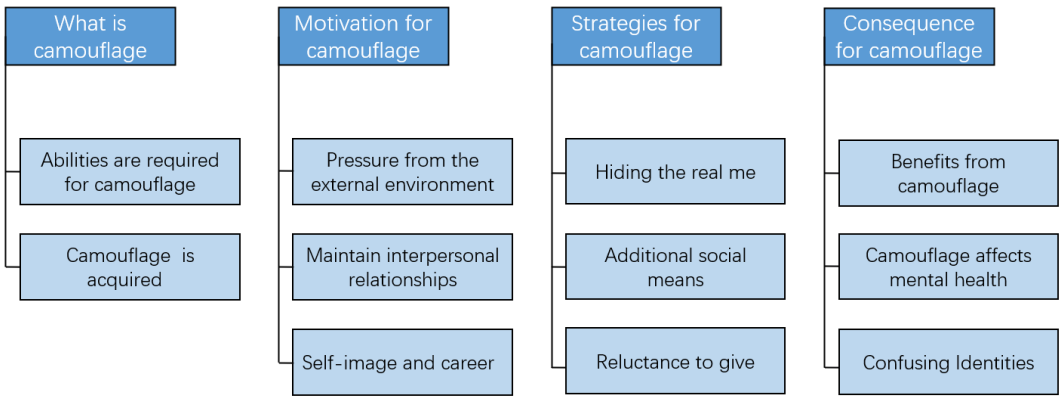
work for you. (No 5, Female)			
Although in my heart I did not want to remain friends with him, I was forced to talk to him for the sake of saving face and various interests. (No 1, Male)	A good relationship forced to be maintained		
Sometimes when I am not in a good mood, I hide it and try not to show it to others. Deliberately squeeze out a few happy faces, or try not to frown so much like that. (No 9, Female)	Controlling expressions to hide emotions	Hiding the real me	
I will try not to mention my shortcomings, but if I have to, I will embellish them a bit but not completely fake them. (No 6, Female)	Concealment and exaggeration		
If you know you are meeting a friend socially tonight, you know his hobbies and habits in advance, and you have probably already done your homework on what to discuss with him. (No 11, Male)	Know the camouflaged object in advance	Additional social means	
If you feel the occasion calls for social communication, quickly glance around you to see how they are communicating and then imitate it. (No 4, Female)	Imitation		

4.3. Results

Participants shared their experiences of camouflage and how they felt about it. Four themes were generated from the content of the interviews: What is camouflage; Motivations for camouflage; Strategies for camouflage; and Consequences of camouflage.

Each theme contained several sub-themes. See Figure 4.1

Figure 4.2 Structure of themes and sub-themes



4.3.1. What is camouflage

This theme was generated from the researcher's understanding of the camouflage characteristics described by the participants, and it emphasises that camouflage is learned and requires some social skills. Participants do not believe that the ability to camouflage is innate; it needs to be done according to specific social rules that are learned gradually in later life. Moreover, camouflage rules are not set in stone; new rules must be learned at all times for different occasions and ages. Another essential feature of camouflage is the need to have some basic social skills, including the ability to understand the other person's meaning and preferences, as well as patience and emotional control of the self.

4.3.1.1. Camouflage is acquired:” No one is born with camouflage.”

The camouflage rules and skills resulted from their constant interaction with their social environment. The learning of camouflage does not happen overnight, knowledge of camouflage is dynamic for a person, and these learning processes may stay with them for the rest of their lives.

“*People are not born to camouflage themselves. This thing (camouflage) is all learned and imitated. As one grows up, one’s life is also a process of learning (camouflage). ” (No 10, Male)*

Participants specifically described two main ways of learning camouflage. The first was learning to camouflage by observing the behaviour of others, including their family or those around them. One participant stated that camouflage could be learned by observing parents’ behaviour, like

“*Maybe I grew up following my parents to social gatherings and watching them interact with each other, including how they talk, and then I slowly became like that.” (No 11, Male)*

From the information provided by the participants, it was clear that they did not always mechanically copy the behaviour of others exactly. Instead, through imitation, they internalise the behaviour of others as their own rules. When entering a new situation or when they are about to start imitating, they assume what the person they are imitating or referring to will do when faced with the current situation. The camouflage learned through imitation may include both a long period of previous accumulation and quick and temporary

learning upon entering a particular environment.

When I get to a setting, I observe it first. I feel that there is someone on the scene who I think is more competent, who speaks or handles himself in a way that I really recognise, and I will learn from his methods. Yes, I will unconsciously observe people I think are doing a good job and think about how they are doing it. (No 4, Female)

In addition to learning camouflage by observing the behaviour of others, participants said they could draw on the experiences of others to learn about camouflage. *"Sometimes you can learn by reference. For example, my friend may be experiencing the same troubles as me and what he does in this situation. If I think it is okay, I can do the same next time." (No 5, Female)* This type of learning is more abstract but also more flexible. Participants do not need to be physically present in a social situation; they can learn camouflage rules from their friends' descriptions and summaries. More importantly, in the home, participants' parents may often caution them about the rules of a particular scenario and require them to follow them. "*For example, before you attend a wedding, your family will tell you what not to do and what you should do. " (No 7, Male)* Participants perceive these rules as universal, and they learn how to behave in a camouflaged manner, as expected by social rules.

Learning from direct observation in social situations and learning indirectly from the social experiences of others are two very different ways of learning camouflage. However, these two approaches may represent two learning modes, bottom-up and top-down. The former

implies that one can learn specific camouflage methods from observation and imitation and eventually conclude rules. Conversely, the latter means that in some cases, people first master the camouflage rules but eventually have to translate these abstract rules into behaviour in actual camouflage.

4.3.1.2. What abilities are required for camouflage

In the experience regarding camouflage-related abilities, participants listed the skills they felt were required for successful camouflage. Some participants emphasised that understanding and analysing the language and facial expressions of others was a prerequisite for successful camouflage. For example, "*Camouflage requires you to analyse a person based on his or her language." (No 1, Male)*

Participants believe that misinterpreting the other person's language and expressions can instead lead to the opposite effect of camouflage. "*If you camouflage randomly, people get upset instead. "(No 10, Male)* Understanding language and expressions helps participants to clarify what is expected of them by their environment and the people around them, which is an essential reference for their camouflage direction.

In addition to understanding others' emotions, participants highlighted the need for camouflage to control their emotions and expressions. The ability to hide or suppress one's emotions or to pretend to have certain emotions was also one of the crucial components

of camouflage.

There must be no change of expression or tone of voice. The emotions must be stable and must be hidden. This is a very important factor for camouflage. (No 13, Female)

Social environments sometimes exclude or expect participants to display particular emotions, so participants perceive that "*Camouflage requires the ability to be aware of emotions, as well as the ability to regulate them." (No 9, Female)*

4.3.2. Motivation in Camouflage

The theme of motivation for camouflage was generated from the participants' descriptions of their reasons for camouflage. The motivation for camouflage has three main components; pressure from outside, pressure from one's image, and pressure from the benefits of the job opportunity.

4.3.2.1. Pressure from the external environment

Many participants mentioned that their motivation to camouflage came from external pressures. Participants felt that in social activities, people are always judging others, but at the same time, they are also judged by others. Participants described their experiences of receiving negative comments or being blamed when they did not match their environment or could not meet its expectations, and camouflage became one of how they coped with or avoided this pressure.

I think camouflage is a form of self-protection. I don't really want other people to have a bad opinion or impression of me so quickly. (No 4, Female)

Some participants described their experiences, stating that they were forced to align themselves with their peers or else make themselves appear weird. Acting like a maverick in a small group of peers may result in rejection or be seen as overly expressive. For example,

"I usually went to class with my roommates when I was in university. They all chose to sit in the back row, and although I wanted to sit at the front of the classroom, it would have looked weird if I didn't coincide with them." (No 3, Female)

Some environments expect participants to exhibit specific personality traits, so participants have to camouflage, even if their personality is not like this. A quiet participant is forced to be talkative in a work environment because his work environment expects him to do so. In some work situations, being talkative and having a good network are often seen as beneficial to teamwork. However, this can be a challenge for people with quieter personalities who are encouraged to do things they do not like.

"I usually work in an environment that does not expect me to be quiet. And to make others think I am a talkative guy. Even though I am generally quiet, I still talk more or joke around with people." (No 2, Male)

Participants also reported that their surroundings did not want them to be overly expressive and that expressing themselves differently or casually from others could lead to pressure from their surroundings, such as negative comments. *"I may have a slight fear of people judging me negatively." (No 9, Female)* Therefore, hiding their true thoughts through camouflage can avoid such negative comments.

Directly expressing one's true thoughts in a formal setting or everyday situations may invite negative feedback from the outside world and lead to increased camouflage behaviour over time. (No 9, Female)

Some people live with too much ego, which seems like a mistake to others. There will always be people on the internet who will take the moral high ground and condemn the matter. They ask you to think from someone else's point of view so that you can accommodate society. (No 11, Male)

Participants seemed to feel that they were in an environment that did not encourage self-conscious expression, perhaps partly because any expression was under more scrutiny and would be judged negatively if it broke the rules or was disapproved of by others. On the other hand, the social environment encourages people to hide their personal views and to think in terms of the collective.

4.3.2.2. To maintain interpersonal relationships

In addition to external pressures, participants also provided experiences that the motivation for camouflage was maintaining relationships. Forced to socialise in camouflage is to integrate with others to "*being isolated afterwards." (No 12, Male)* and to gain access to the resources that come with more relationships.

Some participants want to socialise with others and fit into a social circle. The camouflage can help them to build social relationships or fit into a group. For example, one participant

said, *“I think one of the reasons for my camouflage was that I wanted to integrate with people and make friends with them.” (No 3, Female)*

Conversely, some participants did not enjoy socialising and building various social relationships. Despite this, they sometimes have to interact or build relationships with other people; in this case, they are forced to become extroverted. For example, *“I don’t really like to socialise, but when I have to interact with other people for some reason, I probably act like I’m outgoing and talkative.” (No 4, Female)*

Whether or not participants wished to establish social relationships with others, they wanted to improve their interpersonal relationships through camouflage. This may be related to the participants’ mention that *“Networking is a very important part of Chinese society. You make a good impression on people, and it is easy to ask for help when you need it.” (No 11, Male)* Good interpersonal relationships in a Chinese cultural context mean more opportunities and more help from others.

4.3.2.3. Self-image and career

Some participants indicated that the camouflage motivation was related to self-interest and was to increase the career path’s advantage through *“a good impression on others” (No 11, Male).*

Generally speaking, camouflage and interest are related. For example, in the case of appointments to positions at employment, a certain amount of camouflage is definitely needed to make oneself more beneficial. (No 2, Male)

When I look for a job, I hope I get hired, not someone else. I will camouflage myself a bit better. This is the reality of employment. (No 6, Female)

From the experiences shared by the participants, we can construct a deeper level of motivation. Whether participants are trying to avoid negative comments or construct better relationships or self-images, this ultimately helps participants to gain more career opportunities and benefits.

4.3.3. Strategies for camouflage

Current themes generated from the various camouflage strategies described by participants can be broadly divided into three main categories. The first is that participants will mask their behaviour or what they think, and the second is that participants will compensate for their lack of social competence or confidence by additional social means. The last resembles a combination of the first two strategies, with participants performing additional social tasks in a reluctant state.

4.3.3.1. Hiding the real me

Participants' experiences indicated that one of the vital camouflage strategies was that

they would hide their true selves. In many examples, participants mentioned that they would hide or exaggerate their true thoughts, control their expressions to hide their emotions or avoid having their actual likes and dislikes and attitudes known to others. Participants described doing this to make things work out more to their advantage.

When I tell people something, I add a slight lie, exaggerate, and conceal some parts. To make the whole thing go in a more favourable direction for me. (No 2, Male)

More specifically, participants camouflage their negative emotions or attitudes. *“Sometimes, when I am not in a good mood, I hide it and try not to show it to others. Deliberately squeeze out a few happy faces, or try not to frown so much like that.” (No 9, Female)* Hiding one’s negative emotions may be because participants are in a social environment that is more expectant of positive emotions and less tolerant of the usual negative emotions that people display. Moreover, easily expressed attitudes towards a thing may also seem insecure to the participants. They fear that if their attitude is not in line with the mainstream, they will be rejected or that it will affect their relationships and interests. *“Camouflage may sometimes require you to take an attitude and pretend to show your likes or dislikes for something or to restrain your thoughts of hating and loving something. Suppressing your thoughts is sometimes brainwashing yourself.” (No 10, Male)*

4.3.3.2. Additional social means

In addition to the commonly recognised social skills, participants described a strategy of

camouflage that could be seen as an additional social means to help participants gain a more significant advantage in social interaction. These means may seem redundant to confident socialisers. However, some participants have adopted many social means that require extra effort to compensate for their socialising, perhaps because they are worried about their social skills or cannot tolerate their failure in socialising. For example, they choose to get to know the social environment and people in advance or adopt a humbler stance in socialising to avoid making mistakes.

Some participants, for example, reported showing false praise even when they did not like their social partners in their hearts. "*In social situations, whether it is a boy or a girl, I will show a compliment. Even if I don't like him inside, I respond politely, nodding and smiling." (No 13, Female)*

Some participants said they would take extra time and make more effort to ensure they were camouflaged and socially successful. Before camouflaging, participants felt it was essential to know what was needed for social scenarios and to understand the rules of camouflage in advance. For example, some participants said, *"I think it is better to understand something first than to have camouflage." (No 10, Male)* It is also crucial to get to know the person you are socialising with in advance before socialising begins, to help you better use the camouflage the other person expects to build a friendship. For example, "*If you know you are meeting a friend socially tonight, you know his hobbies and habits in*

advance, and you've probably already done your homework on what to discuss with him."

(No 11, Male)

If it is not possible to have sufficient knowledge before socialising, when entering a social situation, participants will also first observe and learn quickly to establish the basic camouflage rules.

When I arrive at the social scene, I will first observe the more capable people, who speak or handle issues in a way that I highly agree with, and then I will learn from their methods and observe how they do it. (No 4, Female)

I don't have a very unified summary of the rules of social situations. In every situation I enter, I prioritise learning the rules by watching how others socialise, which I then imitate. (No 7; Male)

4.3.3.3. Reluctance to give

Participants also reported a strategy similar to using the first two themes together. Participants reported their experiences of hiding their true thoughts while making extra effort socially. Some participants completed tasks given to them by others to have more stable social relationships, even if they were very reluctant to do so internally. Alternatively, perhaps participants reluctantly accept the views of others or the group's values and obey their superiors.

For example, when faced with an unexpected request from a teacher, participants often feel

unable to refuse and are forced to show that they are more than willing to complete the extra task. For example, "*Sometimes a teacher at school would come to me and ask me if I was free and if I could do something for him. Sometimes I might not be willing to do it, but in order to maintain my image in front of the teacher, I would lie and tell him I was free and say yes, I will do the work for you."* (No 5, Female) Participants described a common camouflage behaviour when confronted with people of higher status than themselves, which is to feign obedience, but reluctantly inside. The reason for this type of camouflage may be for a better future or fear of causing resentment from superiors.

I also choose to camouflage when I am with my superior. I put myself in a more humble position to make him feel that he is better than me. If I am with my teacher, I obey him most of the time, as he is upset when I am not obeying him. (No 14, Male)

4.3.4. Consequences of camouflage

This theme is generated by the participants' experience of the camouflage's consequences and contains three main aspects. The three sections are about the positive consequences of camouflage up to a certain point and the negative emotions and confusion of personal identity that can result from excessive camouflage.

4.3.4.1. Benefits from camouflage

Some participants reported the benefits of camouflage for them. For example, it helped with interpersonal relationships, maintained a self-image and increased employment

opportunities.

The positive impact is that it maintains my image in front of others. It makes them feel in their hearts that I am an okay person. (No 5, Female)

The benefits from camouflage may be divided into short-term or long-term. Successful camouflage soon leads to *"a sense of social success, and that satisfaction was actually quite happy at the time."* (*No 4, Female*) In addition, it will make participants feel *"things will move in my favour, and I control the discourse." (No 2, Male)* In the long term, camouflage presents an additional opportunity or *"a potential resource."* (No 2, Male)

Some participants felt that camouflage was neutral and that the advantages outweighed the disadvantages when not overused. In moderation, camouflage is like a safe "shell" for many people where they "could accept themselves and be safe." (No 15, Female)

However, this is only limited to a moderate amount of camouflage for a short period; when the camouflage goes beyond a particular length or intensity, its adverse effects start to come to the fore. It causes people to feel negative emotions or discomfort.

The word camouflage is neutral, and my feelings still suggest that he has more advantages than disadvantages. However, I do not think that camouflage should be used excessively and that inappropriate use of the term may make people feel uncomfortable. (No 11, Male)

The camouflage sometimes looks good for a short while and protects me from harm. (No 16, Male)

4.3.4.2. Camouflage affects mental health

Even though camouflage has some benefits for participants, the cost is that it can cause a range of mental health problems. The interviews in the current study confirm this. A significant proportion of participants reported pressure related to camouflage. Stress from camouflage can have different causes, some are stress from the extra tasks or negative emotions caused by camouflage, and some stress can come from concerns about the effects of camouflage.

There is some pressure to camouflage oneself, especially regarding whether one's camouflage is effective. I don't feel pressure because of how others behave. I put that pressure on myself. (No 1, Male)

The camouflage will also add extra workload to me and put a heavier burden on me psychologically, including on my body, which will bring me some bad emotions. (No 5, Female)

Some participants felt that camouflage was not always stressful. Familiarity with camouflage scenarios or rules can influence the amount of stress. For example, one participant indicated that he was very relaxed when camouflaging as a familiar character, even if it was relevant to the interests at stake.

For familiar camouflaged characters, I would be relaxed even if the stakes were high. (No 2, Male)

Some participants argued that, in addition to stress, camouflage could lead to depression

and a backlash of negative emotions suppressed by the camouflage. Camouflage is often used to hide emotions, but some participants artificially hiding negative emotions in this way can worsen emotions.

The mood before the camouflage was quite happy. It feels very stressful, and I have become a bit depressed. (No 3, Female)

If I am angry about something, the more I think about it inside when I hide my emotions with camouflage, the angrier I get. (No 9, Female)

4.3.4.3. Confusing Identities

Participants also reported that the camouflage made them feel they were no longer their true selves. Camouflage prevents them from expressing their needs and often requires them to sacrifice their feelings. This makes them feel that camouflage is meaningless. Participants seemed to report a very contradictory journey in that their initial camouflage was often intended to make their social interaction more relaxed, enjoyable and smooth, but eventually, the overwhelming task of camouflage left them feeling stressed and exhausted.

It feels terrible to camouflage, to feel sorry for myself. I sacrifice myself. (No 16, female)

Camouflage causes me to think a lot, and I often ask myself what I want, what and for whom I am doing it. (No 10, Male)

Ultimately, this feeling of meaninglessness and sacrifice to oneself can leave participants

feeling that they have lost their true selves while lowering their opinion of themselves. For example, *"I started to become less like my real self, and I think the feeling of camouflaging it made me less than happy with myself all the time."* (No 3, Female) The contemplation of whether there is meaning in camouflage leaves the participants with a further sense that their livelihoods are meaningless. For example, *"I cannot find the meaning of camouflage, and I think a lot about it, the meaning of life, the meaning of living."* (No 10, Male)

4.4. Discussion

The results of the current study answered the research objectives set out at the outset of the study design, with all 16 participants in the qualitative study who scored above the cut-off line on the BAPQ indicating that they camouflaged themselves in their daily social and life situations. The current study expanded the definition of camouflage among the Chinese participants, generating a series of themes, including subthemes about the motivations, strategies and consequences of camouflage.

In contrast to previous studies (Lai et al., 2017; Hull et al., 2017), Chinese participants were very flagrant in emphasising that their camouflage was learned in an acquired social environment. This seems to highlight a feature of camouflage that is a response to the outside world. This highlights the importance of the cultural context for autism camouflage research, with different cultural backgrounds perhaps contributing to people's different willingness and rules to camouflage. In an environment that is inclusive and liberal enough,

people may no longer need to camouflage themselves.

The current qualitative study used questions similar to Hull et al. (2017) The aim was to compare the differences in perceptions of camouflage between Chinese and British participants. Although the questions were similar, the process of generating the current study's themes was completely independent. Each of the three themes on motivations for camouflage revealed three main categories of reasons for camouflage: 1) coping with pressure from the outside world, 2) maintaining interpersonal relationships, and 3) enhancing career prospects. Although the current study does not attempt to deduce Hull et al.'s (2017) research and the codes are generated independently, the first two categories of motivation can still correspond to the assimilation and connection proposed by Hull et al. (2017). However, the current study also locates a new motivation, which appears to be more utilitarian than the previous two, to create a better personal image and increase opportunities and career prospects through camouflage. At the same time, the current study focuses on the camouflage motivation of external pressures in a way that differs somewhat from the 'assimilation' proposed by Hull et al. (2017). Whereas assimilation emphasises participants' attempts to conceal their autistic traits, the current study's response to external pressures encompasses a much more comprehensive range. In addition to behavioural congruence, participants felt pressure not to express their views easily.

Regarding techniques and strategies for camouflage, the current research generates three related topics. These are hiding the real self, additional social means and reluctant giving. Again, even though the themes of the current study were generated independently, the first two themes are still similar to the masking and compensation of Hull et al. (2017). Hull et al.'s (2017) masking theme describe a behavioural-level strategy where participants learn the mannerisms of others while in camouflage or even take on a different role altogether, mimicking their language and body movements. The hiding strategy in the current study appears to be more complex. Participants referred more to hiding their true emotions, thoughts and attitudes in a more verbal or expression-controlled way. At the same time, participants did not just hide by reducing words or expressions but sometimes by exaggerating facts, which showed more sophistication than the findings of Hull et al. (2017).

Hull et al. (2017) argue that it remains to be seen whether the two camouflage techniques of masking and compensation are entirely different and whether the same techniques can be used to achieve both goals. However, in the current study, participants described a complex but representative strategy requiring both techniques. The participants' experience shows that requests from elders or leaders cannot be refused very often, even if they appear to respect their opinion. For example, among the Chinese participants, when a leader asked, "Can you do this for me?" many participants had to hide their true thoughts and were forced to agree and complete additional tasks they did not want to do, which is avoid lowering their image in the minds of leaders and increasing chances in the future.

Previously Hull et al.'s (2017) research has highlighted that, despite the significant variation, most participants reported some unpleasant consequences of camouflage. Similarly, the current study generated two themes regarding negative consequences: affecting mental health and personal identity confusion. Camouflage can cause additional exhaustion and stress to participants and can lead to negative emotions. The hiding of one's negative emotions can be counterproductive and lead to an increase in negative emotions, which is the essential difference between camouflage and ordinary emotion management. For many participants, the initial motivation and consequences of the camouflage were contradictory, which led to a negative perception of themselves, creating confusion about their identity and beginning to question the meaning of it all.

In addition to the negative one, many participants expressed that, within certain limits, camouflage can have significant positive consequences. The motives for camouflage appear to be all favourable, so successful camouflage can make one look better, increase potential resources and make the participants feel happy and satisfied. However, the participants also emphasised that the positive consequences were only within certain camouflage limits. Even with successful camouflage, overuse can still lead to negative consequences in terms of mental health and identity confusion.

Although some of the themes are similar to those of Hull et al. (2017), all the results show

that the themes presented in the current study cover a more comprehensive range of camouflage and involve more complex camouflage motives and techniques than Hull et al. (2017). This may be because the participants in the current study were not formally diagnosed with autism, and therefore they may possess fewer autistic traits and better social skills. At the same time, in the Hull et al. (2017) study, participants were given a formal autism diagnosis and were aware of their autistic identity and therefore focused more on their thinking and sharing of experiences on the parts just related to autistic traits. Chinese participants described more verbal-related camouflage strategies than British participants, and Chinese participants barely mentioned body movements and eye contact. This may be due to the differences between Chinese and British cultures since Chinese culture emphasises language in socialising and communicating, with little use of physical gestures and eye contact.

The concepts of camouflage and reputation management still need further research to differentiate them (Robinson et al., 2020). Reputation is based on the perceptions and evaluations of others (Cage, Bird & Pellicano, 2016a). Reputation management refers to the construction of a person's public reputation through various strategies (Leary & Kowalski, 1990). For example, autistic adolescents are motivated by the need to establish close relationships or to avoid rejection from the environment, and have the ability to change their behaviour and gain liking from others (Cage, Bird & Pellicano, 2016b). Autistic adults were also more inclined to act more generously when observed than when alone,

as a way to enhance their reputation, although the observer effect was weaker compared to typically developing individuals (Frith & Frith, 2011; Cage, Pellicano, Shah & Bird, 2013). Various strategies mentioned in the current study such as using polite behaviour or maintaining one's image in front of teachers were typically reputation management. However, However, despite the many similarities, the more effortful and challenging camouflage of autistic individuals compared to the reputation management of typically developing individuals (Hull et al., 2017). Research has shown that the autistic population uses reputation management less frequently compared to typically developing individuals (Cage et al., 2013). Even typically developing individuals camouflage their autistic traits to some extent (Robinson et al., 2020). While the participants in the current study did not provide a diagnosis of autism, scores on the BAPQ indicated that the participants had high autistic traits, and it is reasonable to assume that the participants would have experience with autistic camouflage. However, it is worth noting that Hull et al.'s (2019) study found that many of the masking strategies of autistic camouflage were not significantly specific between autistic and non-autistic individuals, and therefore may reflect more general impression or reputation management strategies. In a word, further research is needed on how to distinguish whether the strategies exhibited by participants are camouflage strategies or reputation management.

Chapter 5 General Discussion

The current thesis used questionnaires and online interviews to collect data, using

quantitative and qualitative research methods to explore the impact of two different cultural contexts on autistic stigma and camouflage in China and the UK. As mentioned in the introductory chapter, although stigma and camouflage research in autism has received increasing attention in recent years, most of these studies have been conducted in Western countries, and few researchers have considered the impact of cultural context. More cross-cultural studies are needed in related areas, such as China and the UK context. In addition, the commonly used standardised questionnaire CAT-Q for assessing camouflage still needs to be developed in more languages, such as Chinese, and validated for cross-cultural consistency. The general discussion chapter will outline the new findings of this thesis in the current field, summarises the limitations of the current study and gives suggestions for future research.

5.1. Summary of findings

Overall, the current PhD thesis answers the research questions posed by each of the three studies and provides innovative knowledge. Study 1 (Chapter 2) used CFA to validate the validity of the translated Chinese version of the questionnaire, including, as used in Chapter 2, the Autism Social Distance Scale (ASDS) (Bogardus, 1933), the Cultural Orientation Scale (Triandis & Gelfand, 1998), and the Autism Stigma and Knowledge Scale (ASK-Q) (Harrison et al., 2017). Except for the ASK-Q, which was translated into Chinese by Yu et al. (2020), all instruments were translated into Chinese and used for the first time. As Yu et al. (2020) did not examine the cross-cultural consistency of the Chinese ASK-Q

with the English version, the results of the current study are the first evidence that shows all these questionnaires can be used with Chinese participants and analysed with the English version. In addition, the results of Study 1 (Chapter 2) also confirmed for the first time that Chinese participants exhibited higher levels of stigma than UK participants after using PSM to eliminate, for example, the effect of age, gender, and autism knowledge, covariates on levels of autism stigma. The results of the current study suggest that this difference in stigma is more likely due to cultural context than previous studies (Someki et al., 2018; Gillespie-Lynch et al., 2019). Further analysis showed that vertical individualism was associated with higher levels of autism stigma, and vertical collectivism and horizontal individualism were associated with lower levels of stigma. This implies that vertical-horizontal and individualist-collectivism play their respective roles in influencing stigma, with horizontal and collectivist tendencies likely associated with less stigma. These findings highlight the impact of cultural context on the autism stigma.

Study 2 (Chapter 3) translated and tested the validity and cross-cultural consistency of the Chinese version of the CAT-Q. The conclusions found that neither the English nor the Chinese version of the CAT-Q passed the CFA test for either UK or Chinese participants. This means that as the CAT-Q is a newly developed tool, more data is needed to support and improve it. Further exploratory factor analysis revealed that the Chinese version of the CAT-Q compensation factor needs further testing compared to the masking and assimilation factors. The presence or absence of three factors for autism camouflage in

Chinese culture also requires further research, such as a qualitative analysis. Again, after PSM controlling for extraneous variables, the current study found that Chinese participants had higher total CAT-Q scores than British participants, implying that there may be higher levels of autism camouflage in Chinese cultural contexts. Also, the UK participants showed higher stress levels after controlling for differences in CAT-Q scores. This suggests that camouflage had less impact on the mental health of Chinese participants. Further studies of mediating and moderating effects have also identified the influence of culture on autism camouflage. Under the influence of cultural background, the increase in broad autistic traits led to a more significant increase in camouflage level among the British participants, whereas the Chinese participants had a high camouflage level regardless of whether their BAPQ scores were above the cut-off point. The increase in BAPQ scores led to a lesser increase in the camouflage level than the UK participants. Study 2 highlights the importance of examining autism camouflage in different cultural contexts and supports the need for Study 3 (Chapter 4) to conduct a qualitative analysis of camouflage in China.

The results of Study 3 (Chapter 4) highlight that camouflage is acquired in social activities, emphasising the need for research on autistic camouflage to delve into different cultural contexts. In a further thematic analysis, Study 3 (Chapter 4) found that Chinese participants indicated that they were under pressure from the outside world to conform to their surroundings or to follow the rules of their current environment. They also wanted to improve their interpersonal relationships by camouflaging themselves in socialising with

others, increasing their employment opportunities and improving their career prospects. Regarding the camouflage strategy, three themes, hiding the real self, additional social means, and reluctance giving, were generated from the experiences provided by the participants. The themes generated by the current study3 (Chapter 4) are similar to the previous assimilation, masking and compensation of Hull et al. (2017) but show notable differences. The current study locates more complex motivations for camouflage than Hull et al.'s (2017) assimilation, with 'assimilation' emphasising the participant's expectation to behave in a manner consistent with their surroundings, whereas the current study's camouflage motivations also include values consistency. The masking strategies proposed by Hull et al. (2017) also emphasise behavioural inhibition and mimicry, while the current study's masking strategies are more complex, using more verbal and expressive control to hide themselves. Participants in the current study also appeared to place greater emphasis on the positive effects of a certain degree of camouflage, including better interpersonal and career prospects, than did Hull et al. (2017) And in previous studies, camouflage was usually considered to be more than worth the effort. This may be related to the results of Study 2 (Chapter 3), where Chinese participants showed fewer mental issues than British participants at the same level of camouflage.

5.2. Implications

5.2.1. The Importance of Cultural Context for Stigma and Camouflage

The current study's findings highlight the importance of considering cultural context in research on autism stigma and camouflage. For example, the current study1 (Chapter 2) found that differences in cultural background were more likely to lead to higher levels of autism stigma among Chinese participants compared to the UK, and further analysis also identified how two dimensions of culture, individualism-collectivism and horizontal-vertical, respectively, influenced autism stigma among UK participants. Previous researchers were early to recognise the differences in autism stigma across cultures, but research on how culture influences stigma has not emerged until recent years (Obeid et al., 2015; Someki et al., 2018). Early cross-cultural studies of stigma comparison viewed cultural contexts in general terms as two different types. Examples include the collectivist culture represented by Japan and the individualist culture represented by the United States. Such comparisons tend to lead to arbitrary conclusions, such as finding higher levels of Stigma among Lebanese or Japanese participants than in the US and assuming that collectivism leads to higher levels of Stigma (Obeid et al., 2015; Someki et al., 2018). Subsequent researchers have noted that culture is a complex concept that cannot be summarised into two simple categories. After introducing a horizontal-vertical cultural orientation, Gillespie-Lynch et al. (2019) suggest that horizontal-vertical factors may influence the level of stigma rather than individualism-collectivism. Findings from the current study suggest that individualist-collectivist and horizontal-vertical cultural orientations combined to influence the level of

autism stigma. Moreover, in contrast to previous research, data from UK participants in the current study suggest that collectivist orientations lead to less stigma. These findings highlight the importance of culture in the study of stigma, that culture should be viewed as a complex concept, and that more research is still needed on what orientations culture has and how it influences stigma.

In addition to the influence of cultural context on stigma, the current study emphasises the importance of culture in autism camouflage study. Due to the cultural context, Chinese participants had higher levels of autism stigma than in the UK, and as avoiding stigma is one of the main motivations for camouflage, the findings of the current study2 confirm that Chinese participants have higher levels of autism camouflage than in the UK. In fact, cultural background affects camouflage level and camouflage's consequences. The current study2 found that although Chinese participants had higher levels of camouflage than British participants, they exhibited less mental problems than British participants. This suggests that Chinese culture somewhat reduces the mental issues associated with camouflage. The possible reason for this is that previous researchers have found that individuals from Eastern cultural backgrounds are more willing to suppress their thoughts or emotions than Western individuals (Zhao et al., 2020). Among the Chinese participants, suppressing themselves was less likely to cause adverse mental problems (Wei et al., 2013). The researchers suggest that the Chinese cultural background views suppressing oneself as a neutral or even positive social strategy, resulting in Chinese participants not

feeling bad about camouflaging or suppressing themselves (Zhao et al., 2020). The current findings highlight the importance of considering the influence of cultural context in the study of autism camouflage. The way in which culture influences camouflage may be complex; on the one hand, culture led to higher levels of camouflage among Chinese participants, but on the other hand, culture helped Chinese participants to reduce the negative emotions associated with camouflage, which explains why in Study 3 (Chapter 4), Chinese participants placed more emphasis on the benefits of camouflage compared to previous studies (Hull et al., 2017).

5.2.2. The Importance of Cross-cultural Consistency in Questionnaires

Study 1 (Chapter 2) and Study 2 (Chapter 3) of the current PhD thesis provide a translation and cross-cultural consistency check for questionnaires that require the use of Chinese. However, in the cross-cultural consistency tests conducted in the current study, not all rigorously translated questionnaires had a good consistency. Because almost all questionnaires are developed in groups from specific cultural backgrounds, for example, the CAT-Q was developed in the British culture, and these questionnaires may not always be appropriate for other backgrounds or be fully and accurately understood by participants from other backgrounds, even though it was strictly translated. Strictly speaking, data from different cultural backgrounds or groups wishing to be compared should first be tested for cross-cultural consistency using the CFA's multiple group comparisons, and only when residual invariance is reached can quantitative comparisons be made (Kong et al., 2022).

Making cross-cultural comparisons without consistency can be problematic because it is impossible to tell whether the questionnaire measures the same concept in the same way in different contexts until it passes consistency checks. Although it is essential to ensure cross-cultural consistency when comparing participants from different backgrounds, many previous researchers have not conducted the consistency test. For example, the study by Someki et al. (2018) translated the questionnaire, autism awareness survey and autism social distance scale into Japanese and compared data from Japanese and American participants. However, it did not test the questionnaire for cross-cultural congruence after translation. Yu et al. (2020) translated the ASK-Q to compare the differences in autism knowledge and stigma between Chinese and US participants and also did not test the questionnaire for cross-cultural consistency after translation. Current studies highlighting cross-cultural research also suggest that attention should be paid to the translation of questionnaires and the testing of cross-cultural consistency when comparing across cultures, which would increase the credibility of the conclusions drawn. Although the results of the current study's cross-cultural consistency test of the questionnaire do not support direct comparisons between Chinese and British participants, the current study's comparisons regarding camouflage still provide valuable findings. The reason for this is that the CAT-Q is still the most widely used questionnaire for measuring autism camouflage and there are no alternatives available.

5.2.3. The CAT-Q still needs more support from different groups and cultural backgrounds.

The CAT-Q is a newly developed questionnaire in recent years to measure autism camouflage, and many researchers have attempted to translate the CAT-Q into other languages and conduct CFA tests. The current study 2 (Chapter 3) translated the CAT-Q into Chinese and conducted a multi-group CFA among UK and Chinese participants to test whether the data fitted the original three-factor model of Hull et al. (2019a) and to test for cross-cultural consistency. The CFA's results show that neither the Chinese nor the UK data can be fitted to the original three-factor model. The current study and other previous studies have questioned the validity of the CAT-Q in different cultural contexts. Lundin Remnélius & Bölte (2023) translated the CAT-Q into Swedish and validated it cross-culturally, and found that the data provided by 639 Swedish participants could not be fitted in the CFA to the original 3-factor model proposed by Hull et al. (2019). A validation study of the French version of the CAT-Q involving 1227 French participants found that although the original 3-factor model was supported, the results of measurement invariance did not support Hull et al.'s (2019) suggestion at the outset that the CAT-Q could be applied to either autistic or non-autistic populations and that direct comparisons could be made between their levels of camouflage (Bureau et al., 2023). This means that the items' meaning in the CAT-Q's French version differs for French autistic and non-autistic participants (Bureau et al., 2023). The same problem arises with the translation and validation of the Dutch CAT-Q. Data from 674 Dutch people support the three-factor model of the CAT-Q, but multiple group comparisons of autistic and non-autistic participants

suggest that the CAT-Q cannot be used for direct comparisons between these two groups (van der Putten et al., 2023). In addition to the quantitative research, the current PhD thesis also undertook a thematic analysis of Study 3 (Chapter 4), which found that Chinese participants' perceptions of autism camouflage differed in many ways from participants from a UK background, and this may be the reason why the CAT-Q's factor model is not consistent and is challenged among other cultural backgrounds or different groups of participants. As mentioned in the discussion section of Chapter 4, Chinese participants described more verbal-based camouflage strategies than British participants, with little mention of body language or eye contact. In the English version of the CAT-Q item, for example, "I adjust my body language...", or "I don't feel I need eye contact..." or "I don't feel I need to make eye contact." items may not be suitable for Chinese participants. In the English sample, the strategies of body language and eye contact were considered effective camouflage means, but the Chinese participants described that they used less or no body language and eye contact in their camouflage. Because Chinese culture discourages the use of body language and eye contact in social situations (Liu, Rigoulot & Pell, 2015). This may be one of the major reasons why the English version of CAT-Q's original items is not suitable for the Chinese context. Therefore, the current study's findings suggest more cross-cultural testing of the CAT-Q, and further qualitative research on autism camouflage in various cultural contexts examines differences in the understanding of camouflage across cultures.

5.3 Future research

The current section discusses future directions for research. Although Study 1 (Chapter 2) used the Autism Social Distance Questionnaire to assess participants' levels of stigma towards autism and drew conclusions, there is still a lack of an accepted tool to assess levels of autism stigma directly. Future research could use a more validated tool for directly assessing stigma. The data from the Chinese participants in Study 1 did not meet the criteria for fitting the SEM model. This confirms, on the one hand, that factors may influence autism stigma differently in Chinese culture than in the UK, on the other hand, we cannot know whether any essential factors have been overlooked in Chinese culture. Future research should continue to explore how autism stigma is influenced in different contexts. Limited by the assessment tools for cultural orientation, the current study1 uses horizontal-vertical and individualism-collectivism to classify culture into four different orientations. Culture should be a complex concept classified and assessed differently in different domains. Future research should consider the complexity of the culture concept so that it is more helpful in assessing how culture affects stigmatisation. At the same time, current research is dedicated to exploring the differences in the impact of Chinese and British cultural contexts on stigmatisation, thus considering Chinese and British cultures as a whole. However, Chinese or British culture is diverse in different regions or populations. Therefore, future research should consider the cultural variances between different groups of people or regions within cultural contexts.

The findings of Study 2 (Chapter 3) indicate that the data from Chinese and UK participants did not pass the CFA tests for CAT-Q and BAPQ. In this case, even though the study still demonstrates differences in cross-cultural comparisons, this result may be questionable. The restrictions of the measurement instrument are one of the limitations of the current study2. It also suggests that future studies should provide more support on the validity or test cross-cultural consistency of the CAT-Q and BAPQ. Potential participants for Study 3 (Chapter 4) qualitative research were recruited using convenience sampling via the Internet, with the final participants concentrated in the 20-30-year-old age group. The participants were still unrepresentative of the current study's objective of wanting to investigate how participants from a Chinese background understand the camouflage of autism. Future research should recruit participants of different ages, occupations and even from different regions to generate more comprehensive and representative codes and themes.

5.4 General conclusion

In summary, the current paper offers three main conclusions. Firstly, the cultural context impacts stigma in autism, and this study reveals how cultural factors influence stigma and suggests that future research should consider the complexity of culture. Secondly, the study's findings suggest that the validity of the CAT-Q still needs to be supported by more participants and data and that the development of other language versions of the CAT-Q requires further testing of the CFA and cross-cultural consistency. Finally, the study

identifies the influence of different cultural backgrounds on autism camouflage. It also used qualitative analysis to identify Chinese participants' understanding of camouflage and to compare the differences with those in the UK. Overall, the current thesis acknowledges the important role of the cultural context in autism stigma and camouflage and highlights the importance of continuing cross-cultural research in the future.

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Appendix 1 Example of transcribing and highlighting code for an interview recording

11 访谈.mp3

主试 00:00
第一个问题，您平时会伪装自己吗？您有伪装经历吗？

参与者 11 00:51
这个应该一定会的，应该所有人都会。

主试 00:55
您能讲一下你在什么情况下您会伪装自己？举例来说的话，比如说您跟陌生人相处，或者是您在一大群人之中，或者是这种类似于工作面是一种正式场合，这是例子。

是您谈谈您自己的。

参与者 11 01:13
比如要是需要遇到一些陌生人的情况的话，你肯定不会坦诚相待的去把他自己的所有的一些情况都会告诉他，你肯定是需要一些伪装的，跟陌生人初次见面初次交流的话，然后可能在职场当中，在职场当中可能也会遇到一些需要伪装的情况，比如说自己的工作能力或者什么之类的，肯定不希望别人知根知底，然后好让自己有余地去发挥明白。

主试 01:54
您能提供更多的细节或例子，比如说您在面对陌生人的时候，你会做哪些伪装，然后在职场上面您又会做哪些？

参与者 11 02:04
我想想。

要是遇到一些陌生情况，可能就是在交谈当中会涉及到一些家人。

主试 02:19
亲属的信息。

参与者 11 02:20
或者包括自己的工作工作地址或者什么学校什么之类的，可能涉及到这些具体的信息的话，就是多少会有些提防。可能有一些是不真实的信息，或者有一些是有一些加以修饰的这种信息。

主试 02:38
这种属于是个人隐私类的，这种好像跟这种伪装好像不太一样。

我给您举个例子，比如说伪装的话，比如说您的这种打个比方，在国外很常见的，比如说他们外国人习惯在交谈的时候就是要直视对方的眼睛，但是很多咱们中国人可能是不太习惯这一类的，就是目光或者是首饰之类的，如果您在跟陌生人交谈的时候有这种这方面的，比如说其实您不想跟他显得特别亲密，这只是举个例子，但是您可能为了示好或者为了展现出您的友善，可能你会比如说看他的眼睛，看他一些什么。

对这种属于是伪装，违背了您真实的想法，但是您又希望给对方一个好印象或者是所以您对这种属于伪装。

参与者 11 03:36
可能就是陌生人还好一点，对我来说的话陌生人好一点，因为我不太就可能在职场中更常见一点，比如说跟上司跟领导之间可能希望得到他们的一些认可，可能对就

在提出自己的一些建议或者见解的时候，其实可能也不是自己的本意。

主试 03:59
就会迎合领导的想法这种。

他们会喜欢这样的方案。

参与者 11 04:07
对，这个东西就是投其所好，算是你大概知道他的怎么说，他能力所及的角度是不一样的，有些人我们是做园林行业的，他有可能有些人是擅长于技术方面，有些人可能擅长管理方面，你面对不同领导的时候，肯定是遵循他擅长的角度去跟他聊，去跟他说明白。

主试 04:33
您在社交过程中，您刚才说跟陌生人反而不会太过于的伪装或者隐藏自己。

参与者 11 04:41
但是因为我跟陌生人之间对再去隐藏自己的本心去可能会很累。

主试 04:49
您跟。

参与者 11 04:50
陌生人之间我都。

主试 04:52
您说您跟身边的比如说稍微熟悉一点的朋友之类的，会有这种。

参与者 11 05:01
普通朋友的话可能会有这种伪装的情况，但是如果要是特别熟悉的朋友的话，大家都知根知底的话，应该就不会了。

主试 05:11
您能讲一下您跟普通朋友伪装的一些细节吗？您不需要提供特别具体的比如说时间、地点、人物什么这些都不需要，但是有一个大概的这么一个您会做些什么？

参与者 11 05:25
比如说跟普通朋友一起参加酒局，他可能比较爱喝白酒，但是我可能个人更爱喝啤酒，但比如他说了说更爱喝白酒或者对白酒的一些见解的话，我也会表示赞同，也会可能也会说自己也比较喜欢喝白酒，但实际上可能就是违背本心的。(Deliberately consistent and friendly: Be consistent with the behaviour of others, even if it goes against your own ideas.)

主试 05:44
明白。好了，下一个问题是您觉得从动机方面来讲，你伪装的原因，你觉得伪装的就是驱使你伪去伪装，或者你伪装的原因是什么？

参与者 11 06:00
我觉得伪装原因可能从根源上来说，所谓的讨好型人格，可能大家现在都在这个词还挺常用的，都在觉得自己是一个讨好型人格，其实都是为了给别人建立一个好印象吧，把自己包装的能好一些，就在别人眼里看来。(Maintain your image: The participant's motivation for camouflaging is the desire to make themselves seen by others as polite and friendly people.)

主试 06:21
明白您觉得这样做的给您带来一些什么会给您提供哪些帮助？

参与者 11 06:30
或者说在可能人脉关系现在是反正在国内的人情社会中是很重要的一环，你可能给别人留下好印象之后，对自己的一些方方面面的需要寻求帮助的时候，可能跟别人也方便开口。(Relationships and resources: Participants' motivation for camouflaging is to gain better

interpersonal and social resources.)可能出于这方面。

主试 06:53
好勒，您是否会感觉到来自周围的一种压力，比如说环境或者社会的一些道德规范，它要求你这样去做，如果不这样做的话，就会打破一些规范或者是会有这种感觉吗？

参与者 11 07:08
是这样，反正网络社会太发达了，你在网上在这个没有人知道你是谁的情况下，总会有人站在道德的制高点上去评判这件事儿，有些人活得很自我，在别人看来也是一种错，就是你应该去体谅别人去感觉你必须要站在别人出发点上去想问题，才能迎合社会。(It's wrong to be too egotistical and should cater to social expectations: Living as you are is often considered wrong and can be criticised by others. Therefore, this becomes a motive for camouflage.)

主试 07:31
也就是说导致了您伪装自己是吗？

参与者 11 07:38
算是主要原因。

主试 07:39
好的，下一个问题是你是如何判断自己或者是感受自己的伪装是否有效的？

参与者 11 07:53
我觉得一个比如说要是像刚才咱们举例子说跟普通朋友之间，如果你这个话匣子打开了，就两个人之间话题越来越投机，然后聊的内容越来越丰富的话，可能伪装就是成功的。

主试 08:08
好的明白，看对方的反应是吗？对方当下的那种及时的反馈。

好勒好的，下一个问题是在伪装之后，您的感受感觉如何？包括身体上或者是情绪上有什么感觉吗？

参与者 11 08:31
其实按说一开始的时候可能刚刚开始做这种事，迎合别人的这种聊天或者什么之类的，这种时候肯定是比较累，而且他毕竟是违背本心的，其实有的时候也是比较纠结的，但是可能习惯了之后好像慢慢的就觉得这是一件对的事了。

主试 08:55
您的意思是会随着时间的推移，伪装的越来越顺利，越来越得心应手，就觉得好像在情感上也没有那么容易就更容易接受了是吗？

参与者 11 09:07
是的，就跟咱们说的叫见人说人话，见鬼说鬼话，这种道理是一样，感觉时间长了之后就熟能生巧了。明白。

主试 09:17
那也就是说在熟悉了之后，您美妆之后就不会有任何的比如说负面情绪或者是身体上的疲惫，还说他只是程度减轻了？

参与者 11 09:31
我觉得多少还是有的，你可能会跟自己最亲近的人，最亲近的朋友，可能去吐槽一些之前跟普通朋友发生的这些事儿，有可能这个人的什么思路跟我不同，但是实际上在当时的情境下，你跟普通朋友说的那些都是一致。

主试 09:47
好的明白，您在比如说一天的工作之后，跟领导相处之后或者是很长时间的社交，经历了一段时间的伪装之后，你会不会感觉到身体上很累，然后需要自己独处，然后进行一个恢复？

参与者 11 10:07
我还好，我可能把跟普通朋友的社交圈子跟熟悉的朋友社交圈子会交替进行，你有时间也可以去自清晰倾泻自己的情感，有时间可能会伪装自己，反正是交替进行就不会很累。

主试 10:25
好的明白，好勒，然后下一个问题，您觉得成一个成功的伪装需要具备哪些技能？需要您动用哪些能力或者技巧？

参与者 11 10:38
我觉得这个没有上限，就是你了解的越多，知道的越多越好，有些人可能擅长于历史，有些人可能擅长于天文，有些人可能擅长于什么园林，有些人可能擅长于设计，反正你肯定是知道的，越多范围越广，你越能跟这个人建立联系。

主试 10:56
说您的意思是提前具备的知识越丰富的话越容易物其所好是吗？

参与者 11 11:04
对是这个意思，而且基本上比如说你知道今天晚上是跟一个普通朋友有一个见面有一个局，然后你可能提前已经知道了他的工作，包括一些习惯爱好什么之类，你可能提前已经去做好功课去跟他聊什么了(Know the camouflage object in advance: Participants will learn about their camouflage object or social scenario in advance to better camouflage themselves.)。

主试 11:26
好的，明白。从这个语言或者是社交的一些基础的技巧，比如说语言能力或者是这种怎么说情绪控制能力这种有没有？

参与者 11 11:39
我觉得主要肯定主要是倾听，然后在适时的时候给他肯定的回应，然后包括自己在整个过程中都是以一个比较谦卑的姿态去跟对方去交流的话，应该别人会很容易的认可你，欣赏你这种。

主试 11:59
明白。下一个问题，您是如何学会伪装的，或者是您日常是如何提高您的伪装能力？

参与者 11 12:11
我觉得可能从小到大都是去多见识，多跟父母一些参与一些这种社交的环节，反正可能耳濡目染的听他们去在交流过程中做的姿态，爱包括说话的一些方式，然后自己可能慢慢就变成这样了(Direct observation imitation: Participants learn the rules of camouflage directly through their own observation and imitation, without going through others.)。

主试 12:32
通过观察父母的那种观察别人的社交的那种时候的模式是吧？

参与者 11 12:36
是这样的。

主试 12:40
好的，明白，您在观察父母的社交模式的时候，是不是也会学习到社会的社交的一些规则规范，比如说那种怎么说很抽象环境给你的那种对你的要求。

参与者 11 12:57
这是一定的把关键是咱们中国这些传统文化，比如说酒文化、茶文化，包括待客之道什么之类的，我觉得都是肯定是有所帮助的，明白。

主试 13:10
好的，下一个问题你觉得总的来说伪装这件事情本身它给你造成了哪些负面影响，又给你造成哪些积极的影响？

参与者 11 13:22
其实我觉得为什么所有人都去选择伪装，肯定它就是利大于弊的。他觉得他在伪装的过程中，他获利是更多的，可能你在人际关系上，包括未来这些人能给你提供的一些便利，或者给你带来一些利益上肯定是利多一些的，所以才会选择要说弊端的话，可能就是自己的心态上，就是他可能这个东西并不是你喜欢，但你依旧去需要迎合别人的话，你就是心态上要比较强大一点。

主试 13:57
明白好的，然后最后一个问题了，您刚才也说跟熟悉的朋友就是不会伪装，除了这个之外，还有没有在某个社交场合之下，您是决定不伪装的，就是以自己的真实状态去面对。然后原因是什么？

参与者 11 14:17
我觉得一开始在应聘工作的时候，我没有选择伪装，可能想在未来的发展的过程中能得到一个真实的反馈。

主试 14:29
明白。勒好勒行，这就是所有。

参与者 11 14:37
您再说。

主试 14:38
不好意思您继续。

参与者 11 14:40
不是为了得到这个工作而去进行一个伪装，这个工作其实本身不重要，是一定是因为自己的喜欢，一定是因为领导的认可，你才会继续从事这件工作，因为可能作为我们北京的话还好，家里的条件可能会好一些，所以你不需要去为这个工作挣的多少钱什么之类的发愁，所以你可能就是想遵从本心的去做自己真正喜欢的东西，所以这个时候可能就不会去伪装，明白。

主试 15:13
也就是说当外界的压力没有那么大的时候，可能人会表现更加自如一些是吗？

参与者 11 15:22
对，是这样，明白。

主试 15:25
好的，感谢以上这些问题就是全部我想要问的问题了，您如果有任何想要补充的或者是我刚才没有问到的，你看你想说的有吗？如果有的话可以说一说。

参与者 11 15:39
就像您说的，我觉得他一开始说伪装这个词是一个中立词，我觉得也没什么问题，它确实是一个看在不同情境下，它的使用的一个得当不得当吧。(Pros outweigh the cons (moderate use): Participants perceive camouflage as neutral and a tool to solve social problems. The benefits of camouflage outweigh its disadvantages, provided it is used in moderation.)

我自己感受还是感觉它是利大于弊的。然后但是我觉得不要去过度的，因为有些人可能在手段上或者在使用上可能有不得当的情况，所以它会让人感觉到一些不舒适，我觉得也是正常的。(Pros outweigh the cons (moderate use): Participants perceive camouflage as a neutral tool to solve social problems. The benefits of camouflage outweigh its disadvantages, provided it is used in moderation.)

主试 16:12
好勒明白。好行，咱们今天的访谈就到这里。

Appendix 2 Codebook for Chinese participants on thematic analysis of camouflage

Reluctant works	Extra reluctant work is done to highlight one's abilities or to please others—for example, overtime work.
Catering to others	Pretending to agree with others in social or group voting.
Deliberately consistent and friendly	Be consistent with the behaviour of others, even if it goes against your own ideas.
A good relationship forced to be maintained	A superficially friendly relationship that is forced or requires extra effort to maintain.
Concealment and exaggeration	Participants will conceal facts that are detrimental to them, such as their shortcomings. At the same time exaggerate the parts that they consider favourable to attract the attention of others.
Change the topic(talk)	Participants actively change the subject of the chat during social interaction. They interrupt a topic they dislike or change the conversation's direction with a joke.
Playing a fictional role	The participant feels like an actor playing a role predetermined in advance. The participant will act out the behaviour of the character.
Observe the occasion around you	After arriving in a new environment, participants prioritise looking around them before making further decisions. For example, whether and how camouflage is needed.
Imitation	Participants camouflage by observing and then imitating the behaviour of others.
Escape	When participants find it challenging to continue the camouflage or do not want to camouflage anymore, finding an excuse to escape is also an option.
Controlling expressions to hide emotions	Participants will hide the emotions they do not want others to see by controlling their expressions.
Know the camouflage object in advance	Participants will learn about their camouflage object or social scenario in advance to better camouflage themselves.
Hide attitudes and preferences	Participants mask their attitudes or preferences by suppressing the idea that they like or dislike certain things.
Conformity to the values of different groups	Participants usually participate in more than one social group, and within the different groups, participants conform to the prevailing values of the group.
Obedience to superiors	When spending time with superiors, participants assume

	a lower posture and defer to their superior's point of view.
False friendliness (compliments)	Participants will force themselves to pretend to be polite, friendly or complimentary by smiling and nodding at everyone.
Influencing communication	Participants felt that the camouflage would affect their communication with others. Camouflage is used to communicate better, but failed camouflage or the psychological pressure caused by camouflage can prevent communication.
Concerned about camouflage effects (stress)	Participants described the post-camouflage stress because of concerns about the effect of the previous camouflage.
Not the result you wanted	Participants felt that camouflage often led to them not achieving their desired outcomes or sacrificing their needs.
The effect of camouflage affects mood	Participants felt that the effectiveness of the camouflage would largely influence their subsequent mood. Successful camouflage can also bring about negative emotions, but participants felt that the effort was at least worth it. Failed camouflage made them feel more upset than successful.
Preserved image and increased opportunities(positive)	Participants felt that the camouflage led to some positive outcomes, helping them to develop a better personal image and gain better perceptions from others. A better personal image leads to potential opportunities and resources.
Additional tasks and negative emotions	The consequence of the camouflage is an additional task and negative emotions for the participants. It adds to the psychological and physical burden.
Exhaustion	Camouflage can also lead to participants feeling mentally and physically exhausted.
Not your true self	Participants feel they have lost their true selves after the camouflage, like a false shell has been put on. The participant feels hypocritical and ambivalent and does not want to recall the camouflage experience.
True negative emotions are magnified (depression)	Participants camouflage and suppress their negative emotions, which can exacerbate the already negative emotions. For example, suppressing anger makes you angrier and suppressing depression makes you more depressed.
Physical sensations	Physical discomfort from camouflage, negative emotions or muscle tightness causing back pain.

The sense of achievement that comes with camouflage(positive)	Successful camouflage brings satisfaction and a sense of achievement from successful socialising.
Social avoidance	Frequent camouflage can lead to participants rejecting new social interactions and wanting to be left alone.
Losing meaning	Camouflage can leave participants feeling confused and inauthentic. The participant cannot find the meaning of the camouflage or even lose the meaning of life.
Pros outweigh the cons (moderate use)	Participants perceive camouflage as neutral and a tool to solve social problems. The benefits of camouflage outweigh its disadvantages, provided it is used in moderation.
Better relationships and career paths(positive)	Participants felt that the benefits of camouflage included more employment opportunities, better relationships and career chances.
Sacrificing your feelings	Participants felt that the camouflage sacrificed their feelings and felt sorry for themselves.
Feel more secure	Participants saw the camouflage as a protective shell that would protect them from harm and bring a sense of security.
Avoiding conflict	Participants felt that camouflage could avoid conflicts over differences of opinion or values.
Increased low self-esteem	Camouflage to hide one's shortcomings can increase participants' feelings of low self-esteem.
Increased stress and social avoidance	Participants' camouflage can cause more stress when it is rejected and can also cause participants to be reluctant to socialise again.
Reduced confidence	Whether successful or not, participants' camouflage can reduce self-confidence. Especially when the camouflage is rejected or detected, it can significantly reduce self-confidence.
Highlighting competencies	The participants' motive for camouflaging is to demonstrate to others that they have particular abilities and thus achieve better grades or career opportunities.
The pressure to be inconsistent with others	Participants felt that being inconsistent with their surroundings brought additional stress. Mavericks are unwelcome, so they want to camouflage themselves to be like the people around them.
Having to socialise	Participants thought they were forced to socialise when their environment encouraged it, camouflaging themselves as cheerful, communicative people.

Maintain your image	The participant's motivation for camouflaging is the desire to make themselves seen by others as polite and friendly people.
Expectations from the environment	Participants indicated that their motivation to camouflage came from the expectations of their environment.
Adapting to a new environment	Participants believed that their camouflage was to adapt to a new environment. When entering an unfamiliar environment with a lack of information and understanding, socialisation is achieved through imitation.
Integration with others	Participants expressed their desire to fit in with the group around them through camouflage. Even if they did not want to do the same thing as the people around them, they had to do it to fit in.
The need for self-protection (to avoid negative comments)	Camouflage is used to protect oneself, and participants do not want to receive negative comments from others.
Maintaining relationships	Participants are forced to tolerate the faults of their social partners. Such camouflage is used to maintain the relationship.
Pressure from the environment	Authentic expression can lead to poor judgement from the outside world, so camouflage is motivated by pressure from circumstances.
Livelihood and future	Camouflage on important occasions because the participants need a better personal image to gain the security of livelihood and career prospects.
Relationships and resources	Participants' motivation for camouflaging is to gain better interpersonal and social resources.
It is wrong to be too egotistical and should cater to social expectations	Living as you are is often considered wrong and can be criticised by others. Therefore, this becomes a motive for camouflage.
Avoiding isolation	Participants felt that acting differently would lead to isolation from others and that they had to camouflage themselves to avoid being alone.
Motivation is negative	Participants perceived the motives for camouflage as all negative and not leading to progress or better social interaction.
Camouflage is acquired	Camouflage is learned in life, and no one is born with the ability to camouflage themselves.
Indirect learning from the experience of	Participants learn camouflage indirectly by taking advice from others or by referring to the experiences of others.

others	
Direct observation imitation	Participants learn camouflage rules directly through their own observation and imitation, without going through others.
Naturally (delete)	The camouflage is learned naturally, and the participants do not know how they learned it.
Analysis of language and expressions	Effective camouflage requires analysing the language and expressions of others to understand their attitudes and preferences.
Mental strength and endurance	Camouflage sometimes requires a certain amount of mental strength to combat the negative emotions that arise. Constant camouflage also requires endurance.
Emotional Control	Successful camouflage requires participants to be accurately aware of their emotions and have the ability to control their expressions and regulate their emotions.
Internet promotion	After receiving some internet promotion, participants choose to live as they are and not worry too much about the judgement from others.
An open and inclusive environment	Participants said that in a truly open and inclusive environment, they no longer had to go to the trouble of camouflaging themselves.
Trust and understanding	Faced with family and good friends who completely trusted and understood them, participants said they no longer needed to camouflage.
More genuine and relaxed	Participants show more of their true selves after successful camouflage in social situations. Less camouflage can make socialising more relaxed if it is acceptable to the person you are socialising with.