Camouflaging Traits in Adults with Autism Spectrum Disorder

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Abstract
Camouflaging is a technique to hide oneself from others for security purposes. This technique is used by individuals with ASD to hide the discernibility of their autistic traits in front of others and pretend not to be suffering from any disability. This mixed method QUAN-qual study was designed to find out whether individuals with ASD use different camouflaging strategies in their social settings or not, their feelings & perceptions about the use of camouflage, and the reasons for using these techniques. Through the help of a convenient sampling method, the data was collected from mild to moderate-level adults with ASD and Asperger's (N=90, aged=17 years & above), who were observed through the CAT-Q tool. Results: The results showed that adults with ASD used compensation, masking, and assimilation strategies to hide their autistic traits from society and there is a gender difference that exists in using camouflage strategies. Thematic analysis also showed that adults with ASD camouflage themselves in front of others; they mostly feel more active, depressed, and stressed in their inner self after performing camouflaging strategies which affects their mental health, though very few feel comfortable in performing these activities. However, most of them recommend others for the camouflage strategies to avoid stigma & labeling. The findings of the research are helpful to explore why adults with ASD used to camouflage themselves in front of others and what are the reasons behind that. Adults with ASD hide their autistic traits to minimize the visibility of autism in front of others, because they want to fit themselves in those settings without stigma and labeling.

Keywords: Camouflage, autism spectrum disorder, Asperger, gender, compensation, masking, assimilation, stigma.

Introduction

A neuro-developmental condition such as Autism and related spectrum disorders which is marked by lack of social competencies, rigidity, lacking in communication & stereotyped or repetitive behavioral activities (Rehman et al., 2022; Hodge et al., 2020; Hull et al., 2020; APA, 2013). Nonetheless, this neuro-developmental disorder called Autism Spectrum Disorder (ASD), which is commonly diagnosed in early childhood, is the period when they start to interact with their surroundings. However, these ASD symptoms can appear later in life too, when the need for socialization is exceeded but they are unable to fulfill the demands of society because of limited functional capabilities (see Khalid et al., 2020; Maenner et al., 2014). However, within gender, males were more affected by ASD compared to females (Hodges et al., 2020; Demily et al., 2017); in meta-analysis study, the male to female ratio was observed as 3:1 (Hull et al., 2020). The lowest ratio of females toward males with ASD is due to phenotypes, as female phenotypes with ASD are mostly misdiagnosed, or not being diagnosed by anyone during childhood, or may be identified at a later stage (Hodges et al., 2020). Though, majority individuals either males or females with ASD, triumphed in hiding their autistic symptoms or traits to pretend to be normal and undiagnosed as ASD (Frith & Happé, 2005). This is just because of the camouflaging strategies observed in adults with ASD in social settings, especially in females (Hodges et al., 2020).
Camouflaging refers to the act of concealing oneself or masking one's true identity in social situations. It is believed that autistic individuals are often known to use camouflaging techniques to downplay their autistic traits, either as a social coping mechanism or to appear non-autistic (see also Petrolini et al., 2023; Lai et al., 2011). According to earlier studies, adult individuals with ASD can benefit from using camouflaging strategies to build relationships with others, especially when it comes to creating acquaintances to boost socialization (see Cook et al., 2022; Gray et al., 2021; Hull et al., 2019; 2107; Tierney et al., 2016; Willey, 2014).

Background of the Study

Individuals with ASD are unique from one another concerning their symptoms and severity levels. Most individuals with ASD are capable of reading, writing, speaking, and living independently or with little assistance in the community, and some individuals with ASD have no symptoms of their autism disorder when they reach adulthood (Lord et al., 2018). Some of the individuals with ASD diagnosed at their early ages when their disorder is stern and they are not capable to perform their task independently, though some individuals with ASD are misdiagnosed due to their comorbid conditions or disorders, and few of them are undiagnosed or diagnosed later in their life, when they reached to adulthood, they failed to accomplished the demands of the society (Khalid et al., 2020; Maenner et al., 2014).
Within adults, diagnosing ASD in adult females is often more challenging & difficult than in early childhood, due to their ability to develop coping mechanisms that are supported by long-term environmental and caregiver assistance, and their enhanced social skills that allow them to fit into society with their neuro-typical communication (Attwood, 2006). Hull

et al. (2019; 2017) refer to these coping mechanisms used by adults with ASD as explicit techniques, which are employed in social settings to appear socially competent, which help them to conceal their difficulties, & hide autistic traits, these techniques are known as 'camouflaging'.

Camouflaging is a strategy that involves concealing certain aspects of one's personality from others, and it can either be an instinctual perception or a cognitive mechanism used by living organisms to avoid being targeted in social circumstances (see Cook et al., 2022; Grey et al., 2021). Adult individuals with ASD who engage in camouflaging put forth deliberate efforts to hide, compensate, or mask for their autistic traits by utilizing both conscious & unconscious strategies. This can lead to a decrease in observable autistic behavior (Rehman et al., 2022; Gray et al., 2021; Lai et al., 2017). There are various camouflaging techniques which are employed by adults with ASD such as making eye contact, copying others' body language as well as sentences, following social scripts, using learned phrases, preparing jokes, mimicking social behaviors, imitating facial expressions, and gestures. Camouflaging as a technique that enables adults with ASD to overcome difficulties in their social lives as well as help them to discover altered ways for any problem, such as for the issues of communication, to make eye contact with unknown person, making new friends in new gatherings (Hull & Mandy, 2019). The use of camouflaging strategies not only allows adults with ASD to blend in with their environments, but also avoid being identified or labeled as autistic by others (Hull et al., 2020).

However, the social camouflaging concept was first investigated in qualitative research to find out for the undiagnosed female adults with ASD at a later age and research identified that these females use various strategies including masking selves (Hull et al., 2020; 2019; Bargiela et al., 2016; Attwood, 2006), replicating others' actions or behavior, mimicking body languages, and suppressing autistic behaviors and expressions in social settings (Hull et al., 2020). Furthermore, these strategies help them compensate for their social difficulties and participate in social conversations (Dean et al., 2016).

Although some qualitative studies have proposed that both males and females with ASD use camouflaging strategies, there are differences in how each gender adopts and utilizes their strategies (Hull et al., 2020; 2017). However, there is still limited data available on the usefulness of camouflaging strategies, especially for ASD and whether they contribute to additional challenges or problems in their lives (Hull & Mindy, 2019). This lack of knowledge about the effects of camouflaging can impact the diagnosis of individuals with ASD and their long-term well-being and outcomes with respect to their quality of life (Hull et al., 2019).

In 2017, Hull and her team created a conceptual model for adults with ASD that outlined the key elements and stages of the camouflaging process. The model consisted of three stages: motivation, implementation, and consequences. During the motivation stage, individuals with ASD may feel the need to connect with others and fit into social environments. In the implementation stage, individuals may use various masking and compensation strategies. Finally, during the consequences stage, there may be short and long-term effects, such as changes in self-perception, increased stereotypical behavior, and exhaustion.

The model also highlighted the two main motivations behind camouflaging, which were connection and assimilation. This suggests that individuals may adopt camouflaging behaviors for different reasons, including internal goals like making friends, or in response to external societal demands placed on adults with ASD.

Despite differences in motivation and gender-based differences in camouflaging strategies, there are common facts in the use of camouflage strategies by adults with ASD. For example, individuals may feel exhausted by societal or social demands and may attempt to camouflage to make more friends (see also Cook et al., 2022; Grey et al., 2021; Tierney et al., 2016). Furthermore, adults with ASD use to mask their ASD characteristics as explicit strategies (Hull et al., 2020; 2017). Qualitative interviews with adult females with ASD also revealed similar expressions for camouflaging (Cook et al., 2022; Bargiela, et al., 2016).

Meanwhile, camouflage has some advantages for individuals with ASD, including increased social connections, communication in an easy way, improved ability to fit in with the environment, and increased employment opportunities (see Jorgenson et al., 2020). However, it's not easy to camouflage yourself in social settings; it requires constant monitoring and observation of social situations. These strategies can also cause individuals to experience self-harm and exhaustion in certain situations (Hull et al., 2020; 2017) because camouflaging can take a toll on emotional, mental, as well as physical health (Cook et al., 2022; Hull et al., 2020; 2017; Baldwin & Costley, 2016).

Research Questions

1. What compensation strategies are used in social settings by adults with Autism Spectrum Disorder?
2. Are adults with Autism Spectrum Disorder using masking strategies in social interactions?
3. What assimilation strategies are mostly used in social gatherings by adults with Autism Spectrum Disorder?
4. Is there any gender difference found in the usage of camouflaging strategies by adults with Autism Spectrum Disorder?

Hypotheses
1. Compensation strategies are often used in social settings by majority of adults with Autism Spectrum Disorder.
2. Adults with Autism Spectrum Disorder use masking strategies more frequently in social interactions.
3. Assimilation strategies are mostly used in social gatherings by mostly adults with Autism Spectrum Disorder.
4. A gender difference found in the usage of camouflaging strategies in social settings by adults with Autism Spectrum Disorder.

Research Design
Current research is a mixed-method approach with two phases, including both research methods; quantitative & qualitative (QUAN-qual). The approach allowed for the validation of quantitative findings through the use of a survey questionnaire with additional open-ended qualitative queries (Frias & Popovich, 2020). This exploratory mixed method design aimed to provide more insight into the experiences of adult individuals with ASD regarding their autistic traits, emotions & experiences regarding camouflaging, the mental exhaustion caused by camouflaging, and the underlying reasons for these outcomes. This approach helps to offer a more inclusive understanding of the complex phenomenon regarding the camouflage and camouflaging related activities in adults with ASD.

The purpose of using this two-phased mixed-method design was to utilize a validating quantitative data model. This approach involves using quantitative data to validate the findings and supplementing them with qualitative data collected through open-ended questions. By doing so, the researcher gains a more comprehensive understanding of the research data and can validate the quantitative results theoretically.

The target population was all adults with ASD in Pakistan who had mild to moderate levels of severity or high intellectual functioning (Asperger's). However, the particular population of ASD in Pakistan is unknown (Furrukh & Anjum 2020; Arsh & Darain, 2019), and it's not easy to get data from marginalized or stigmatized groups. According to the last census in 2017, the estimated disability ratio was 0.48% (Rehman et al., 2022) and registered peoples with Disabilities (PWDs) were only 136,928 (Arsh & Darain, 2019; Khan et al., 2019). An inconsistency was found in the estimated data because a lot of PWDs don't record themselves as incapacitated, the majority hide their disability because of stigma or labeling, and others are found on roads begging or selling items. Most importantly, despite our efforts, we were unable to obtain data on individuals with ASD from any local or reliable source, including our census (Rehman et al., 2022; Furrukh & Anjum, 2020).

The reason for selecting adults with ASD aged 17 and above with mild to moderate severity level was that they may explain & communicate their thoughts easily as compared to young individuals with ASD (16 years & less), and they do not show the foremost signs of autism, they can communicate their needs and live independent with minimal assistance (Young et al., 2020) making suitable for inclusion in the study. For the determination of data collection, the researcher approached the different online autism societies and vocational institutes in different cities of Pakistan. From there, ninety adults with ASD (N=90), aged seventeen years (17) or above were selected through the convenient sampling method.

To identify camouflaging traits in autistic adults, the study used a self-reported measuring tool named "Camouflaging Autistic Traits Questionnaire" (CAT-Q) that has a list of 25 items to measure, developed by Hull et al. in 2019. CAT-Q has three subscales, namely masking (used to cover autistic symptoms or pretend non-autistic), compensation (used to overcome difficulties related to ASD in social situations), and the final assimilation (ability to fit in or merge with society). The scale has a high consistency with a Cronbach's α of 0.94 for the total score and 0.92, 0.85, and 0.91 for the subscales of assimilation, masking, and compensation, respectively. With the help of an online survey form, data was collected.

Findings

Table 1.
Demographic Characteristics

	N	%	M	SD
Gender				
Male	49	54.4	1.46	.501
Female	41	45.6		
Age in years				
18 - 21	35	38.9	2.07	1.058
22 - 25	26	28.9		
26 - 29	17	18.9		
30 years or above	12	13.3		
Severity Level				
Mild	35	38.9	2.13	.997
Mild to Moderate	5	5.6		
Asperger	50	55.6		

Table 1 defines the demographic characteristics of the samples (N = 90) regarding their gender: male respondents were 49 (54.4%) while females were 41 (45.6%) mean was observed 1.46 (SD = .501), age calculated mean of 2.07 (SD = 1.058) where a majority of adults with ASD were from the age of 18 to 21 (38.9%), and severity level (M = 2.13, SD = .997) of adults with ASD, where 55.6% were Aspergers, 38.9% were mild respondents and only 5.6% were mild to moderate level of autism.

A normality test was performed on the data collected through the CAT-Q tool to check whether it followed a normal distribution or not. The Shapiro-Wilk test was used on the data of 90 participants (male and female combined), and the results showed that the p-values for both male (.268) and female (.363) data were greater than the critical value of .05, suggesting that the data came from a normal distribution. This can be visually confirmed through the histogram shown in Figure 1.

Table 2
Test of Normality

	Gender	Kolmogorov – Smirnov[a]			Shapiro – Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
CAT-Q	Female	.129	41	.086	.971	41	.363
	Male	.141	49	.016	.971	49	.268

a. Lilliefors Significance Correction

Figure 1
Normality of data
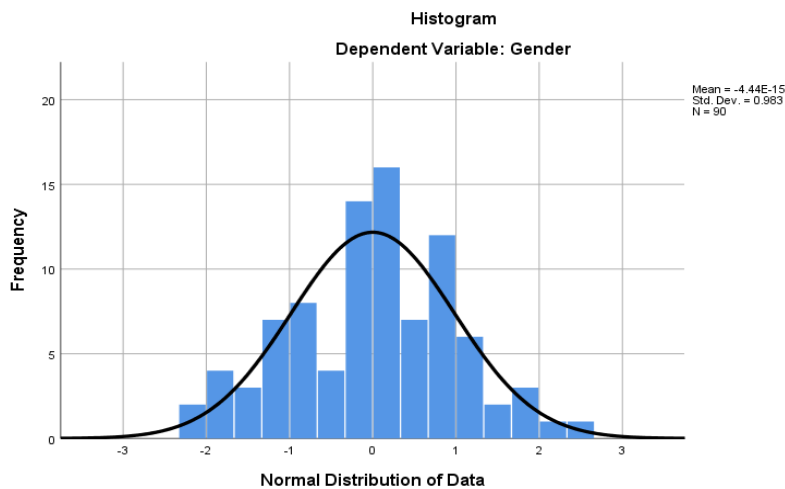
Research question 1
What compensation strategies are used in social settings by adults with Autism Spectrum Disorder?

In terms of compensation strategies (based on 9-items), the descriptive statistics indicate that 43% of adults with ASD neither agree nor disagree with using these strategies in social settings (as shown in Table 3). Meanwhile, 37% of the respondents reported that they use these strategies in their social settings, with only 3% strongly agreeing with their use. The mean score for the overall usage of compensation strategies was calculated as M = 38.62 (SD = 3.157).

Table 3
Descriptive Statistic of Compensation Strategies

	Items Compensation Strategies	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	M	SD
1	I copy other's facial expressions & body language when I interact with others	1 (1.1 %)	12 (13.3 %)	35 (38.9 %)	40 (44.4 %)	2 (2.2 %)	4.33	.779
2	I prepared a list to follow in social situations	1 (1.1 %)	10 (11.1 %)	36 (40 %)	35 (38.9 %)	8 (8.9 %)	4.43	.849
3	I replicate phrases, the same way that heard from others	0	11 (12.2 %)	46 (51.1 %)	29 (32.3 %)	4 (4.4 %)	4.29	.738
4	In social circumstances, I use learned behaviors from others	1 (1.1 %)	20 (22.2 %)	26 (28.9 %)	39 (43.3 %)	4 (4.4 %)	4.28	.900
5	To look natural, I practiced my expressions & body language	1 (1.1 %)	16 (17.8 %)	35 (38.9 %)	36 (40 %)	2 (2.2 %)	4.24	.812
6	I recover my basic skills of understanding social by following others	0	11 (12.2 %)	52 (57.8 %)	22 (24.4 %)	5 (5.6 %)	4.23	.735
7	I read books to improve behavior and search the social interaction rules e.g., human psychology	0	16 (17.8 %)	49 (54.4 %)	24 (26.7 %)	1 (1.1 %)	4.11	.694

8	I learn to interact by watching others' people bodies & faces by films or TV	1 (1.1 %)	12 (13.3 %)	37 (41.1 %)	37 (41.1 %)	3 (3.3 %)	4.32	.791
9	I spent time in social learning skills through watching TV, either shows or films and employ in social gatherings.	0	9 (10 %)	38 (42.2 %)	43 (47.8 %)	0	4.38	.663
	Total	5 (0.6%)	117 (14.4 %)	354 (43.7 %)	305 (37.6%)	29 (3.6 %)	38.6	3.157

Research Hypotheses 1 (H₁): Compensation strategies are often used in social settings by the majority of adults with Autism Spectrum Disorder.
Null Hypothesis (Hₒ): Compensation strategies are not used in social settings by the majority of adults with Autism Spectrum Disorder.

Table 4.
Chi-Square Test for Compensation Strategies

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	57.152[a]	14	.000
Likelihood Ratio	73.394	14	.000
Linear-by-Linear Association	51.947	1	.000

a. 22 cells (73.3%) have an expected count less than 5. The minimum expected count is .46.

The hypothesis number 1 was tested using a crosstab 'chi-square test', which illustrates that fallouts are significant at the .05 level with a chi-square value of 57.152 (table 4). It rejects the null hypothesis with the conclusion that in social settings, adults with ASD used compensation techniques more frequently.

Research question 2
Are adults with Autism Spectrum Disorder using masking strategies in social interactions?
Table 5 displays the descriptive statistics for the masking strategies, which are based on 8 items from the scale. The results show that adults with ASD have employed various types of strategies related to masking in their social settings. Nearly 49% of the participants indicated that they somewhat used masking strategies in their gatherings. Another 28% of the adults with ASD reported being unsure of whether or not they were using these strategies, while 15% confirmed that they were utilizing these kinds of strategies in their social situations. However, the masking strategies mean score was observed M = 38.2 (SD = 2.51).

Table 5
Descriptive Statistics for Masking Strategies

	Masking Strategies Items	Disagree	Somewhat Disagree	Neither Agree /Disagree	Somewhat Agree	Agree	Strongly Agree	M	SD
1	Look comfortable, and monitor own expressions of face & body language	1 (1.1%)	3 (3.3%)	23 (25.6%)	50 (55.6%)	13 (14.4%)	0	4.79	.772
2	I normally adjust my own body and face expression & language. That shows that I appear interested to others	0	5 (5.6%)	26 (28.9%)	45 (50%)	14 (15.6%)	0	4.76	.783
3	I try to think about the impression, I make on other	1 (1.1%)	11 (12%)	24 (26.7%)	51 (56.7%)	3 (3.3%)	0	4.49	.797
4	If I don't need to do eye contact with others, then I do not.	0	5 (5.6%)	33 (36.7%)	45 (50%)	7 (7.8%)	0	4.60	.716
5	Normally I try to monitor my whole body language as well as facial expression. So, I try to take interest in another individual	0	0	26 (28.9%)	43 (47.8%)	19 (21.1%)	2 (2%)	4.97	.771
6	I attentive of impression, I make on people	0	6 (6.7%)	25 (27.8%)	46 (51.1%)	13 (14.4%)	0	4.73	.790
7	I relaxed, when I regulate my facial expressions & body	0	3 (3.3%)	24 (26.7%)	41 (45.6%)	19 (21.1%)	3 (3%)	4.94	.866
8	In social environs, I don't give attention to my face / body*	0	5 (5.6%)	23 (25.6%)	37 (41.1%)	23 (25.6%)	2 (2%)	4.93	.909
	Total	2 (.28%)	38 (5.3%)	204 (28.3%)	358 (49.7%)	111 (15.4%)	7 (.97%)	38.2	2.511

Research Hypotheses 2 (H₁): Adults with Autism Spectrum Disorder use masking strategies more frequently in social interactions.

Null Hypothesis (Hₒ): Adults with Autism Spectrum Disorder don't use masking strategies more frequently in social interactions.

Table 6
Chi-Square Test for Masking Strategies

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.826[a]	12	.000
Likelihood Ratio	51.661	12	.000
Linear-by-Linear Association	31.577	1	.000

a. 20 cells (76.9%) have an expected count less than 5. The minimum expected count is .46.

In table 6, the chi-square test yielded a significant result (value 43.826) with a *p*-value of .000 < .05. Therefore, the alternative hypothesis is accepted, indicating that adults with ASD used masking strategies in their social interactions.

Research question 3
What assimilation strategies are mostly used in social gatherings by adults with Autism Spectrum Disorder?

According to the descriptive analysis of assimilation strategies (see Table 7); the CAT-Q tool included 8 items. The results indicate that 50% of adults with ASD, somewhat agreed with the statement that they use assimilation strategies in their social gatherings, while 17% strongly agreed. Mean score for assimilation strategies was calculated as M = 38.58 (SD = 2.403).

Table 7
Descriptive Statistics of Assimilation Strategies

	Assimilation Strategies Items	Somewhat Disagree	Neither Agree/ Disagree	Somewhat Agree	Agree	M	SD
1	I put on an act, especially to get from social gatherings*	2 (2.2 %)	45 (50 %)	42 (46.7 %)	1 (1.1 %)	4.47	.565
2	In different social circumstances, I perform rather than being myself	3 (3.3 %)	26 (28.9 %)	42 (46.7 %)	19 (21.1 %)	4.86	.787
3	I require support of others for more socialization	3 (3.3 %)	24 (26.7 %)	50 (55.6 %)	13 (14.4 %)	4.81	.717
4	I force myself when I am in social gatherings, to do interactions with other individuals	0	29 (32.2 %)	52 (57.8 %)	9 (10 %)	4.78	.614
5	In different social circumstances, I find techniques to evade social interactions	2 (2.2 %)	25 (27.8 %)	47 (52.2 %)	16 (17.8 %)	4.86	.728
6	When I am in social gatherings, I do not feel free to be myself *	2 (2.2 %)	26 (28.9 %)	48 (53.3 %)	14 (15.6 %)	4.82	.712
7	While talking to other, I feel that conversation doesn't flow properly*	0	30 (33.3 %)	45 (50 %)	15 (16.7 %)	4.83	.691
8	In social settings, I pretend 'normal'	1 (1.1 %)	19 (21.1 %)	35 (38.9 %)	35 (38.9 %)	5.16	.792
	Total	13 (1.8 %)	224 (31.1%)	361 (50.4%)	122 (16.9%)	38.58	2.403

Research Hypothesis 3 (H₁): Assimilation strategies are mostly used in social gatherings by mostly adults with Autism Spectrum Disorder.

Null Hypothesis (Hₒ): Assimilation strategies are not frequently used in social gatherings by the adults with Autism Spectrum Disorder.

Table 8
Chi-Square Test for Assimilation Strategies

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	58.036[a]	12	.000
Likelihood Ratio	76.329	12	.000
Linear-by-Linear Association	49.263	1	.000

a. 17 cells (65.4%) have an expected count less than 5. The min. expected count is .46.

The chi-square value obtained (58.036) is significant at .05 level (which is indicated by the *p*-value in table 8), leading to the acceptance of the research hypothesis that among the camouflaging strategies, mostly adults with ASD frequently engaged in assimilation strategies in their social gatherings.

Research question 4
Is there any gender difference found in the usage of camouflaging strategies by adults with Autism Spectrum Disorder in their social settings?
> *Research Hypothesis 4 (H₁):* A gender difference found in the usage of camouflaging strategies in social settings by adults with Autism Spectrum Disorder.
> *Null Hypothesis (Hₒ):* There is no gender difference found in the usage of camouflaging strategies in social settings by adults with Autism Spectrum Disorder.

Table 9
One Way Analysis of Variance of Camouflaging Factors; Masking, Assimilation, & Compensation amongst Female and Male Adults with Autism Spectrum Disorder

Factors		Sum of Squares	df	Mean Square	F	Sig.
Compensation	Between Groups	517.809	1	517.809	123.372	.000
	Within Groups	369.347	88	4.197		
	Total	887.156	89			
Masking	Between Groups	199.038	1	199.038	48.391	.000
	Within Groups	361.951	88	4.113		
	Total	560.989	89			
Assimilation	Between Groups	284.484	1	284.484	109.097	.000
	Within Groups	229.471	88	2.608		
	Total	513.956	89			

The ANOVA test results (as presented in Table 9) concluded that the *p*-value for camouflaging strategies including compensation, masking, & assimilation techniques is less than 0.05. This indicates that significant difference exists between how female & male adults with ASD utilize these techniques in social situations. As a result, the alternated hypothesis is accepted that stating, a significant difference is exist between female & male adults with ASD concerning the use of masking, compensation, and assimilation techniques in social situations.

Thematic Analysis
For thematic analysis, three themes emerged from the open-ended included; feelings after camouflaging, camouflaging as a way of cheating, and the reasons for camouflage.
Theme 1: Feelings after Camouflaging Traits by Adults with ASD
Results of the current study exposed that most of the ASD participants experienced mental exhaustion from having to conceal their true selves in social situations. It was difficult for them to hide their personalities, which led to fatigue. However, a few participants reported feeling content with being able to blend in during social gatherings. The study also included quotes from some of the participants to support these findings;
Participant 1;
> *"The act of camouflaging our neuro-divergent traits can create an illusion of neuro-typicality. I no longer*
> *fear interacting with neuro-typical individuals because I have come to understand that not making eye*

contact may cause alarm, even though my skills may surpass theirs in our shared work". (47 years old male)

Participant 2;

"Observing a leopard successfully camouflage itself to catch its prey brings me a sense of joy, but at the same time, I also feel nervous. It's apparent that the effort takes a toll on the leopard's energy reserves, leaving it exhausted". (29 years old male)

Participant 3;

"I experience a sense of acceptance from others when I adjust my responses to meet their specific demands. However, this can be mentally taxing and draining, causing me to feel mentally fatigued and exhausted at times". (33 years old male)

Participant 4;

"In general, I feel content with the acceptance I receive from others through my camouflage skills. However, there are moments when I feel excessively fatigued. I recognize the need to continue honing my masking abilities, as it's essential for me to be more engaged and able to respond spontaneously to others". (22 years old female)

Participant 5;

"I have become accustomed to masking my true self in front of others. However, I am aware that this is not an authentic representation of myself, and it can lead to feelings of depression. As a result, I often avoid social gatherings to prevent this sense of inner conflict". (37 years old female)

Theme 2: "Camouflage is a way of cheating others"

Most respondents concurred with the statement and acknowledged that while it may be true, they still use it with confidence and without hesitation in social situations. Here are a few quotes from the respondents to support this;

Participant 1;

"While I acknowledge & agree with the statement about the pressure to mask oneself, it's also true that deception is pervasive in society. Even parents frequently lie to their children. In my opinion, not being able to deceive would limit our ability to fully embrace the complexity of human experience. However, it's crucial to note that there are varying degrees of deception, and in the current capitalist system, dishonesty is often rewarded, as long as it falls within the confines of legal boundaries. Unfortunately, this includes our political leaders". (47 years old male)

Participant 2;

"No, I really don't know how medically it fit for this phenomenon, but I have observed that people can have different person as or identities that they present in various contexts. For instance, some individuals may have different faces for their private, social, or family lives". (36 years old female)

Participant 3;

"I agree that these techniques can be helpful as long as they don't harm others. Personally, I have become accustomed to masking my autism in social situations to appear "normal." However, I also recognize that nobody is perfect and that it's important to be true to oneself while still being considerate of others". (25 years old female)

Participant 4;

"We have grown up in a world where we witness various degrees of deception and cheating across different domains. In comparison, the act of camouflage may seem minor". (27 years old male)

Participant 5;

"I completely understand why you feel depressed about the act of masking. It can make you feel as though you are deceiving others because you are not being your authentic self, and the words you use may not truly reflect your own thoughts and feelings". (28 years old male)

Theme 3: Recommendations for the use of camouflaging strategies

To summarize, in response to the question of whether they would recommend camouflage to others with ASD, 79% of adult participants with autism responded positively with a "yes," while 12% of the participants said "to some extent," and 8% responded to "no". However, these respondents cited numerous motives for their answers, such as camouflaged self is a better decision, especially to hide one's autistic traits and they feel more relaxed, protected & calm in social situations when they feel they are not showing their autistic characteristics to others. Despite the acknowledged negative consequences of camouflage, such as exhaustion, mental fatigue, and depression, respondents felt it could be helpful to some extent for individuals with autism to fit in and be accepted by society. It is important to note that finding a balance

between self-expression and social interaction is crucial for individuals with autism. Some examples of appropriate responses are provided here:

Participant 1;

> *"Compensating and camouflaging my autism symptoms with others was not an easy task, and there were times when it left me feeling exhausted and depressed. However, I would still recommend it because it has helped me to overcome my difficulties, especially in social situations where my autism symptoms are most prominent". (47 years old male)*

Participant 2;

> *"Society often expects individuals to conform to its norms and standards, and masking one's true self is a technique that can help one fit in and be accepted by society. Failure to do so can result in being labeled as "not normal" and potentially facing social rejection". (34 years old female)*

Participant 3;

> *"Regardless of the reasons behind it, camouflaging or masking can be a beneficial strategy for individuals with autism or Asperger's, as it can increase their confidence and assist them in socializing with others". (26 years old male)*

Participant 4;

> *"While camouflaging or masking one's true self can be a helpful strategy in certain situations, it is not always recommended as it can lead to depression and feelings of isolation, particularly if one feels they cannot be their true self around others. It's important to find a balance between masking and being authentic, and to prioritize one's mental health and well-being." (27 years old male)*

Discussion

Camouflage is a strategy that anyone can use to hide oneself from others, such as their traits, appearance or problems. Adults with ASD often resort to camouflaging themselves in social setups to mask their autistic characteristics and present themselves as non-autistic. The reasons behind their camouflaging behavior are crucial to comprehend, as they seek to be acceptable by their non-autistic world and uphold the relationships with non-autistic individuals. They may be ashamed of behaviors associated with autism symptoms, such as self-stimulating behavior, or fear of social stigma and discrimination associated with being labeled as autistic (see also Kapp et al., 2019; Sasson et al., 2017). To avoid rejection and discrimination, adults with ASD frequently resort to camouflaging strategies. They strive to blend in and connect with non-autistic individuals, evade exclusion, and escape discrimination, as highlighted in several studies (similar findings were observed by cook et al., 2022; Hull et al., 2020; 2019; Kapp et al., 2019; Sasson et al., 2017; Bargiela et al., 2016).

The use of camouflaging strategies by adults with ASD is primarily motivated by the desire to make friends outside of the autistic community and to avoid negative consequences such as criticism, bullying, rejection, and the stigma associated with autism (see Rehman et al., 2022; Cage & Troxell-Whitman, 2019). However, the main motivation behind camouflaging in social situations is to "fit in" and avoid exclusion, which could contribute to the perpetuation of stigma surrounding autism. Previous studies (Cook et al., 2022; Hull et al., 2020; 2019; Cage & Troxell-Whitman, 2019) have also highlighted this finding.

According to a study by Willey (2014), the use of camouflaging strategies in social settings can lead to misdiagnosis of ASD. Individuals with ASD may employ various strategies to appear non-autistic in social situations, which can result in a delayed or missed diagnosis of ASD (Hull et al., 2021; 2020; Lai et al., 2019). The use of social imitation and masking strategies can be effective in helping individuals with ASD fit into social situations, but it can also lead to them being misdiagnosed or mistaken for having other behavioral disorders. As a result, individuals with ASD may go undiagnosed or receive a misdiagnosis due to successful compensation strategies used in social settings (Hull et al., 2019; 2017).

However, adults with ASD who are diagnosed at a later age or misdiagnosed in their life are just because they used camouflaging strategies in their social gatherings. As a result, they may experience greater challenges in life compared to non-autistic individuals, such as protracted stress and mental health issues (Lai & Baron-Cohen, 2015). Though the latter diagnosis is one of the results of comorbid disorders or co-occurring difficulties i.e., mood disorders, hyperactivity, anxiety, depression, etc. that masked the visibility of ASD.

The review literature has shown that female adults with ASD are mostly diagnosed at a later age as compared to male adults unless they face significant behavioral and cognitive encounters (Grey et al., 2021; Rutherford et al., 2016; Lai & Baron-Cohen, 2015). However, many females who are undiagnosed with ASD may have masked their autistic traits, or been misdiagnosed due to the presence of comorbid disorders. They may also be diagnosed at a later age when they are unable to meet societal demands (see also Rehman et al., 2022; Hull et al., 2020).

Females with ASD may use camouflaging strategies to hide their communication and social interaction difficulties

through masking and compensation strategies (Lai & Baron-Cohen, 2015). This may lead to misunderstandings in their nonverbal communication skills and social interactions. Females who were later diagnosed with ASD reported that camouflaging as non-autistic could be exhausting and mystifying for their identity and confusing by others (Bargiela et al., 2016). Despite this, studies have also found that female adults with ASD can be effective and successful in life linked to adult males with ASD because of using camouflaging strategies in social settings (Cook et al., 2022; Hull et al., 2021; 2020).

The use of camouflaging strategies in social circumstances can have a negative influence on the self-perception of mostly adults with ASD, leading to feelings of inauthenticity and dishonesty, ultimately affecting their self-esteem (see also Hull et al., 2020; 2017). While some individuals see it as a necessary performance to fit into a non-autistic world, others view it as deceitful behavior. Similar findings were observed through the thematic analysis of this research survey that individuals with ASD often feel mentally exhausted and perceive themselves as liars or cheaters when they use camouflage in front of others.

Camouflaging yourself is not an easy job; it requires lots of mental effort and observations, which sometimes lead to mental fatigue and exhaustion. In addition to mental fatigue and exhaustion, these camouflaging strategies used by adults with ASD can also prime to a decrease in overall quality of life and mental well-being (Hull et al., 2021; Bargiela et al., 2016). Adults with ASD who reported using more camouflaging strategies also reported lower levels of satisfaction with their lives, higher depression and anxiety level, and lower self-esteem (Grey et al., 2021; Cage & Troxell-Whitman, 2019). Furthermore, the use of camouflage strategies can lead to difficulties in developing and maintaining close relationships, as individuals may feel that they are not being their true selves around others (Lai et al., 2019). Although these strategies are helpful in some social situations, however, the negative outcomes linked to their use emphasize the need for more effective support for individuals with ASD in social settings.

Conclusion

Camouflage, a new concept for ASD, is a way to hide oneself from the surroundings. Most adults with ASD use camouflaging strategies such as compensation, masking, & assimilation, to hide their symptoms of autism in social settings and avoid drawing attention to their disability when interacting with their non-autistic individuals. However, from their non-autistic individuals, adults with ASD adopt and copy different strategies to implement in front of others to pretend like them such as rehearsing conversation in advance to appear more neuro-typical or socially adopt. Camouflaging can help adults with ASD navigate social situations more comfortably, but it can also come at a cost, with negative outcomes of their mental health & well-being, leading to fatigue, increased stress, anxiety, depression, & burnout.

The study found that there were gender discrepancies in the use of different camouflage strategies; females are using these strategies more frequently than males. This may contribute to females being diagnosed later in life for their ASD symptoms. It is important for society to understand why adults with ASD use these strategies and feel the need to hide their true selves in social settings. This may be due to a desire to avoid stigma and labeling. It is important to continue to raise awareness and promote acceptance of individuals with ASD without any negative labeling.

Recommendations

The research study suggests that awareness programs should be implemented at all levels to eliminate the social barrier of stigmatization or labeling associated with disabilities and disorders. It is recommended that the primary and secondary level curriculum be restructured, and stigma-related training and awareness programs be organized for children and parents. Mental health care teams should evaluate individuals with ASD of any age to address mental health related difficulties such as stress, anxiety and depression resulting from camouflage strategies in social settings. This will help them to cope better with the social environment, whether they use camouflaging strategies or not. Additionally, there is a need to investigate the origins of camouflaging behaviors or strategies used by young children with ASD too.

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