Original Research Article

Camouflaging, internalized stigma, and mental health in the general population

Wei Ai[1,2], William A. Cunningham[1] and Meng-Chuan Lai[1,2,3,4,5] (ID)

Abstract

Background: Camouflaging, the strategies that some autistic people use to hide their differences, has been hypothesized to trigger mental health ramifications. Camouflaging might reflect ubiquitous impression management experiences that are not unique to autistic people and similarly impact the mental health of non-autistic people.
Aims: We first examined whether individuals in the general population camouflage and manage impressions while experiencing mental health repercussions, and how gender and neurodivergent traits modified these associations. We then assessed how camouflaging and impression management arose from internalized stigma, and their inter-relationships in shaping mental health outcomes.
Methods: Data were collected from 972 adults from a representative U.S. general population sample, with measures pertaining to camouflaging, impression management, mental health, internalized stigma, and neurodivergent traits. Multivariate hierarchical regression and moderated mediation analyses were used to address the two research aims.
Results: Both camouflaging and self-presentation (a key component of impression management) were associated with mental health presentations in the general population, which overlapped with those previously reported in autistic people. These associations were more pronounced in women compared with men and were of different directions for individuals with higher autistic traits versus higher ADHD traits. Internalized stigma might be a key stressor that could elicit camouflaging and impression management through social anxiety, which in turn might lead to adverse mental health outcomes.
Conclusions: These findings advance the conceptual clarity and clinical relevance of camouflaging and impression management across social and neurodiverse groups in the general population. The ramifications of camouflaging and impression management underscore the need to alleviate internalized stigma for better mental health across human groups.

Keywords

Camouflaging, impression management, neurodivergence, internalized stigma, mental health

Camouflaging involves concealing or adapting neurodivergent (e.g. autistic) characteristics in social situations, such as imitating body language, memorizing social scripts, and maintaining eye contact (Cook et al., 2021; Libsack et al., 2021; Zhuang et al., 2023). Social sanctions and prejudice that pervade neurotypical social spaces thwart opportunities for positive social contact and employment in autistic people (Cage & Troxell-Whitman, 2019; Hull et al., 2017; Mandy, 2019). Hence, some hide their neurodivergence (i.e. deviations in neurocognitive profiles from the general population 'normal') for safety, belonging, and control over the impressions they form in others (Zhuang et al., 2023). Nevertheless, the mental health repercussions can be substantial. Growing research

[1]Department of Psychology, University of Toronto, Toronto, ON, Canada
[2]Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health, Toronto, ON, Canada
[3]Department of Psychiatry, Temerty Faculty of Medicine, University of Toronto, Toronto, ON, Canada
[4]Autism Research Centre, Department of Psychiatry, University of Cambridge, Cambridge, United Kingdom
[5]Department of Psychiatry, National Taiwan University Hospital and College of Medicine, Taipei, Taiwan

Corresponding author:
Meng-Chuan Lai, Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health, 80 Workman Way, Toronto, ON M6J 1H4, Canada.
Email: mengchuan.lai@utoronto.ca

and lived experiences from autistic people suggest that camouflaging can trigger depression, anxiety, diminished self-esteem, felt inauthenticity, and burnout (Cook et al., 2021; Field et al., 2024).

Many aspects of camouflaging, including its mental health ramifications, are likely not solely present in autistic people (Ai et al., 2024; Hull et al., 2019; Livingston et al., 2020; van der Putten et al., 2024). Camouflaging motivations and strategies in a large U.S. general population sample parallel those reported in autism-enriched samples (Ai et al., 2024), suggesting that camouflaging extends to alterations of behaviors and other social identity aspects that people generally enact in face of belonging needs or stigma (Chapman et al., 2022). Camouflaging outcomes also show continuity across populations. Both autistic and non-autistic individuals who engage in camouflaging experience depression, anxiety, and stress (Cassidy et al., 2020; Hull et al., 2019; Lorenz & Hull, 2024; Miller et al., 2021; Somerville et al., 2023). These findings echo the impression management (IM) literature, whereby emotional suppression, false self-presentation, and concealment of stigmatized traits are linked to elevated depression, anxiety, stress, and identity difficulties (Jeung et al., 2018; Mun & Kim, 2021; Pachankis et al., 2020; Sedlovskaya et al., 2013). It is thus critical to investigate camouflaging, as a kind of IM, in the general population to expand our understanding of the socio-contextual underpinnings in how camouflaging arises and affects mental health.

We have proposed the transactional IM framework (Ai et al., 2022) to guide theory-driven research on camouflaging across autistic and general populations (Fombonne, 2020; Lai et al., 2021; Williams, 2021). This framework conceptualizes camouflaging as a component of IM experiences (e.g. self-presentation, self-concealment, self-monitoring) that pervade human social lives (Goffman, 1959; Leary & Kowalski, 1990). This framework also predicts overlapping mental health outcomes of IM across human groups, with unique interactions between social-contextual influences and individual differences (e.g. neurodivergent traits) that determine how IM manifests and affects mental health. Leveraging this framework can address a critical knowledge gap: Are the mental health impacts of camouflaging and their social-contextual underpinnings in the general population parallel to, or different from, recent findings in autism-enriched samples (Field et al., 2024; Zhuang et al., 2023)?

Sociodemographic and neurodivergent trait differences may moderate the psychological impacts of camouflaging/ IM. For instance, autistic girls and women tend to experience greater social pressure from gendered expectations to socialize (Kreiser & White, 2014) than autistic boys and men and are thus more compelled to mask their autistic features (Cola et al., 2020; Hull et al., 2019; Lai et al., 2017, 2023). This might result in more distress, struggle in everyday functioning, and even suicidal ideation, although

current findings are mixed (Beck et al., 2020; Bernardin, Lewis, et al., 2021; Hull et al., 2021). In the general population, however, men reported greater camouflaging than women (Ai et al., 2024). This opposite finding to that of autistic populations might be attributable in part to differences in the purposes and expressions of camouflaging. Existing IM research suggests that self-presentation strategies are more voluntarily employed by men for instrumental gains, and are more agentic, active, and varied in men compared to women (Bolino et al., 2016; Guadagno & Cialdini, 2007). The burdens of camouflaging/IM in gender-diverse or non-binary autistic and non-autistic individuals are just gaining traction (McQuaid et al., 2022).

Camouflaging/IM could be more pervasive and taxing for autistic than non-autistic people given their neurodevelopmental differences in a world saturated by neurotypical social expectations (Ai et al., 2022; Bolis et al., 2017; Milton, 2012). Non-autistic people with elevated autistic traits might also camouflage to mitigate comparable social difficulties as autistic people and face similar mental health impacts (Miller et al., 2021; O'Loghlen & Lang, 2023; Somerville et al., 2023). Emerging findings show that camouflaging in people with attention-deficit/hyperactivity disorder (ADHD) shares similar motivation, strategies, and outcomes with autistic camouflaging, but unique features may emerge from interactions with ADHD traits (Ginapp et al., 2023; Lai et al., 2022; Merkt et al., 2015).

The transactional IM framework suggests stigma to be a key mechanistic factor linking camouflaging/IM, its social drivers, and mental health outcomes. Stigmatization refers to the discrediting of social-identity attributes that evoke alienation, discrimination, and victimization (Goffman, 1963). When people internalize the stigma, it can lead to shame and self-criticism, cascading to lower quality of life and elevated mental health problems (Drapalski et al., 2013; Livingston & Boyd, 2010). Stigma management in marginalized groups exhausts psychological resources and evokes distress (Frost, 2011). In autistic individuals, internalized stigma is linked to poorer mental health (Botha & Frost, 2020; Han et al., 2021; den Houting et al., 2021), yet mitigating the stigma, a key driver of autistic camouflaging (Cage & Troxell-Whitman, 2019; Pearson & Rose, 2021; Perry et al., 2022), is also associated with psychological repercussions, possibly elevating mental health risks in autistic compared with non-autistic people (Lai, 2023).

Altogether, both social stigma and its mitigation through camouflaging/IM can be psychologically adverse (Field et al., 2024; Han et al., 2021; Zhuang et al., 2023). Yet, there are insufficient empirical findings chaining these relationships. One avenue is to examine the indirect effect of stigma on mental health through camouflaging/ IM. This indirect pathway was previously investigated in autistic adults and camouflaging did not mediate the relationship between autism-related stigma and mental health
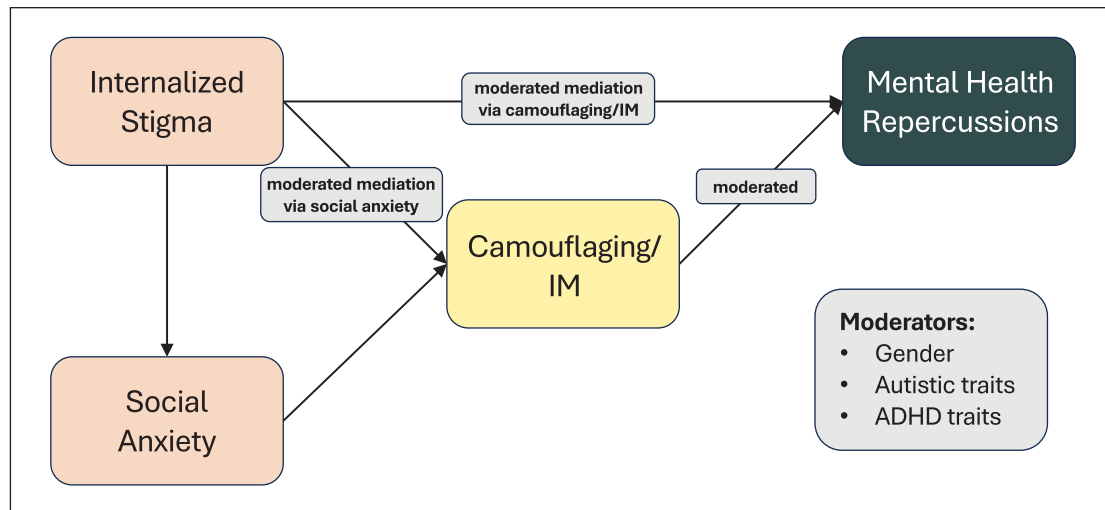
Figure 1. Conceptual mapping of the hypothesized relationships among internalized stigma, social anxiety, camouflaging/IM, and mental health repercussions.
Note. Internalized stigma is hypothesized to drive camouflaging/IM directly and also through social anxiety. Internalized stigma and camouflaging/IM are both hypothesized to lead directly to poor mental health, and internalized stigma might further indirectly evoke poor mental health through increasing camouflaging/IM. Furthermore, it is hypothesized that all mediation effects and the direct effect of camouflaging/IM on mental health could be moderated by gender, autistic traits, and ADHD traits.

(Perry et al., 2022). However, this study used a broad measure of mental well-being (Tennant et al., 2007) without assessing specific mental health domains. Further, this study measured perceived but not internalized stigma, which could compel more pervasive camouflaging/IM and severe mental health repercussions (Botha et al., 2022; Han et al., 2021; Huang et al., 2023). Empirical investigations are needed to determine if this mediating role of camouflaging/IM exists and if it shows continuity across neurodiverse and social groups.

Another key mechanism theoretically linking camouflaging, stigma, and mental health is social anxiety. Camouflaging is associated with increased social anxiety in autistic and non-autistic people (Hull et al., 2021; Lorenz & Hull, 2024), but it is unclear if this effect is unidirectional (Chapman et al., 2022). Social anxiety can arise from hostile environments and perpetuate more camouflaging as individuals strive to maintain their social performance (Bargiela et al., 2016; Chapman et al., 2022). The transactional IM framework predicts a feedback loop (Ai et al., 2022), whereby heightened social anxiety, initially resulting from camouflaging/IM, sustains camouflaging/IM and exacerbates further psychological distress (Chapman et al., 2022). Hence, it is important to examine social anxiety as a mediator between internalized stigma and camouflaging/IM, and not just as an outcome of camouflaging/IM.

Here, we assessed the theoretical mental health ramifications of camouflaging in the general population, and how these relations were mediated and moderated by key mechanistic factors (Figure 1), as informed by the transactional IM framework (Ai et al., 2022). First, we investigated whether the mental health outcomes of camouflaging and self-presentation overlap in the general population and assessed the moderating roles of gender, autistic, and ADHD traits. Second, to assess theoretical mechanistic relationships, we evaluated whether social anxiety mediates the link between internalized stigma and camouflaging/IM, and whether camouflaging/IM mediates the links between internalized stigma and mental health outcomes. The findings would confer novel, clarifying insights into how camouflaging arises from social pressures and shapes mental well-being across human groups.

Methods

Participants

The participants consist of 1,051 adults aged 18 years or older capable of self-reporting and consent. The sample size was the largest we could opt for given study feasibility. It satisfies sample size standards for participant-to-predictor ratio in hierarchical multivariate regression (Tabachnick & Fidell, 2001) and for moderated mediation analysis (Preacher et al., 2007), which are employed in this study. Recruitment occurred over 26 days via Prolific, an online crowdsourcing platform that allows its users to voluntarily participate in web-based studies for monetary compensation.

Participants were compensated at USD $9.50 per hour and were recruited using a U.S. general population representative sampling method, which leveraged U.S. census data (U.S. Census Bureau, 2015) for demographic stratification across age, ethnicity, and sex. Five participants

were excluded due to age misreporting (exceeding 400 years) or failed attention checks, and 74 participants with incomplete item-level data were also excluded. The final dataset comprised complete item-level data from 972 participants (Table 1). The psychometric properties of the Camouflaging Autistic Traits Questionnaire (CAT-Q; Hull et al., 2019) in the general population have been examined using the current sample (Ai et al., 2024). The study was approved by the Research Ethics Board at the Centre for Addiction and Mental Health, Canada (REB #079/2021).

Procedure and measures

Participants completed an online survey hosted on Qualtrics. This survey comprised self-reported measures of demographics information, camouflaging, self-presentation, neurodivergent traits, internalized stigma, and mental health. These scales demonstrate psychometric strengths and are theoretically relevant to the transactional IM framework (Ai et al., 2022). The Cronbach's alphas for all measures in this sample were all above 0.70, indicating acceptable to excellent internal consistency. For psychometric details see Supplemental Table SM.1.

The CAT-Q (Hull et al., 2019) measured camouflaging. The Self-Presentation Tactics (SPT) scale (Lee et al., 1999) measured specific self-presentation strategies as a generic IM construct. The Subthreshold Autism Trait Questionnaire (SATQ; Kanne et al., 2012) measured dimensional autistic traits, and the Adult ADHD Self-Report Scale Part A (ASRS-A; Kessler et al., 2007) measured dimensional ADHD traits. Social anxiety symptoms were measured using the social fear subscale of the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987). Internalized stigma was measured using the Shortened Internalized Stigma of Mental Illness Inventory 10-Item Version (ISMI-10; Boyd et al., 2014); here, the ISMI-10 was adapted for the general population, whereby participants reported the most salient minority group that they belong to (e.g. concerning gender, ethnicity, sexual orientation, religion, atypical hobbies or interests, physical or mental disabilities), and based their reports of internalized stigma-related experiences on this minority identity.

Measurements for the theoretical mental health ramifications of camouflaging/IM included: the Generalized Anxiety Disorder scale (GAD-7; Spitzer et al., 2006) for generalized anxiety symptoms, the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) for depressive symptoms, the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWS; Stewart-Brown et al., 2009) for mental wellbeing, the Self-Regulatory Fatigue Scale Short Form (SRF-S; Nes et al., 2013) for ego depletion and cognitive exhaustion, and the Kernis-Goldman Authenticity Inventory Short Form (KGAI; Bond et al., 2018) for subjective authenticity.

Statistical analyses

All analyses were performed with R version 4.2.1(R Core Team, 2018). Two sequential analyses were performed to address the two study aims.

Theoretical mental health outcomes: Hierarchical multivariate regression. We used hierarchical multivariate regression to evaluate the mental health correlates of camouflaging and self-presentation, and examined the moderating effects of gender, autistic, and ADHD traits. The multivariate regression method was chosen due to significant correlations among the mental health variables (Supplemental Figure 1). All continuous variables were first standardized to *z*-scores, and no variable showed notable skewness. Assumption of linearity was confirmed via visual inspection of the correlation scatterplots of all variables, and there was no evidence of multicollinearity as the Variance Inflation Factor (VIF) values of all continuous predictors were less than 3. Normality of residuals was confirmed via visual inspection of the density and Q-Q plots. The Goldfeld-Quandt test suggested no heteroscedasticity in the data.

We performed a three-step hierarchical multivariate regression. At step 1, demographic variables (i.e. age, ethnicity, gender) and neurodivergent traits (i.e. autistic and ADHD traits) were entered as covariates in the nested model predicting anxiety, depression, mental wellbeing, self-regulatory fatigue, and subjective authenticity. At step 2, CAT-Q was additionally entered to assess whether camouflaging tendencies predicted mental health outcomes over and beyond gender and neurodivergent trait differences. At step 3, interaction terms were added to assess whether camouflaging interacted with gender, autistic traits, and ADHD traits, respectively, to influence mental health outcomes. These models were compared via an analysis of variance model comparisons test (Supplemental Table SM.3). After the most optimal model was determined, multiple comparisons were corrected for using the Benjamini-Hochberg procedure (False Discovery Rate, FDR 0.05) to the *p*-values of all predictors included (Benjamini & Hochberg, 1995). Finally, to illustrate whether the mental health outcomes related to camouflaging are comparable to those of self-presentation, the same hierarchical multivariate regression procedures were repeated by replacing CAT-Q with SPT in the modeling process.

Theoretical mechanistic relationships: Simple and moderated mediation. We used mediation modeling to assess the theoretical mechanistic relationships among internalized stigma, social anxiety, camouflaging/IM, and mental health. Given the high internal consistency observed across CAT-Q and SPT items at $\alpha = 0.968$ (95% CI [0.965, 0.971]), the standardized total scores from these two scales were averaged as a composite score to parsimoniously represent IM. The two total scores were averaged to ensure

Table 1. Sample demographics.

	N	%
Gender		
Men (also referred to as cisgender men)	461	47.4
Women (also referred to as cisgender women)	491	50.5
Gender-diverse[a]	20	2.06
Sex assigned at birth		
Male	469	48.3
Female	503	51.8
Ethnicity		
Caucasian	707	72.7
Black or African American	131	13.5
Asian	72	7.41
American or Alaskan Native	9	0.93
Native Hawaiian or Pacific Islander	3	0.31
Prefer not to answer	3	0.31
Other (e.g. Mixed, Hispanic)	47	5.14
Sexual orientation		
Heterosexual	809	83.2
Bisexual	77	7.92
Gay	22	2.26
Lesbian	17	1.75
Pansexual	14	1.44
Not sure or questioning	8	0.82
Queer	7	0.72
Asexual	6	0.62
Two-spirit	2	0.21
Prefer not to say	5	0.51
Other (e.g. Demisexual)	5	0.51
Self-reported clinical diagnosis		
None	516	53.1
Mental health diagnoses (e.g. anxiety, depression, bipolar disorder)[b]	124	12.8
Chronic medical conditions[c]	91	9.36
Neurodivergent[d]	19	1.96
Substance use disorder	6	0.62
Multi-diagnostic categories[e]	183	18.8
Do not know	16	1.65
Prefer not to answer	11	1.13
Other	6	0.62
Education level		
University/college diploma	371	38.2
High school diploma	290	29.8
Master's degree	224	23.1
Doctoral degree or equivalent	44	4.53
Middle school degree	3	0.31
Primary school degree	2	0.21
Other (e.g. Trade, Associate degree)	38	3.91
	M	SD
Age (years)	44.2	16.3
Education years	15.9	3.84

Note. N = number; M = mean; SD = standard deviation.
[a]Gender-diverse individuals include trans men, trans women, genderqueer, genderfluid, androgynous, nonbinary, or prefer not to answer.
[b]Mental health diagnoses were self-reported.
[c]Chronic medical conditions include health conditions that last for a long time, such as diabetes, asthma, epilepsy, cerebral palsy, or sensory disability.
[d]The neurodivergent category includes individuals reporting being diagnosed with autism, ADHD, or learning disability.
[e]The multi-diagnostic categories group includes individuals reporting being diagnosed with multiple diagnostic categories and are exclusive to the rest of individuals reporting only a single diagnostic category.
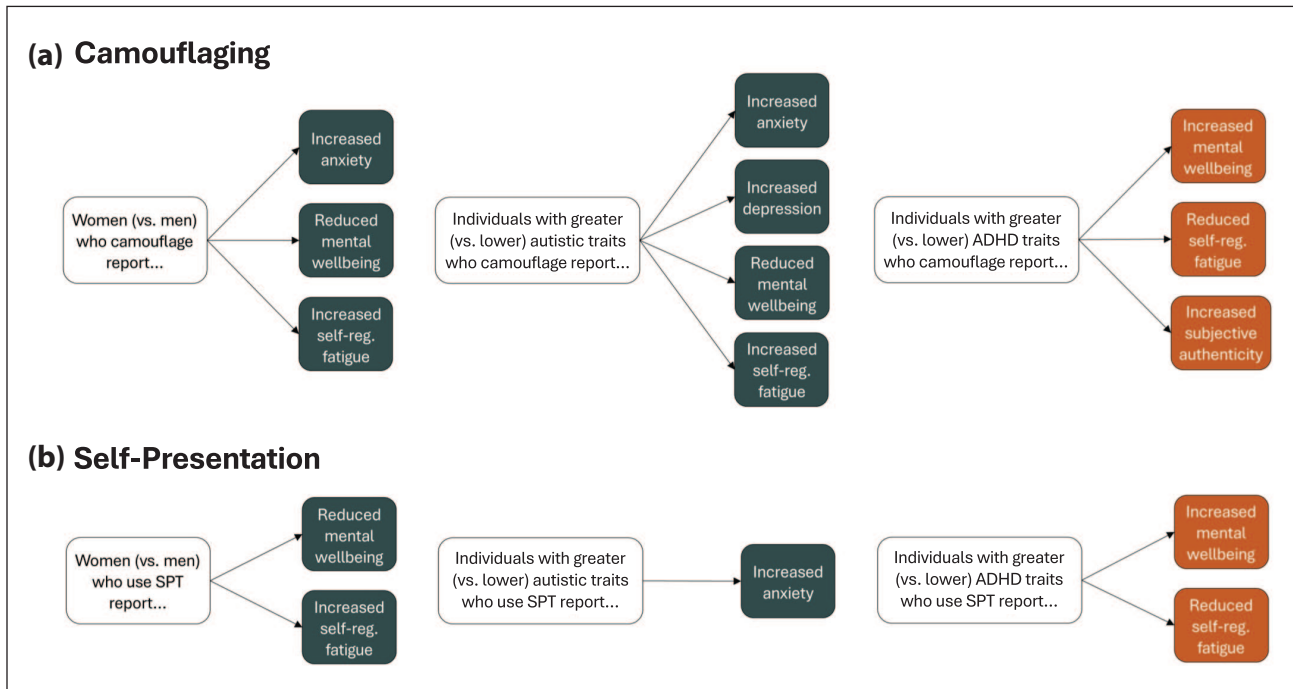
Figure 2. Mental health correlates of camouflaging and self-presentation as moderated by gender and neurodivergent traits. The step 3 hierarchical multivariate regression showed significant moderating effects of gender and neurodivergent traits on the relationships between camouflaging/self-presentation and mental health. (a) Women, in comparison to men, who indicated higher levels of camouflaging demonstrated worse mental health consequences. People with greater autistic traits, compared with those with lower traits, who engage in more camouflaging reported poorer mental health. Conversely, the mental health outcomes of people with greater ADHD traits, compared with those with lower traits, who engage in more camouflaging were more positive. (b) The same directionality of interaction effects was found when replacing camouflaging with self-presentation as the predictor.
Note. self-reg. fatigue = self-regulatory fatigue; SPT = self-presentation tactics; ADHD = attention-deficit/hyperactivity disorder.

that the composite IM variable is equally weighted between the two scales of different item numbers. We used Hayes' PROCESS Model-4 (Hayes, 2013) to estimate the mediation effect of social anxiety between internalized stigma and IM, and then the mediation effects of IM between internalized stigma and mental health outcomes.

We then used Hayes' PROCESS Model-7 (Hayes, 2013) to assess whether the estimated simple mediation effects are moderated by gender, autistic, and ADHD traits. Gender was dummy-coded, and men was used as the reference group while women and gender-diverse were interchanged as either the moderator or covariate to assess gender-moderation effects. An index of moderated mediation was calculated for each level of the moderators and bootstrapped for 5000 iterations to obtain bootstrapped confidence intervals (bootCI) of coefficients.

Results

Mental health outcomes of camouflaging and self-presentation

For camouflaging, the analysis of variance model comparisons test deemed the step 3 model as most optimal

(Figure 2a, Table 2, Supplemental Table SM.3). Increased camouflaging significantly predicted better mental wellbeing and reduced subjective authenticity. Women who engaged in greater camouflaging reported greater anxiety, reduced mental wellbeing, and greater self-regulatory fatigue than men who engaged in greater camouflaging. With increased levels of autistic traits, increased camouflaging predicted greater generalized anxiety, greater depression, reduced mental wellbeing, and greater self-regulatory fatigue. With increased levels of ADHD traits, increased camouflaging predicted increased mental wellbeing, reduced self-regulatory fatigue, and increased subjective authenticity.

For self-presentation (Figure 2b, Supplemental Table SM.2), the step 3 model with the interaction terms was also found to be optimal (Supplemental Table SM.3). Increased self-presentation tactics use significantly predicted better mental wellbeing and reduced subjective authenticity. Women who engaged in increased self-presentation reported lower mental wellbeing and greater self-regulatory fatigue than men who engaged in increased self-presentation. Increased self-presentation predicted greater generalized anxiety with increased levels of autistic traits. With increased levels of ADHD traits, increased

Table 2. Full results of the step 3 model of the hierarchical multivariate regression for camouflaging.

Dependent Variable: Generalized Anxiety (GAD-7)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of beta [lower, upper]
(Intercept)	−.188	0.041	−4.57	<.001***	.021	[−0.269, −0.107]
Age (years)	−.112	0.029	−3.94	<.001***	.016	[−0.168, −0.057]
Black or African American vs. White	−.076	0.075	−1.02	.448	.001	[−0.224, 0.070]
Native vs. White	−.106	0.259	−0.408	.805	.000	[−0.614, 0.403]
Asian vs. White	−.178	0.098	−1.82	.128	.004	[−0.369, 0.014]
Native Hawaiian/Pacific Islander vs. White	.349	0.446	0.782	.621	.001	[−0.526, 1.22]
Others (e.g. Mixed, Hispanic) vs. White	.230	0.114	2.02	.093	.004	[0.006, 0.453]
ADHD traits (ASRS-A scores)	.372	0.031	12.2	<.001***	.135	[0.312, 0.432]
Autistic traits (SATQ scores)	.201	0.028	7.15	<.001***	.051	[0.146, 0.257]
Camouflaging (CAT-Q scores)	.061	0.039	1.55	.210	.003	[−0.016, 0.138]
Women vs. Men	.372	0.051	7.23	<.001***	.052	[0.271, 0.473]
Gender-diverse vs. Men	.148	0.210	0.709	.663	.001	[−0.263, 0.559]
ADHD traits × Camouflaging	−.015	0.026	−0.573	.751	.000	[−0.066, 0.036]
Autistic traits × Camouflaging	.077	0.027	2.86	.011*	.009	[0.024, 0.130]
Women × Camouflaging	.157	0.051	3.06	.007**	.010	[0.056, 0.258]
Gender-diverse × Camouflaging	−0.074	0.167	−0.445	.805	.000	[−0.402, 0.254]

R^2 adjusted = .411, $F_{(15, 956)}$ = 46.2, $p < .001$;
***p-adj < .001, **p-adj < .01, *p-adj < .05; CI = confidence interval.

Dependent Variable: Depression (PHQ-9)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of beta [lower, upper]
(Intercept)	−.144	0.042	−3.47	.002**	.013	[−0.226, −0.063]
Age (years)	−.108	0.029	−3.75	<.001***	.015	[−0.164, −0.051]
Black or African American vs. White	−.046	0.075	−0.617	.728	.000	[−0.194, 0.101]
Native vs. White	−.042	0.261	−0.160	.919	.000	[−0.554, 0.471]
Asian vs. White	−.176	0.098	−1.79	.133	.003	[−0.369, 0.017]
Native Hawaiian/Pacific Islander vs. White	.577	0.450	1.28	.314	.002	[−0.306, 1.46]
Others (e.g. Mixed, Hispanic) vs. White	.195	0.115	1.70	.159	.003	[−0.030, 0.421]
ADHD traits (ASRS-A scores)	.395	0.031	12.9	<.001***	.147	[0.335, 0.455]
Autistic traits (SATQ scores)	.189	0.028	6.66	<.001***	.044	[0.133, 0.245]
Camouflaging (CAT-Q scores)	.088	0.040	2.24	.057	.005	[0.011, 0.166]
Women vs. Men	.246	0.052	4.74	<.001***	.023	[0.144, 0.347]
Gender-diverse vs. Men	.506	0.211	2.40	.039*	.006	[0.092, 0.921]
ADHD traits × Camouflaging	−.005	0.026	−0.196	.901	.000	[−0.057, 0.047]
Autistic traits × Camouflaging	.079	0.027	2.90	.010*	.009	[0.026, 0.133]
Women × Camouflaging	.066	0.052	1.27	.317	.002	[−0.036, 0.167]
Gender-diverse × Camouflaging	−.233	0.169	−1.38	.273	.002	[−0.564, 0.098]

R^2 adjusted = .402, $F_{(15, 956)}$ = 44.4, $p < .001$;
***p-adj < .001, **p-adj < .01, *p-adj < .05; CI = confidence interval.

Dependent Variable: Mental Wellbeing (SWEMWS)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of Beta [lower, upper]
(Intercept)	.182	0.044	4.10	<.001***	.017	[0.095, 0.269]
Age (years)	.095	0.031	3.08	.006**	.010	[0.034, 0.155]
Black or African American vs. White	.151	0.080	1.88	.117	.004	[−0.006, 0.309]
Native vs. White	−.083	0.279	−0.296	.830	.000	[−0.630, 0.465]
Asian vs. White	−.059	0.105	−0.564	.751	.000	[−0.266, 0.147]
Native Hawaiian/Pacific Islander vs. White	−.921	0.480	−1.92	.112	.004	[−1.86, 0.022]
Others (e.g. Mixed, Hispanic) vs. White	−.053	0.123	−0.435	.805	.000	[−0.294, 0.187]
ADHD traits (ASRS-A scores)	−.215	0.033	−6.55	<.001***	.043	[−0.279, −0.151]
Autistic traits (SATQ scores)	−.362	0.030	−11.9	<.001***	.130	[−0.422, −0.303]
Camouflaging (CAT-Q scores)	.207	0.042	4.89	<.001***	.024	[0.124, 0.289]

(Continued)

Table 2. (Continued)

Dependent Variable: Mental Wellbeing (SWEMWS)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of Beta [lower, upper]
Women vs. Men	−.441	0.055	−7.96	<.001***	.062	[−0.550, −0.332]
Gender-diverse vs. Men	−.327	0.226	−1.45	.252	.002	[−0.769, 0.116]
ADHD traits × Camouflaging	.103	0.028	3.66	<.001***	.014	[0.048, 0.159]
Autistic traits × Camouflaging	−.084	0.029	−2.88	.010*	.009	[−0.141, −0.027]
Women × Camouflaging	−.329	0.055	−5.94	<.001***	.036	[−0.437, −0.220]
Gender-diverse × Camouflaging	.008	0.180	0.045	.964	.000	[−0.345, 0.361]

R^2 adjusted = .317, $F(15, 956)$ = 31.0, $p < .001$;
***p-adj < .001, **p-adj < .01, *p-adj < .05; CI = confidence interval.

Dependent Variable: Self-Regulatory Fatigue (SRF-S)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of beta ss[lower, upper]
(Intercept)	−.257	0.039	−6.57	<.001***	.043	[−0.334, −0.180]
Age (years)	−.011	0.027	−0.407	.805	.000	[−0.064, 0.042]
Black or African American vs. White	.032	0.071	0.445	.805	.000	[−0.107, 0.170]
Native vs. White	.253	0.246	1.03	.448	.001	[−0.229, 0.735]
Asian vs. White	−.046	0.093	−0.498	.798	.000	[−0.228, 0.136]
Native Hawaiian/Pacific Islander vs. White	.131	0.423	0.310	.829	.000	[−0.699, 0.961]
Others (e.g. Mixed, Hispanic) vs. White	.239	0.108	2.21	.059	.005	[0.027, 0.451]
ADHD traits (ASRS-A scores)	.367	0.029	12.7	<.001***	.145	[0.311, 0.424]
Autistic traits (SATQ scores)	.344	0.027	12.9	<.001***	.148	[0.292, 0.397]
Camouflaging (CAT-Q scores)	−.012	0.037	−0.328	.829	.000	[−0.085, 0.061]
Women vs. Men	.533	0.049	10.9	<.001***	.111	[0.437, 0.628]
Gender-diverse vs. Men	.020	0.199	0.099	.947	.000	[−0.370, 0.410]
ADHD traits × Camouflaging	−.109	0.025	−4.38	<.001***	.020	[−0.158, −0.060]
Autistic traits × Camouflaging	.077	0.026	3.02	.007**	.009	[0.027, 0.128]
Women × Camouflaging	.181	0.049	3.70	<.001***	.014	[0.085, 0.276]
Gender-diverse × Camouflaging	.294	0.159	1.86	.122	.004	[−0.017, 0.605]

R^2 adjusted = .470, $F(15, 956)$ = 58.4, $p < .001$;
***p-adj < .001, **p-adj < .01, *p-adj < .05; CI = confidence interval.

Dependent Variable: Authenticity (KGAI)

Predictor	Beta	Std. error	t-value	p-value adjusted	Partial r^2	95% CI of beta [lower, upper]
(Intercept)	−.012	0.039	−0.316	.829	.000	[−0.090, 0.065]
Age (years)	.061	0.027	2.24	.057	.005	[0.007, 0.114]
Black or African American vs. White	.029	0.071	0.412	.805	.000	[−0.110, 0.169]
Native vs. White	.012	0.247	0.048	.964	.000	[−0.473, 0.497]
Asian vs. White	−.100	0.093	−1.07	.430	.001	[−0.282, 0.083]
Native Hawaiian/Pacific Islander vs. White	−.041	0.425	−0.097	.947	.000	[−0.876, 0.793]
Others (e.g. Mixed, Hispanic) vs. White	.208	0.109	1.91	.112	.004	[−0.006, 0.421]
ADHD traits (ASRS-A scores)	−.264	0.029	−9.09	<.001***	.080	[−0.321, −0.207]
Autistic traits (SATQ scores)	−.388	0.027	−14.4	<.001***	.179	[−0.440, −0.335]
Camouflaging (CAT-Q scores)	−.201	0.037	−5.37	<.001***	.029	[−0.274, −0.127]
Women vs. Men	−.035	0.049	−0.706	.663	.000	[−0.131, 0.062]
Gender-diverse vs. Men	.279	0.200	1.40	.272	.002	[−0.113, 0.671]
ADHD traits × Camouflaging	.065	0.025	2.60	.023*	.007	[0.016, 0.114]
Autistic traits × Camouflaging	−.033	0.026	−1.29	.313	.002	[−0.084, 0.017]
Women × Camouflaging	−.016	0.049	−0.330	.829	.000	[−0.112, 0.080]
Gender-diverse × Camouflaging	−.055	0.159	−0.347	.829	.000	[−0.368, 0.258]

R^2 adjusted = .464, $F(15, 956)$ = 57.1, $p < .001$;
***p-adj < .001, **p-adj < .01, *p-adj < .05; CI = confidence interval.
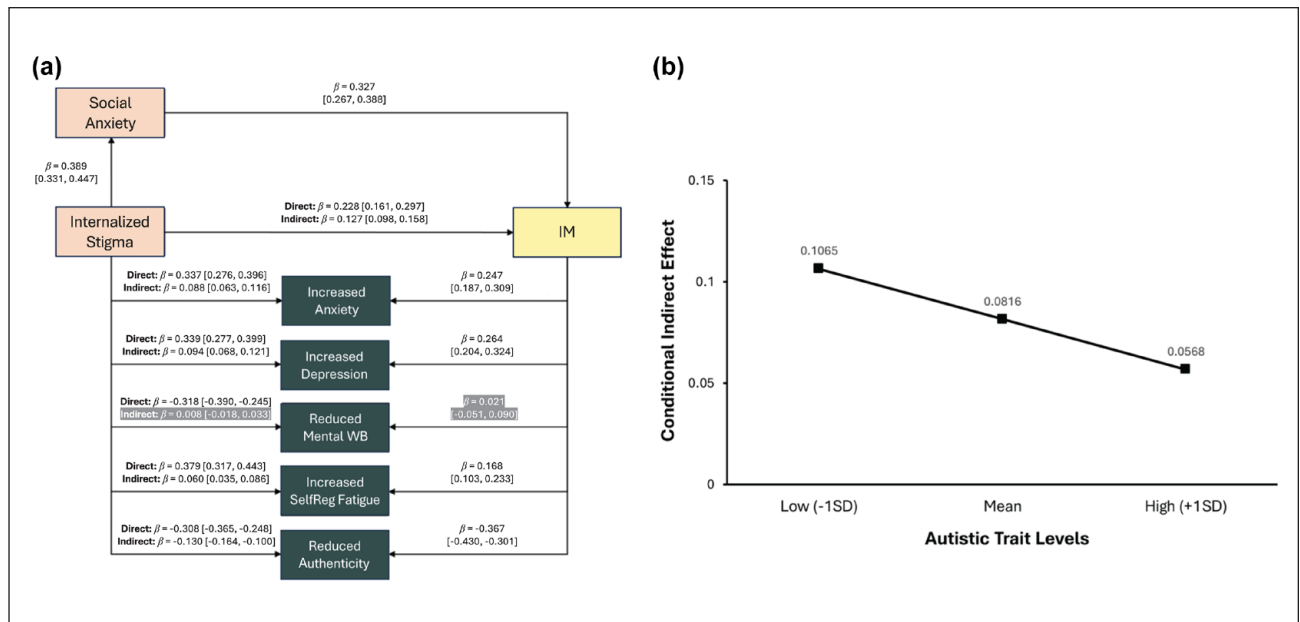
Figure 3. Summarized results of the simple mediation and moderated mediation analyses. (a) A summary of the simple mediation analyses for the hypothesized relationships among internalized stigma, social anxiety, impression management (IM), and mental health. Effect parameter labels of white font in gray background represent non-significant paths; 'Direct' refers to direct effects and 'Indirect' refers to indirect effects; β refers to standardized regression coefficients; confidence intervals represent 95% bootstrapped confidence intervals. (b) Strength of the conditional indirect effects from internalized stigma to IM through social anxiety at different levels of autistic traits. The indirect effect was stronger for individuals with lower compared with higher autistic traits. 'Conditional Indirect Effect' refers to the standardized Beta value of the indirect path from internalized stigma to IM through social anxiety.

Abbreviations: impression management (IM), mental wellbeing (Mental WB), self-regulatory fatigue (SelfReg Fatigue).

self-presentation predicted better mental wellbeing and lower self-regulatory fatigue.

Internalized stigma, social anxiety, impression management, and mental health

For simple mediation (Figure 3a), social anxiety partially mediated the link between internalized stigma and increased IM. Further, IM partially mediated the links between internalized stigma and increased generalized anxiety, increased depression, increased self-regulatory fatigue, and reduced authenticity.

For moderated mediation, we found a significant index of moderated mediation (−0.025, 95% bootCI [−0.444, −0.008]), such that the mediation path from internalized stigma to IM through social anxiety was moderated by autistic trait levels (Figure 3b). Specifically, the mediation effect of social anxiety was significant across all autistic trait levels, but the effect was strongest for lower (-1SD) autistic traits and weakest for higher (+1SD) autistic traits. The mediation path from internalized stigma to IM through social anxiety was consistent across genders and levels of ADHD traits. Lastly, the mediation effects of IM on the associations between internalized stigma and mental

health were consistent across genders and levels of autistic and ADHD traits.

Discussion

The mental health ramifications of camouflaging and self-presentation in the general population revealed nuanced differences by gender and neurodivergent characteristics (Figure 2). Women, more so than men, who reported greater camouflaging exhibited greater anxiety, lower mental wellbeing, and greater self-regulatory fatigue. Individuals with elevated autistic traits and increased camouflaging reported greater anxiety and depression symptoms, reduced mental wellbeing, and increased self-regulatory fatigue, whereas those with elevated ADHD traits with increased camouflaging particularly reported more *positive* outcomes, including increased mental wellbeing, reduced self-regulatory fatigue, and greater subjective authenticity. When the same analyses were repeated with self-presentation, we found the same directionality of results, also significantly moderated by gender and neurodivergent traits. In sum, increased camouflaging and self-presentation both correlated with poorer mental health more so for women than men and for those

with higher than lower autistic traits; yet both were associated with better mental health outcomes in those with higher than lower ADHD traits.

We then assessed the theoretical mechanistic relationships among internalized stigma, social anxiety, IM, and mental health (Figure 3). Social anxiety partially mediated the link between internalized stigma and IM, an effect uniquely moderated by autistic traits. Compared to individuals with lower autistic traits, those with higher autistic traits were less driven by social anxiety to cope with internalized stigma through IM. Importantly, IM partially mediated the links between internalized stigma and all mental health outcomes, except mental wellbeing, across genders and levels of autistic and ADHD traits.

Implications of impression management for mental health in the general population

The mental health ramifications of camouflaging in autistic individuals have received substantial attention lately (Field et al., 2024; Zhuang et al., 2023). However, minimal understanding exists on the extent of these impacts across social-identity and neurodiverse groups. We showed that the mental health correlates of camouflaging and self-presentation in the general population largely overlap (Figure 3) and echoes previous studies and qualitative reports of autism-enriched samples (Zhuang et al., 2023). This continuity provides inferential evidence that camouflaging and self-presentation converge as IM experiences associated with poorer mental health across diverse human groups. Self-presentation was descriptively associated with fewer mental health outcomes when considering gender and neurodivergent-trait moderators (Figure 2). One explanation is that within the same IM umbrella phenomena, camouflaging might capture a specific class of IM that requires a greater extent of behavioral modification (e.g. changing how one behaves overall across social contexts rather than enacting one-off strategies), is more pervasive, and is more socially compelled than voluntary, thus leading to more varied and severe mental health repercussions (Ai et al., 2022).

Importantly, the camouflaging-mental health links in the general population are dependent on additional factors. Women, on average, reported poorer mental health from camouflaging/IM than men. In many modern societies, women face strong social pressure to conform to gender stereotypes of communality, emotional sensitivity, and submissiveness (Guadagno & Cialdini, 2007; Lee et al., 1999). These stereotypically feminine traits are expected of women yet less valued in social situations (e.g. the workplace) pertaining to career progress and self-achievement, whereas stereotypically masculine traits of assertiveness and competitiveness are seen as more desirable (Heilman, 2012; Hentschel et al., 2019). This incongruence between expected and valued traits

entails that women's camouflaging/IM are less agentic, more vigilant, and more taxing compared with that of men, and thus might more rapidly deplete self-regulatory resources, increase anxiety, and erode mental wellbeing.

Aligned with predictions of the transactional IM framework, camouflaging/IM is more psychologically adverse for individuals with higher autistic traits. The mechanisms could involve the compounded social stigma and unique cognitive processing demands associated with autistic traits in neurotypical-majority social contexts. Interestingly, we observed the opposite pattern with ADHD traits. Camouflaging and self-presentation in the context of ADHD traits might not involve the extensive re-learning of social skills or forced modifications across levels of behavior and cognition as those in the context of autistic traits; they might instead concern the prompt optimization of fit with particular contexts, and hence serve as efficient social coping strategies that benefit mental wellbeing. These novel contrasting findings highlight the heterogeneity among neurodivergent groups, and, potentially, neurodevelopmental diagnoses. Research is needed to unpack camouflaging/IM efforts and outcomes in relation to ADHD and ADHD features, how they relate to autistic camouflaging findings, and the underlying reasons for the parallels or divergences (Canela et al., 2017; Ginapp et al., 2023).

Implications of the relations among internalized stigma, social anxiety, impression management, and mental health

The mediation analyses reaffirm that internalized stigma related to each person's self-reported minoritized identity likely drives IM. Although previous studies regarded social anxiety as an outcome of camouflaging/IM (Hull et al., 2021; Lorenz & Hull, 2024; Oshima et al., 2024), we showed that social anxiety could also be an explanatory mechanism. In essence, the social anxiety stemming from internalized stigma motivates individuals to engage in camouflaging/IM, and this, in turn, might further increase social anxiety—a reciprocal pathway that needs further empirical validation (Ai et al., 2022). Another new discovery is that this indirect pathway is moderated by autistic traits. The social anxiety in response to internalized stigma seemed to be a more salient IM driver for individuals with lower rather than higher autistic traits. Whereas camouflaging/IM is largely concerned with facilitating positive social perceptions in dominant social groups, it may instead be more of a survival mechanism for marginalized groups, including those diagnosed with autism or who have evident autistic traits, to manage threats of pathologization, harm, and trauma (Ai et al., 2022; Bernardin, Mason, et al., 2021; Pearson & Rose, 2021). Increased social difficulties and stigma associated with higher autistic traits might have sufficiently

compelled IM to a great degree. Another possibility is that high autistic traits are associated with different social needs and processing that elicit unique attunement of social uncertainties (e.g. expectations, protocols). Social anxiety in autistic people is linked with poorer social skills and reduced social motivation (Spain et al., 2018), which might hinder camouflaging/IM frequency and success. Research is needed to understand the variations in which autistic cognitive features and social anxiety interact with camouflaging/IM in context-dependent ways.

Internalized stigma correlated with negative mental health, with IM partially accounting for these associations. The mediation effects of IM were not influenced by gender nor neurodivergent traits. This reaffirms, across social and neurodiverse groups, the ubiquitous function of camouflaging/IM to manage internalized stigma and its associations with poorer mental health. This account is consistent with the minority stress model highlighting stigma as a primary stressor in marginalized groups (including neurodivergent people) that elevates mental health risks (Botha & Frost, 2020; Meyer, 2010), as well as with findings on how IM across social groups and contexts leads to increased anxiety, depression, identity disturbance, and exhaustion (Mun & Kim, 2021; Pachankis et al., 2020; Sedlovskaya et al., 2013). The overlaps between the current general population findings and the prior IM literature support the conceptualization of camouflaging as part of IM. These new insights, nestled within the interactions among the social environment, IM, and mental health, underscore the need to address mental health ramifications of IM at their common root: alleviating internalized stigma.

Limitations and future directions

Several limitations warrant consideration. First, the cross-sectional data do not permit the validation of definitive causal relations among tested variables. While findings align with predictions from the transactional IM framework (Ai et al., 2022), we are cautious not to overstate the mechanistic relationships. Critically, our data cannot fully elucidate the feedback loop between camouflaging/IM and social anxiety. This kind of reciprocal relation could also apply to other drivers and outcomes of camouflaging/IM that await future research. Longitudinal designs provide a more definitive understanding of the causal relations and their trajectories. These designs could integrate qualitative approaches across developmental stages, particularly during childhood and adolescence, to offer insights into how camouflaging/IM and mental health co-evolve in increasingly complex social environments.

We did not sufficiently assess positive outcomes of camouflaging/IM. Camouflaging/IM has been reported as a means of securing social benefits, employment, and quality of life by both autistic and neurotypical individuals (Field et al., 2024; Leary & Kowalski, 1990; Livingston

et al., 2019; Zhuang et al., 2023). Our study might have overlooked these co-existing positive outcomes. Lastly, we only measured self-reported camouflaging/IM engagement and intention but not its effectiveness in daily life. Camouflaging intent, efforts, and effectiveness could differentially predict mental health (Field et al., 2024). Measures that quantify the effectiveness or capacity for camouflaging/IM, such as the self-monitoring scale (Lennox & Wolfe, 1984) or the discrepancy operationalization (Lai et al., 2017), could offer complementary information.

Future research disambiguating aversive IM strategies from comparatively beneficial ones is necessary. This distinction, with proper consideration of social contextual factors, could support marginalized individuals in leveraging camouflaging/IM to maximize wellbeing while minimizing mental health costs. It also offers clinical implications. For example, social skills interventions for autistic young people might inadvertently instill camouflaging strategies that come with undesired mental health burdens. Therefore, clinicians could consider approaches that are environment-focused, shifting from modifying behavioral presentations to alleviating the internalized stigma and the social anxiety experienced by autistic people. It is necessary to address stigma as a root social determinant of mental health across social and neurodiverse groups, through means such as modifying the social space (e.g. promoting public education, positive social contact, and inter-community connectedness), ultimately enhancing self-acceptance and wellbeing of neurodivergent and other marginalized people (Alegría et al., 2023).

Conclusion

Camouflaging/IM is associated with adverse mental health outcomes in the general population that parallel those observed previously in autistic people, providing empirical support for the transactional IM framework (Ai et al., 2022). The impacts of camouflaging/IM on mental health are nuanced; women experience more significant repercussions from camouflaging/IM compared to men, and autistic and ADHD traits differentially moderate the associations between camouflaging/IM and mental health. Camouflaging/IM is likely driven by internalized stigma through social anxiety, yet this form of stigma management likely still leads to poorer mental health. Future research should clarify these individual differences and mechanistic relations using longitudinal and developmental approaches.

ORCID iD

Meng-Chuan Lai 🆔 https://orcid.org/0000-0002-9593-5508

References

Ai, W., Cunningham, W. A., & Lai, M.-C. (2022). Reconsidering autistic 'camouflaging' as transactional impression management. *Trends in Cognitive Sciences*, *26*(8), 631–645. https://doi.org/10.1016/j.tics.2022.05.002

Ai, W., Cunningham, W. A., & Lai, M.-C. (2024). The dimensional structure of the Camouflaging Autistic Traits Questionnaire (CAT-Q) and predictors of camouflaging in a representative general population sample. *Comprehensive Psychiatry*, *128*, 152434. https://doi.org/10.1016/j.comppsych.2023.152434

Alegría, M., Alvarez, K., Cheng, M., & Falgas-Bague, I. (2023). Recent advances on social determinants of mental health: Looking fast forward. *The American Journal of Psychiatry*, *180*(7), 473–482. https://doi.org/10.1176/appi.ajp.20230371

Bargiela, S., Steward, R., & Mandy, W. (2016). The experiences of late-diagnosed women with autism spectrum conditions: An investigation of the female autism phenotype. *Journal of Autism and Developmental Disorders*, *46*(10), 3281–3294. https://doi.org/10.1007/s10803-016-2872-8

Beck, J. S., Lundwall, R. A., Gabrielsen, T., Cox, J. C., & South, M. (2020). Looking good but feeling bad: "Camouflaging" behaviors and mental health in women with autistic traits. *Autism*, *24*(4), 809–821. https://doi.org/10.1177/1362361320912147

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B*, *57*(1), 289–300.

Bernardin, C. J., Lewis, T., Bell, D., & Kanne, S. (2021). Associations between social camouflaging and internalizing symptoms in autistic and non-autistic adolescents. *Autism: The International Journal of Research and Practice*, *25*(6), 1580–1591. https://doi.org/10.1177/1362361321997284

Bernardin, C. J., Mason, E., Lewis, T., & Kanne, S. (2021). "You must become a chameleon to survive": Adolescent experiences of camouflaging. *Journal of Autism and Developmental Disorders*, *51*(12), 4422–4435. https://doi.org/10.1007/s10803-021-04912-1

Bolino, M., Long, D., & Turnley, W. (2016). Impression management in organizations: Critical questions, answers, and areas for future research. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*(1), 377–406. https://doi.org/10.1146/annurev-orgpsych-041015-062337

Bolis, D., Balsters, J., Wenderoth, N., Becchio, C., & Schilbach, L. (2017). Beyond autism: Introducing the dialectical misattunement hypothesis and a Bayesian account of intersubjectivity. *Psychopathology*, *50*(6), 355–372. https://doi.org/10.1159/000484353

Bond, M. J., Strauss, N. E., & Wickham, R. E. (2018). Development and validation of the Kernis-Goldman authenticity inventory-short form (KGAI-SF). *Personality and Individual Differences*, *134*, 1–6. https://doi.org/10.1016/j.paid.2018.05.033

Botha, M., Dibb, B., & Frost, D. M. (2022). "Autism is me": An investigation of how autistic individuals make sense of autism and stigma. *Disability & Society*, *37*(3), 427–453. https://doi.org/10.1080/09687599.2020.1822782

Botha, M., & Frost, D. M. (2020). Extending the minority stress model to understand mental health problems experienced by the autistic population. *Society and Mental Health*, *10*(1), 20–34. https://doi.org/10.1177/2156869318804297

Boyd, J. E., Otilingam, P. G., & Deforge, B. R. (2014). Brief version of the Internalized Stigma of Mental Illness (ISMI) scale: Psychometric properties and relationship to depression, self esteem, recovery orientation, empowerment, and perceived devaluation and discrimination. *Psychiatric Rehabilitation Journal*, *37*(1), 17–23. https://doi.org/10.1037/prj0000035

Cage, E., & Troxell-Whitman, Z. (2019). Understanding the reasons, contexts and costs of camouflaging for autistic adults. *Journal of Autism and Developmental Disorders*, *49*(5), 1899–1911. https://doi.org/10.1007/s10803-018-03878-x

Canela, C., Buadze, A., Dube, A., Eich, D., & Liebrenz, M. (2017). Skills and compensation strategies in adult ADHD – A qualitative study. *PLoS ONE*, *12*(9), e0184964. https://doi.org/10.1371/journal.pone.0184964

Cassidy, S. A., Gould, K., Townsend, E., Pelton, M., Robertson, A. E., & Rodgers, J. (2020). Is camouflaging autistic traits associated with suicidal thoughts and behaviours? Expanding the interpersonal psychological theory of suicide in an undergraduate student sample. *Journal of Autism and Developmental Disorders*, *50*(10), 3638–3648. https://doi.org/10.1007/s10803-019-04323-3

Chapman, L., Rose, K., Hull, L., & Mandy, W. (2022). "I want to fit in. . . but I don't want to change myself fundamentally": A qualitative exploration of the relationship between masking and mental health for autistic teenagers. *Research in Autism Spectrum Disorders*, *99*, 102069. https://doi.org/10.1016/j.rasd.2022.102069

Cola, M. L., Plate, S., Yankowitz, L., Petrulla, V., Bateman, L., Zampella, C. J., de Marchena, A., Pandey, J., Schultz, R. T., & Parish-Morris, J. (2020). Sex differences in the first impressions made by girls and boys with autism. *Molecular Autism*, *11*(1), 49. https://doi.org/10.1186/s13229-020-00336-3

Cook, J., Hull, L., Crane, L., & Mandy, W. (2021). Camouflaging in autism: A systematic review. *Clinical Psychology Review*, *89*, 102080. https://doi.org/10.1016/j.cpr.2021.102080

Drapalski, A. L., Lucksted, A., Perrin, P. B., Aakre, J. M., Brown, C. H., DeForge, B. R., & Boyd, J. E. (2013). A model of internalized stigma and its effects on people with mental illness. *Psychiatric Services*, *64*(3), 264–269. https://doi.org/10.1176/appi.ps.001322012

Field, S. L., Williams, M. O., Jones, C. R. G., & Fox, J. R. E. (2024). A meta-ethnography of autistic people's experiences of social camouflaging and its relationship with mental health. *Autism*, *28*(6), 1328–1343. https://doi.org/10.1177/13623613231223036

Fombonne, E. (2020). Camouflage and autism. *Journal of Child Psychology and Psychiatry*, *61*(7), 735–738. https://doi.org/10.1111/jcpp.13296

Frost, D. M. (2011). Social stigma and its consequences for the socially stigmatized. *Social and Personality Psychology Compass*, *5*(11), 824–839. https://doi.org/10.1111/j.1751-9004.2011.00394.x

Ginapp, C. M., Greenberg, N. R., Macdonald-Gagnon, G., Angarita, G. A., Bold, K. W., & Potenza, M. N. (2023). The experiences of adults with ADHD in interpersonal relationships and online communities: A qualitative study. *SSM - Qualitative Research in Health*, *3*, 100223. https://doi.org/10.1016/j.ssmqr.2023.100223

Goffman, E. (1959). *The presentation of self in everyday life*. Doubleday.

Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Simon and Schuster.

Guadagno, R. E., & Cialdini, R. B. (2007). Gender differences in impression management in organizations: A qualitative review. *Sex Roles*, *56*(7), 483–494. https://doi.org/10.1007/s11199-007-9187-3

Han, E., Scior, K., Avramides, K., & Crane, L. (2021). A systematic review on autistic people's experiences of stigma and coping strategies. *Autism Research*, *15*(1), 12–26. https://doi.org/10.1002/aur.2652

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Heilman, M. E. (2012). Gender stereotypes and workplace bias. *Research in Organizational Behavior*, *32*, 113–135. https://doi.org/10.1016/j.riob.2012.11.003

Hentschel, T., Heilman, M. E., & Peus, C. V. (2019). The multiple dimensions of gender stereotypes: A current look at men's and women's characterizations of others and themselves. *Frontiers in Psychology*, *10*, 11. https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00011

den Houting, J., den Botha, M., Cage, E., Jones, D. R., & Kim, S. Y. (2021). Shifting stigma about autistic young people. *The Lancet Child & Adolescent Health*, *5*(12), 839–841. https://doi.org/10.1016/S2352-4642(21)00309-6

Huang, Y., Trollor, J. N., Foley, K.-R., & Arnold, S. R. C. (2023). "I've spent my whole life striving to be normal": Internalized stigma and perceived impact of diagnosis in autistic adults. *Autism in Adulthood*, *5*, 4. https://doi.org/10.1089/aut.2022.0066

Hull, L., Levy, L., Lai, M.-C., Petrides, K. V., Baron-Cohen, S., Allison, C., Smith, P., & Mandy, W. (2021). Is social camouflaging associated with anxiety and depression in autistic adults? *Molecular Autism*, *12*, 13. https://doi.org/10.1186/s13229-021-00421-1

Hull, L., Mandy, W., Lai, M.-C., Baron-Cohen, S., Allison, C., Smith, P., & Petrides, K. V. (2019). Development and validation of the Camouflaging Autistic Traits Questionnaire (CAT-Q). *Journal of Autism and Developmental Disorders*, *49*(3), 819–833. https://doi.org/10.1007/s10803-018-3792-6

Hull, L., Petrides, K. V., Allison, C., Smith, P., Baron-Cohen, S., Lai, M.-C., & Mandy, W. (2017). "Putting on my best normal": Social camouflaging in adults with autism spectrum conditions. *Journal of Autism and Developmental Disorders*, *47*(8), 2519–2534. https://doi.org/10.1007/s10803-017-3166-5

Jeung, D.-Y., Kim, C., & Chang, S.-J. (2018). Emotional labor and burnout: A review of the literature. *Yonsei Medical Journal*, *59*(2), 187–193. https://doi.org/10.3349/ymj.2018.59.2.187

Kanne, S. M., Wang, J., & Christ, S. E. (2012). The Subthreshold Autism Trait Questionnaire (SATQ): Development of a brief self-report measure of subthreshold autism traits. *Journal of Autism and Developmental Disorders*, *42*(5), 769–780. https://doi.org/10.1007/s10803-011-1308-8

Kessler, R. C., Adler, L. A., Gruber, M. J., Sarawate, C. A., Spencer, T., & Van Brunt, D. L. (2007). Validity of the World Health Organization Adult ADHD Self-Report Scale (ASRS) Screener in a representative sample of health plan members. *International Journal of Methods in Psychiatric Research*, *16*(2), 52–65. https://doi.org/10.1002/mpr.208

Kreiser, N. L., & White, S. W. (2014). ASD in females: Are we overstating the gender difference in diagnosis? *Clinical Child and Family Psychology Review*, *17*(1), 67–84. https://doi.org/10.1007/s10567-013-0148-9

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Lai, M.-C. (2023). Mental health challenges faced by autistic people. *Nature Human Behaviour*, *7*(10), 1620–1637. https://doi.org/10.1038/s41562-023-01718-2

Lai, M.-C., Amestoy, A., Bishop, S., Brown, H. M., Giwa Onaiwu, M., Halladay, A., Harrop, C., Hotez, E., Huerta, M., Kelly, A., Miller, D., Nordahl, C. W., Ratto, A. B., Saulnier, C., Siper, P. M., Sohl, K., Zwaigenbaum, L., & Goldman, S. (2023). Improving autism identification and support for individuals assigned female at birth: Clinical suggestions and research priorities. *The Lancet. Child & Adolescent Health*, *7*(12), 897–908. https://doi.org/10.1016/S2352-4642(23)00221-3

Lai, M.-C., Hull, L., Mandy, W., Chakrabarti, B., Nordahl, C. W., Lombardo, M. V., Ameis, S. H., Szatmari, P., Baron-Cohen, S., Happé, F., & Livingston, L. A. (2021). Commentary: 'Camouflaging' in autistic people – reflection on Fombonne (2020). *Journal of Child Psychology and Psychiatry*, *62*(8), 1037–1041. https://doi.org/10.1111/jcpp.13344

Lai, M.-C., Lin, H.-Y., & Ameis, S. H. (2022). Towards equitable diagnoses for autism and attention-deficit/hyperactivity disorder across sexes and genders. *Current Opinion in Psychiatry*, *35*(2), 90–100. https://doi.org/10.1097/YCO.0000000000000770

Lai, M.-C., Lombardo, M. V., Ruigrok, A. N., Chakrabarti, B., Auyeung, B., Szatmari, P., Happé, F., & Baron-Cohen, S. (2017). Quantifying and exploring camouflaging in men and women with autism. *Autism*, *21*(6), 690–702. https://doi.org/10.1177/1362361316671012

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin*, *107*(1), 34–47. https://doi.org/10.1037/0033-2909.107.1.34

Lee, S.-J., Quigley, B. M., Nesler, M. S., Corbett, A. B., & Tedeschi, J. T. (1999). Development of a self-presentation tactics scale. *Personality and Individual Differences*, *26*(4), 701–722. https://doi.org/10.1016/S0191-8869(98)00178-0

Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, *46*(6), 1349–1364. https://doi.org/10.1037/0022-3514.46.6.1349

Libsack, E. J., Keenan, E. G., Freden, C. E., Mirmina, J., Iskhakov, N., Krishnathasan, D., & Lerner, M. D. (2021).

A systematic review of passing as non-autistic in autism spectrum disorder. *Clinical Child and Family Psychology Review*, *24*(4), 783–812. https://doi.org/10.1007/s10567-021-00365-1

Liebowitz, M. R. (1987). Social phobia. *Anxiety*, *22*, 141–173. https://doi.org/10.1159/000414022

Livingston, J. D., & Boyd, J. E. (2010). Correlates and consequences of internalized stigma for people living with mental illness: A systematic review and meta-analysis. *Social Science & Medicine*, *71*(12), 2150–2161. https://doi.org/10.1016/j.socscimed.2010.09.030

Livingston, L. A., Shah, P., & Happé, F. (2019). Compensatory strategies below the behavioural surface in autism: A qualitative study. *The Lancet Psychiatry*, *6*(9), 766–777. https://doi.org/10.1016/S2215-0366(19)30224-X

Livingston, L. A., Shah, P., Milner, V., & Happé, F. (2020). Quantifying compensatory strategies in adults with and without diagnosed autism. *Molecular Autism*, *11*(1), 15. https://doi.org/10.1186/s13229-019-0308-y

Lorenz, S., & Hull, L. (2024). Do all of us camouflage? Exploring levels of camouflaging and mental health well-being in the general population. *Trends in Psychology*. Advance online publication. https://doi.org/10.1007/s43076-024-00357-4

Mandy, W. (2019). Social camouflaging in autism: Is it time to lose the mask? *Autism*, *23*(8), 1879–1881. https://doi.org/10.1177/1362361319878559

McQuaid, G. A., Lee, N. R., & Wallace, G. L. (2022). Camouflaging in autism spectrum disorder: Examining the roles of sex, gender identity, and diagnostic timing. *Autism: The International Journal of Research and Practice*, *26*(2), 552–559. https://doi.org/10.1177/13623613211042131

Merkt, J., Reinelt, T., & Petermann, F. (2015). A framework of psychological compensation in attention deficit hyperactivity disorder. *Frontiers in Psychology*, *6*, 1580. https://www.frontiersin.org/articles/10.3389/fpsyg.2015.01580

Meyer, I. H. (2010). Identity, stress, and resilience in lesbians, gay men, and bisexuals of color. *The Counseling Psychologist*, *38*(3), 442–454. https://doi.org/10.1177/0011000009351601

Miller, D., Rees, J., & Pearson, A. (2021). "Masking is life": Experiences of masking in autistic and nonautistic adults. *Autism in Adulthood: Challenges and Management*, *3*(4), 330–338. https://doi.org/10.1089/aut.2020.0083

Milton, D. E. M. (2012). On the ontological status of autism: The 'double empathy problem.' *Disability & Society*, *27*(6), 883–887. https://doi.org/10.1080/09687599.2012.710008

Mun, I. B., & Kim, H. (2021). Influence of false self-presentation on mental health and deleting behavior on Instagram: The mediating role of perceived popularity. *Frontiers in Psychology*, *12*, 1138. https://doi.org/10.3389/fpsyg.2021.660484

Nes, L. S., Ehlers, S. L., Whipple, M. O., & Vincent, A. (2013). Self-regulatory fatigue in chronic multisymptom illnesses: Scale development, fatigue, and self-control. *Journal of Pain Research*, *6*, 181–188. https://doi.org/10.2147/JPR.S40014

O'Loghlen, J. J., & Lang, C. P. (2023). High autistic traits or low social competence? Correlates of social camouflaging in non-autistic adults. *Autism in Adulthood*, *6*(1), 60–71. https://doi.org/10.1089/aut.2022.0094

Oshima, F., Takahashi, T., Tamura, M., Guan, S., Seto, M., Hull, L., Mandy, W., Tsuchiya, K., & Shimizu, E. (2024). The association between social camouflage and mental health among autistic people in Japan and the UK: A cross-cultural study. *Molecular Autism*, *15*, 1. https://doi.org/10.1186/s13229-023-00579-w

Pachankis, J. E., Mahon, C. P., Jackson, S. D., Fetzner, B. K., & Bränström, R. (2020). Sexual orientation concealment and mental health: A conceptual and meta-analytic review. *Psychological Bulletin*, *146*(10), 831–871. https://doi.org/10.1037/bul0000271

Pearson, A., & Rose, K. (2021). A conceptual analysis of autistic masking: Understanding the narrative of stigma and the illusion of choice. *Autism in Adulthood*, *3*(1), 52–60. https://doi.org/10.1089/aut.2020.0043

Perry, E., Mandy, W., Hull, L., & Cage, E. (2022). Understanding camouflaging as a response to autism-related stigma: A social identity theory approach. *Journal of Autism and Developmental Disorders*, *52*(2), 800–810. https://doi.org/10.1007/s10803-021-04987-w

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185–227. https://doi.org/10.1080/00273170701341316

R Core Team. (2018). *R: A language and environment for statistical computing*. http://www.R-project.org/

Sedlovskaya, A., Purdie-Vaughns, V., Eibach, R. P., LaFrance, M., Romero-Canyas, R., & Camp, N. P. (2013). Internalizing the closet: Concealment heightens the cognitive distinction between public and private selves. *Journal of Personality and Social Psychology*, *104*(4), 695–715. https://doi.org/10.1037/a0031179

Somerville, M., MacPherson, S. E., & Fletcher-Watson, S. (2023). The associations between camouflaging, autistic traits, and mental health in nonautistic adults. *Autism in Adulthood*, *6*(1), 106–113. https://doi.org/10.1089/aut.2023.0018

Spain, D., Sin, J., Linder, K. B., McMahon, J., & Happé, F. (2018). Social anxiety in autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders*, *52*, 51–68. https://doi.org/10.1016/j.rasd.2018.04.007

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009). Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education Population Survey. *Health and Quality of Life Outcomes*, *7*, 15. https://doi.org/10.1186/1477-7525-7-15

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Allyn and Bacon.

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, *5*, 63. https://doi.org/10.1186/1477-7525-5-63

U.S. Census Bureau. (2015). *Census Bureau Data*. Retrieved July 29, 2023, from https://data.census.gov/

van der Putten, W. J., Mol, A. J. J., Groenman, A. P., Radhoe, T. A., Torenvliet, C., van Rentergem, J. A. A., & Geurts, H. M. (2024). Is camouflaging unique for autism? A comparison of camouflaging between adults with autism and ADHD. *Autism Research.* Advance online publication. https://doi.org/10.1002/aur.3099

Williams, Z. J. (2021). Commentary: The construct validity of "camouflaging" in autism: Psychometric considerations and recommendations for future research – reflection on Lai et al. (2020). *Journal of Child Psychology and Psychiatry*, *63*(1), 118–121. https://doi.org/10.1111/jcpp.13468

Zhuang, S., Tan, D. W., Reddrop, S., Dean, L., Maybery, M., & Magiati, I. (2023). Psychosocial factors associated with camouflaging in autistic people and its relationship with mental health and well-being: A mixed methods systematic review. *Clinical Psychology Review*, *105*, 102335. https://doi.org/10.1016/j.cpr.2023.102335