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The Importance of Perceived Discrimination and Pre-Adoption Risk for Mental Health Problems among Young Adult Internationally Adopted Students in Norway

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ABSTRACT

The research on mental health problems in adult international adoptees is limited, and while perceived discrimination has been related to increased psychological distress, less is known about its influence on more severe mental health problems. The study investigated mental health problems and the importance of pre- and post-adoption risk factors among internationally adopted students in young adulthood. Data stem from the cross-sectional SHoT study (Students' Health and Wellbeing Study) of students in higher education in Norway where 409 (0.8%) students identified themselves as internationally adopted. The internationally adopted students reported higher levels of psychological distress and higher occurrence of self-harm, thoughts of non-suicidal self-harm (NSSH), suicide attempts and suicidal ideation compared to their non-adopted peers. Perceived discrimination was associated with increased psychological distress, and higher odds of thoughts of self-harm and suicidal ideation. Being adopted from Asia was associated with lower odds of NSSH and suicide attempts compared to other birth continents. Age at adoption was not associated with any of the mental health outcomes. The results indicate an increased risk of mental health problems for internationally adopted students and suggests that pre- and post- adoption risk factors are associated with different mental health problems.

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International adoption; mental health; discrimination; post-adoption risk

Introduction

International adoptees are at increased risk of mental health problems. While this association has been established thoroughly in childhood and adolescence (Askeland et al., 2017; Juffer & van Ijzendoorn, 2005), fewer studies have investigated mental health problems in adulthood (Juffer &

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van Ijzendoorn, 2005), and less is known of the influence of risk factors pre- and post-adoption for this population.

While a recent meta-analysis found poorer psychological adjustment for adult adoptees and suggested that the presence of more international adoptees in the samples were linked to poorer outcomes (Corral et al., 2021), the literature on mental health problems in adult international adoptees is both limited and inconsistent. Whereas one questionnaire-based study did not find significant differences in mental health between adoptees and their peers in mid-life (Rushton et al., 2013), other studies have shown that international adoptees have increased risk of diagnosed mental health disorders (Hjern et al., 2002; Lindblad et al., 2003; Tieman et al., 2005) and disordered eating (Strand et al., 2019) also in adulthood. Registry-based studies have further identified international adoptees as having higher risk of severe mental health outcomes, such as suicide attempts and even suicide death (Hjern et al., 2002; von Borczyskowski et al., 2006). A national cohort study from Sweden has demonstrated that the risk of suicidal behavior is higher in adolescence and early adulthood, and decreases with age (Hjern et al., 2020), and it is therefore important to investigate possible correlates in the age groups where the risk is peaking. While registry studies have been able to investigate the importance of pre-adoption risk factors, less is known about risk factors post adoption, such as discrimination, for these severe mental health outcomes. Further, while there is high quality data regarding suicide attempts, to the best of our knowledge, no studies have investigated self-harm among international adoptees.

Studies addressing the mechanisms leading to the increased risks of mental health problems have mainly focused on the conditions the child lived under pre-adoption, and there is evidence that the effects of early adversities adoptees have experienced lasts into early adulthood, especially regarding severe adversities (van der Vegt et al., 2009). Unfortunately, information on the specific conditions and experiences the adoptees have faced before adoption is seldom available, and age at adoption and country of origin are the two most commonly used proxies (Verhulst et al., 1990). In general, higher age at the time of adoption indicates longer exposure to unfavorable circumstances and has been related to more negative outcomes (Tizard, 1991; Verhulst et al., 1990). This has also been found for hospital admissions due to mental health problems among adult adoptees, where being adopted between 4 and 6 years of age was related to increased odds of mental disorders (Hjern et al., 2002; Lindblad et al., 2003) Regarding country of origin, the care given to adoptees in the time before adoption varies, and some systematic differences have been detected. For instance, being adopted from Latin

America as opposed to Asia has been linked to increased odds of mental disorders (Hjern et al., 2002).

While these pre-adoption factors are undoubtably important, it is possible that they become less salient as the adoptees get older, and factors in the time after adoption may consequently become more important in the transition to early adulthood. Regarding the time after adoption, the majority of studies have focused on the beneficial effects of adoption (van Ijzendoorn & Juffer, 2006), where catch-up effects and positive development have been related to the improved rearing conditions and the social relationships with the adoptive parents (Barcons et al., 2012; Rosnati & Marta, 1997). However, it is likely that there are risks present also in the time after adoption, and in recent years, there has been an increasing interest in the potential negative effect of factors occurring after the time of adoption in explaining the increased risk of mental health problems (Koskinen et al., 2015). These are important to investigate, as they can be targeted in order to promote positive development and prevent development of mental health problems.

One possible risk factor in the time after adoption that can account for the increased risk of mental health problems is discrimination based on ethnicity and culture. Discrimination can be broadly defined as "the practice of unfairly treating a person or group differently from other people or groups of people" (Merriam-Webster, 2022). In the context of international adoptees and other ethnic minorities, it often entails degrading believes, attitudes and behaviors based on physical characteristics and ethnic background. Such discrimination has been related to increased levels of mental health problems (Pascoe & Smart Richman, 2009; Schmitt et al., 2014) and psychological distress (Priest et al., 2013; Wamala et al., 2007) among immigrants and other minorities in general and is also related to mental health problems (Koskinen et al., 2015) and psychological distress among adult international adoptees (Presseau et al., 2019). The importance of discrimination as a risk factor has received increased attention following changes in society and attitudes toward minorities in the Scandinavian countries (Cederblad et al., 1999).

While previous research has shown that many international adoptees do indeed experience discrimination (Mohanty et al., 2019), it has also been suggested that discrimination could be experienced differently for international adoptees compared to other minorities. Lee (2003) coined the term "The transracial adoption paradox" to explain these experiences of adoptees. Though international adoptees are a minority, they have grown up in the majority culture and are often treated by their family and friends as such (Lee, 2003). Still, they may be perceived by others as a part of an ethnic minority that they do not feel they belong to

(Lindblad & Signell, 2008). This could cause difficulties for international adoptees, especially as they navigate their identity development, trying to find their place in society in the transition from adolescence to adulthood. Studies support this notion, showing that international adoptees have lower scores on ethnic identity compared to other minorities (Lee et al., 2010). Further, being perceived as members of a minority ethnic group negatively impacts international adoptees sense of belonging to their ethnic group of origin, a tendency that is more pronounced when they experience ethnic discrimination (Ferrari et al., 2022). Qualitative studies from the Nordic countries suggests that racialization experienced by international adoptees might also be more difficult to cope with, as it can be more subtle than for other immigrants and minorities and also originate from family and significant others (Hübinette & Tigervall, 2009; Koskinen, 2015).

Negative effects of discrimination and challenges concerning their background have also been identified in a Scandinavian context. A study of internationally adopted adolescents and young adults in Sweden reported that 90% felt most Swedish, and 70% did not feel a connection to their country of origin (Cederblad et al., 1999). This could make it more challenging when they are being viewed by others as non-Swedish. Further, the study found that more than one in three adoptees felt teased and one in four felt ill at ease because of their looks (Cederblad et al., 1999), and it has been suggested that the discrimination experienced by international adoptees is comparable to that of other minority groups (Hübinette & Tigervall, 2009). This is supported by a recent report from Norway where about half of the international adoptees who responded reported experiences of differential treatment, which is comparable to differential treatment for other minority groups in Norway (Leirvik et al., 2021). Because of their appearance, international adoptees are often assumed to be immigrants or refugees and they feel that their appearance sets them apart from their families and friends (Saetersdal & Dalen, 2000). Although attitudes toward immigrants in Norway are generally more favorable compared to other European countries, there is heterogeneity in the attitudes (Heath & Richards, 2020) and international adoptees in Norway report discrimination both from the majority population and from other minority groups (Leirvik et al., 2021). Several studies have demonstrated an association between discrimination and lower satisfaction with ones appearance and mental health problems (Cederblad et al., 1999; Koskinen et al., 2015; Lee & Minnesota International Adoption Project, 2010), lower wellbeing, and lower satisfaction with life among international adoptees (Lindblad & Signell, 2008).

To our knowledge, no previous studies have investigated the importance of discrimination in terms of more severe mental health outcomes among international adoptees, such as suicide attempts, non-suicidal self-harm (NSSH), and suicidal ideation. There is an important distinction between suicide attempts that entails nonfatal self-directed injury with the intent to die and NSSH which means harming oneself without the intent to die (Klonsky et al., 2016; McManus et al., 2016). Suicidal ideation involves thinking about or planning suicide without attempts (Klonsky et al., 2016; McManus et al., 2016). While there are no studies investigating these outcomes among international adoptees, research on other ethnic minority groups suggest that perceived discrimination is related to suicidal ideation (Assari et al., 2017; Goodwill et al., 2021; Polanco-Roman et al., 2019). This association was partly mediated by depressive symptoms (Goodwill et al., 2021; Polanco-Roman et al., 2019).

There could be differences in the importance of discrimination for outcomes among international adoptees between adoptive countries due to differing adoption practices, differences in immigration history and policies, and attitudes toward minorities (Heath & Richards, 2020). In Norway, the first international adoptions took place in the late 1960s mainly due to the development of social welfare and decrease in the number of children available for national adoption (Dalen & Theie, 2012). The number of children adopted internationally each year peaked in 2002, with 747 adoptions conducted, and has been declining since, in line with the global development in international adoptions (Selman, 2009). In 2020, only 46 international adoptions were carried out in Norway (Statistics Norway, 2021b). There have also been changes regarding the countries children are adopted from. In the early years, the majority of children were adopted from South Korea and South Vietnam, while more children have been adopted from Colombia and China in the recent years (Statistics Norway, 2021a).

Aims

The present study aimed to investigate differences in psychological distress, NSSH, thoughts of self-harm, suicide attempts and suicidal ideation among internationally adopted students compared to their non-adopted peers. We further aimed to investigate the importance of pre- and post-adoption risk factors, more specifically age at adoption, continent of origin, and perceived discrimination for mental health problems within the group of young adult international adoptees.

Methods

Procedure

Data for the present study stem from the SHoT study (Students' Health and Wellbeing Study), a national survey of students enrolled in higher education in Norway (Sivertsen et al., 2019). Three cross-sectional surveys have been completed (2010, 2014, and 2018) and the present study is based on the SHoT2018 survey. Only students with Norwegian citizenship were included in the SHoT study. The SHoT2018 survey was conducted as a collaboration between the three largest student welfare organizations in Norway and the Norwegian Institute of Public Health. Data was collected between February 6th and April 5th in 2018, and included all full-time Norwegian students enrolled either at a college or a university. Of the 162,512 students who fulfilled the inclusion criteria and were sent an e-mail with a link to the online questionnaire, 50,054 students completed the questionnaire (response rate 31%). Due to missing data on some items, the current sample comprised in all 49,736.

The sample of internationally adopted students

Of the 49,736 students who comprise the sample for this study, 409 (0.8%) identified themselves as international adoptees. The participants who confirmed being internationally adopted were asked to specify their age at the time of adoption and their birth country. Age at adoption was categorized into <1 year, 1–2 years and >2 years at the time of adoption. Birth country was categorized into continent of origin; Asia, South America, Africa, and Eastern Europe. Due to low number of participants in some of the continent of origin categories, the latter three were combined into one category in the analyses, indicating the difference between being born in Asia or other continents of origin.

Of the 409 adoptees, 45.7% were adopted before they were 1 year old, 29.8% were between 1 and 2 years at the time of adoption, and 14.4% were older than 2 years (see Table 1). 10% of the sample did not indicate their age at the time of adoption. Regarding continent of origin, the majority (70.9%) were adopted from Asia, 20.1% were adopted from South America, 5.9% from Africa and 2.4% from Eastern Europe.

Ethics

The SHoT2018 study was approved by the Regional Committee for Medical and Health Research Ethics in Western Norway (no.2017/1176). The participants gave an electronic informed consent to participate after they had

Table 1. Demographic characteristics.

	International adoptees		Non-adopted peers		
	N = 409		N = 49,327		
	N	%	N	%	*p*-value
Sex					<.001
Female	326	79.7	33,686	68.3	
Male	83	20.1	15,132	30.7	
Missing	0	0	509	1.0	
Age					.219
18–20	87	21.3	8,745	17.7	
21–22	135	33.0	15,336	31.1	
23–25	118	28.9	15,784	32.0	
26–35	62	15.2	8,460	17.2	
Missing	7	1.7	1,002	2.0	
Adoption variables					
Age at adoption					
<1 year	187	45.7			
1–2 years	122	29.8			
>2 years	59	14.4			
Missing	41	10.0			
Continent of origin					
Asia	290	70.9			
South America	82	20.1			
Africa	24	5.9			
Eastern Europe	10	2.4			
Missing	3	0.7			

received a detailed introduction to the study. In the communication material used in the study, it was emphasized that the aim was to assess "how the students really are and feel", as an attempt to make the topic of particular relevance to them. The students were also informed that the participation was voluntary, that they could withdraw from the study at any time (and have their data deleted), and that all collected data were in accordance with the EU General Data Protection Regulation (GDPR).

Instruments

Demographic information

Information about age and sex was based on self-report. Age was categorized into 18–20, 21–22, 23–25, and 26–35 years.

Psychological distress

Psychological distress can be defined as "a state of emotional suffering characterized by symptoms of depression and anxiety" (Drapeau et al., 2011). Psychological distress was measured by the Norwegian translation of the Hopkins Symptom Checklist-25 (HSCL-25), based on a longer checklist developed by Derogatis and colleagues (Derogatis et al., 1974). The scale consists of 25 statements assessing anxiety and depressive

symptoms experienced during the past 2 weeks. Responses were given on a Likert-scale ranging from "not at all" (score of 1) to "extremely" (score of 4). Mean scores across the items were calculated, where a higher score indicates higher levels of psychological distress. The factor structure of the HSCL-25 was investigated using data from SHoT2014, and a uni-dimensional model was supported (Skogen et al., 2017). As similar structures are likely present also in SHoT2018, the measure is used uni-dimensionally in the present study. The Cronbach's alpha of the HSCL-25 in the present study was 0.94.

Suicidal ideation, suicide attempts and self-harm

History of suicidal ideation, suicide attempts and NSSH was assessed by three items from the Adult Psychiatric Morbidity Survey (APMS) (McManus et al., 2016); "Have you ever seriously thought of taking your life, but not actually attempted to do so?", "Have you ever made an attempt to take your life, by taking an overdose or tablets or in some other way?", and "Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself? (i.e. self-harm)". Thoughts of self-harm were assessed by an adapted version of the Child and Adolescent Self-harm in Europe study (CASE) (Madge et al., 2008); "Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself, but not actually done so?". Response options were "yes" and "no", indicating whether the students had ever experienced each of the items.

Perceived discrimination

Perceived discrimination was measured by five statements indicating varying degrees of culturally based victimization, from having been treated unfairly to having been attacked because of one's cultural background (Berry et al., 1993). The participants responded to questions like e.g. "I have been teased or offended because of my ethnic background" on a 4-point scale ranging from fully disagree (1) to fully agree (4). The Cronbach's alpha of the measure of perceived discrimination was 0.85 in the present study.

Only 242 of the adoptees answered the questionnaire regarding discrimination. This is likely due to the placement of this specific questionnaire. Only participants who indicated that they or their parents were born outside of Norway were given the opportunity to complete the questionnaire. As the participants who identified themselves as international adoptees had already reported their birth country in an

adoption-specific section, many did not respond to the later question regarding this, and consequently were not presented with the questionnaire concerning perceived discrimination. There were no significant differences between the adoptees who did and did not complete the questionnaire regarding age at adoption ($p = .367$), continent of origin ($p = .242$), or sex ($p = .096$) using chi-square tests, while those who competed had a lower mean age ($M = 22.4$ compared to $M = 23.2$, $p = .008$ from independent sample t-test)

Statistical analyses

Differences between internationally adopted students and non-adopted students regarding age and sex were investigated using chi-square tests. Differences in mean scores on psychological distress and perceived discrimination (compared to other minority students) were assessed by independent samples t-tests. Cohen's d are regarded as large ($d = 0.8$), moderate ($d = 0.5$), or small ($d = 0.2$) according to recognized guidelines (J. Cohen, 1988). Logistic regression was used to investigate differences between internationally adopted students and their peers regarding NSSH, thoughts of self-harm, suicide attempts, and suicidal ideation.

A series of linear regression analyses were conducted to investigate predictors of psychological distress in the group of internationally adopted students. In the crude model, independent analyses were conducted with perceived discrimination, age at adoption, and continent of origin as predictors of psychological distress. Age at adoption and continent of origin were included as predictors in the analyses as they are commonly used as proxies for pre-adoption adversities and have previously been related to mental health outcomes among international adoptees (Hjern et al., 2002; Verhulst et al., 1990). In the adjusted model, the significant associations were adjusted for sex, due to known sex differences in psychological distress (Knapstad et al., 2021) and the significant sex differences between adopted and non-adopted students in the sample. Similarly, a series of logistic regression analyses were performed to investigate predictors of NSSH, thoughts of self-harm, suicide attempts and suicidal ideation (in separate analyses). In the crude model, independent analyses were conducted with perceived discrimination, age at adoption, and continent of origin as predictors of the outcomes. In the adjusted model, the significant associations were adjusted for sex. The scores on perceived discrimination were standardized using z-transformation prior to analyses, giving a mean of 0 and a standard deviation of 1. All analyses were conducted using Stata17. Missing data was handled by listwise deletion.

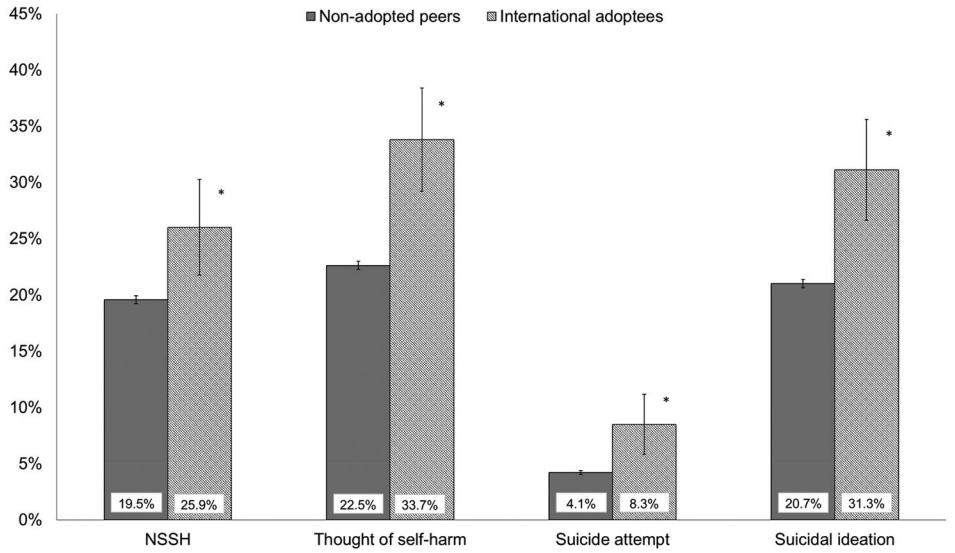

Figure 1. Percentage of internationally adopted and non-adopted students reporting NSSH, thoughts of self-harm, suicide attempt, and suicidal ideation.
Note. NSSH: non-suicidal self-harm, *Differences significant at the $p < .05$ level.

Results

Of the 49,736 students who comprise the sample for the study, 409 identified themselves as international adoptees (0.8%). A greater portion of the internationally adopted students were female compared to the non-adopted students (79.7% compared to 68.3%, $p < .001$, see Table 1). The age distribution was similar for the two groups.

Comparisons with non-adopted peers

Internationally adopted students reported higher scores of psychological distress (M = 1.80, SD = 0.57) compared to their non-adopted peers (M = 1.74, SD = 0.55), with a small effect size (d = 0.13, $p = .011$).

A greater proportion of the internationally adopted students reported NSSH, thoughts of self-harm, suicide attempts and suicidal ideation compared to their non-adopted peers (see Figure 1). For instance, 26% of the adoptees reported NSSH compared to 20% of the non-adopted peers. Regarding suicide attempts, the occurrence among the adoptees was doubled, with 8% of internationally adopted students and 4% of non-adopted peers reporting suicide attempts.

In a series of logistic regression analyses, the internationally adopted students consequently also had higher odds of NSSH, thoughts of self-harm, suicide attempts, and suicidal ideation, with odds ratios ranging

Table 2. Logistic regression analyses of NSSH, thoughts of self-harm, suicide attempts, and suicidal ideation among internationally adopted students compared to their peers.

	Crude model			Adjusted for sex		
	OR	95% CI	*p*-value	aOR	95% CI	*p*-value
NSSH	1.43	1.14-1.78	.002	1.32	1.06-1.66	.015
Thoughts of self-harm	1.76	1.43-2.17	<.001	1.65	1.34-2.03	<.001
Suicide attempt	2.11	1.48-3.00	<.001	2.04	1.43-2.90	<.001
Suicidal ideation	1.72	1.40-2.13	<.001	1.70	1.37-2.09	<.001

Note. OR: odds ratio, aOR: adjusted odds ratio, NSSH: non-suicidal self-harm.

Table 3. Perceived discrimination among internationally adopted students ($n = 242$).

	Completely disagree	Slightly disagree	Agree
	% (*n*)	% (*n*)	% (*n*)
I think Norwegians have behaved unfairly or negatively toward people from my culture	54.5 (132)	20.7 (50)	24.8 (60)
I feel that Norwegians do not accept me	69.4 (168)	18.2 (44)	12.4 (30)
I feel that Norwegians have something against me because of my cultural background	68.2 (165)	15.7 (38)	14.9 (36)
Norwegians have teased and insulted me because of my cultural background	35.1 (85)	21.9 (53)	42.6 (103)
Norwegians have threatened or attacked me because of my cultural background	82.6 (200)	10.3 (25)	6.6 (16)

from OR = 1.43 for NSSH to OR = 2.11 for suicide attempts (Table 2). The estimated attenuated slightly when adjusted for sex but remained significant.

Perceived discrimination among internationally adopted students

Perceived discrimination among the internationally adopted students is reported in Table 3. The majority of internationally adopted students reported to completely disagree with statements regarding unfair treatment, not being accepted, and being threatened or attacked. The most frequently endorsed item was having been teased and insulted because of their cultural background, which was endorsed by 42.6% of the adoptees.

The mean scores on the measure of perceived discrimination of the internationally adopted students was compared to the students responding to the SHoT who confirmed that they themselves, or at least one of their parents, were born abroad. Compared to other minority students, internationally adopted students reported higher mean scores of perceived discrimination ($M = 1.62$, SD 0.66 compared to $M = 1.46$, SD 0.63, $p < .001$), with a small effect size ($d = 0.26$).

Table 4. The importance of perceived discrimination, age at adoption, and continent of origin for psychological distress among internationally adopted students.

	Crude				Adjusted			
Variable	b	SE	*p*-value	R^2	b	SE	*p*-value	R^2
Perceived discrimination	.21	.03	<.001	0.16	.22	.03	<.001	0.20
Age at adoption				0.00				
1–2 years	-.03	.07	.709					
>2 years	.04	.09	.681					
Continent of origin				0.00				
Asia	-.02	.06	.811					

Note. SE: standard error, sex included as adjustment variable in the adjusted model.

The importance of perceived discrimination, age at adoption, and continent of origin for mental health outcomes

The level of perceived discrimination experienced by the internationally adopted students was significantly related to psychological distress and accounted for 16% of the variance in psychological distress (see Table 4). Neither age at adoption, nor continent of origin were significantly associated with psychological distress.

Perceived discrimination was associated with increased odds of thoughts of self-harm (OR = 1.49, 95% CI 1.15-1.94) and suicidal ideation (OR = 1.60, 95% CI 1.22-2.09) but was not significantly associated with NSSH or suicide attempts (see Table 5). The associations with thoughts of self-harm and suicidal ideation remained when controlled for sex.

Age at the time of adoption was not significantly related to NSSH, thoughts of self-harm, suicide attempts or suicidal ideation. Being born in Asia as compared to other continents of origin was related to a significant lower odds ratio of NSSH (OR = 0.52, 95% CI 0.32-0.83) and suicide attempts (OR = 0.30, 95% CI 0.14-0.61), while there were no significant associations with thoughts of self-harm or suicidal ideation. The associations with NSSH and suicide attempts remained when controlled for sex.

Discussion

In this national study of all Norwegian students pursuing higher education, internationally adopted students reported somewhat higher levels of psychological distress compared to their non-adopted peers. They were further more likely to have attempted or thought of self-harm and suicide. Differences within the group of internationally adopted students regarding psychological distress, thoughts of self-harm and suicidal ideation could partly be explained by perceived discrimination, while differences regarding

Table 5. The importance of perceived discrimination, age at adoption, and continent of origin for NSSH, thoughts of self-harm, suicide attempts, and suicidal ideation among internationally adopted students.

	NSSH			Thoughts of self-harm			Suicide attempt			Suicidal ideation		
	OR	95% CI	*p*-value	OR	95% CI	*p*-value	OR	95% CI	*p*-value	OR	95% CI	*p*-value
Crude model												
Perceived discrimination	1.02	0.77-1.34	.907	1.49	1.15-1.94	.003	1.22	0.80-1.90	.349	1.60	1.22-2.09	.001
Age at adoption												
1–2 years	0.74	0.44-1.24	.252	0.74	0.46-1.20	.219	0.97	0.60-1.57	.917	0.97	0.60-1.57	.917
>2 years	0.73	0.37-1.43	.357	0.64	0.34-1.20	.164	0.68	0.36-1.30	.247	0.68	0.36-1.30	.247
Continent of origin												
Asia	0.52	0.32-0.83	.007	0.98	0.62-1.55	.937	0.30	0.14-0.61	.001	1.02	0.64-1.63	.929
Adjusted model												
Perceived discrimination				1.53	1.17-2.00	.002				1.60	1.22-2.10	.001
Continent of origin												
Asia	0.48	0.30-0.79	.004				0.30	0.14-0.64	.002			

Note. OR: odds ratio, NSSH: non-suicidal self-harm, sex included as adjustment variable in the adjusted model.

NSSH and suicide attempts could partly be explained by continent of origin, where being born in Asia was related to a lower odds of these outcomes. Age at adoption was not related to any of the mental health outcomes investigated.

The internationally adopted students reported somewhat higher levels of psychological distress compared to non-adopted peers. This is in line with a recent meta-analysis (Corral et al., 2021) and previous studies investigating diagnosable disorders (Hjern et al., 2002; Lindblad et al., 2003; Tieman et al., 2005), but in contrast to a questionnaire-based study where there were no significant differences (Rushton et al., 2013). Still, as the effect size detected in the present study was small, this discrepancy could be related to statistical power as the previous study used dichotomous outcomes on a smaller sample, making it more challenging to detect small differences. The weaker association found in the present study compared to the register-based studies and studies relying on diagnosed disorders is to be expected when using questionnaires, and a meta-analysis on mental health problems in adolescence found larger differences for registry-based studies than questionnaire-based studies (Askeland et al., 2017). Further, the effect size when investigating differences in mental health service use was large, while the difference in behavior problems measured by questionnaires was small in a previous meta-analysis including adoptees of all ages (Juffer & van Ijzendoorn, 2005). Thus, the small effect size is in line with the general literature on mental health among international adoptees and suggests that these differences remain also in early adulthood.

The increased prevalence of suicide attempts and suicidal ideation among adoptees is consistent with previous registry-based studies (Hjern et al., 2002; von Borczyskowski et al., 2006), where adoptees have also been identified at increased risk of dying from suicide (Hjern et al., 2002). The risk has been identified as highest in adolescence and early adulthood and decreases later in adulthood (Hjern et al., 2020). While a previous study suggested that suicide attempts are higher among internationally adopted females (von Borczyskowski et al., 2006), there was only a slight reduction in the estimates when adjusted for sex in the present study. There was also an increased risk of NSSH and thoughts of self-harm among internationally adopted students compared to peers. Comparison to previous studies is limited by the lack of studies on international adoptees in this area, but the demonstrated association between NSSH and later suicidal behavior indicates that this is in line with known risks (Borschmann et al., 2017), and may indicate self-harm as an important risk indicator.

The internationally adopted students reported higher scores of perceived discrimination compared to other minority students. This is in contrast

to a previous study that found higher rates of discrimination among immigrants than Latin American adoptees in Italy (Ferrari et al., 2017) and a Norwegian report suggesting similar experiences of differential behavior as other ethnic minorities (Leirvik et al., 2021). The results from the present study could largely be due to the item concerning being teased and insulted because of their cultural background, which was endorsed by 43% of the adoptees, a rate similar to a previous study where 38% if the adoptees reported that they were teased often or sometimes (Cederblad et al., 1999). It seems to be a consistent finding that international adoptees experience teasing or insults and several previous studies have found both bullying victimization (Raaska et al., 2012) and racial bullying victimization (Holmgren et al., 2019) among internationally adopted adolescents.

The importance of perceived discrimination for psychological distress in line with previous studies (Cederblad et al., 1999; Koskinen et al., 2015; Lee & Minnesota International Adoption Project, 2010). To the best of our knowledge, no previous studies have investigated the importance of discrimination for more severe mental health outcomes, but the findings correspond to studies where perceived discrimination is related to suicidal ideation in other ethnic minority groups (Assari et al., 2017; Goodwill et al., 2021; Polanco-Roman et al., 2019). Interestingly, the results differed across the different measures; perceived discrimination was associated with thoughts of self-harm and suicidal ideation, but not actual NSSH and suicide attempts. This suggests that other risk factors are more salient for these more severe outcomes, and the mechanisms involved might differ. Such an interpretation is in line with studies on the general population, where risk factors were more strongly related to suicidal ideation than plans or attempts (Kessler et al., 1999). Risk factors for suicide attempts that have been identified in the general population include psychiatric morbidity (Beautrais et al., 1996; Kessler et al., 1999; Nock & Kessler, 2006), exposure to childhood adversities (Beautrais et al., 1996), socio-economic disadvantage (Beautrais et al., 1996; Kessler et al., 1999; Nock & Kessler, 2006), and being male (Nock & Kessler, 2006). It is possible that similar risk factors are also important for international adoptees.

While perceived discrimination could account for some of the differences in psychological distress in the present study, it only explained 16% of the variance. Thus, there are other factors and mechanisms that underlie psychological distress among internationally adopted students. Previous research suggests that differences in psychological distress could partly be due to differences in early aversities in the time before adoption, which can have lasting effects on mental health problems into adulthood (van der Vegt et al., 2009). In addition, the importance of positive and supportive relationships with the adoptive parents have been highlighted (Rosnati & Marta, 1997), also in early adulthood (Ferrari et al., 2015).

Age at adoption was not significantly associated with any of the mental health outcomes in the present study. This is in contrast to previous studies where being adopted between 4 and 6 years of age was related to higher odds of mental health disorders (Hjern et al., 2002; Lindblad et al., 2003). Further, the risk of suicide and suicide attempts has been found to increase with higher age at adoption (Hjern et al., 2020). Still, it is in line with the previous questionnaire-based study where timing and extent of exposure to orphanage care was not associated with mental health problems (Rushton et al., 2013), as well as previous meta-analyses on the mental health of international adoptees (Askeland et al., 2017; Juffer & van Ijzendoorn, 2005). A possible reason for the discrepancies could be the different populations included in the studies, where the entire population of adoptees is included in the register-based studies and active participation from the adoptees is not required. Thus, the adoptees at highest risk and who experience the most problems are also included, while they might choose not to participate in questionnaire-based studies.

Regarding continent of origin, the present study suggests lower odds of NSSH and suicide attempts among students adopted from Asia. This is partly in line with the register study by Hjern and colleagues (Hjern et al., 2002), where adoptees born in Latin America were at increased risk compared to those born in Asia. In general, conditions in institutions in China are more favorable than other countries with orphanage care (N. J. Cohen et al., 2008), and in South Korea the children have often been placed in foster care in the time before adoption (Kim, 1995). If the differences found between adoptees adopted from different continents is related to differences in pre-adoption adversities, the results could be related to the study by van der Vegt et al. (2009) identifying lasting effects of early adversities on mental health problems into adulthood. Exposure to childhood adversities has also been identified as a risk factor for suicide attempts in the general population (Beautrais et al., 1996).

The present study indicates that perceived discrimination can explain part of the difference in psychological distress, thoughts of self-harm and suicidal ideation among international adoptees as young adults. Research suggests that adoptive parents could play an important role in lessening the impact of discrimination, where ethnic and racial socialization and preparation for bias by the adoptive parents protected against the negative impact of discrimination on psychological distress (Presseau et al., 2019) and was important for the psychological adjustment of international adoptees (Arnold et al., 2016). To promote such parental behaviors, parents could be offered training in the culture of origin of their children and receive guidance on how they can talk to their adopted child or adolescent about discrimination and differential treatment (Leirvik et al., 2021). Today,

adoption-related services are limited to the time before and immediately following adoption, and it could be beneficial to include services also later in childhood and early adolescence, when these topics become more salient.

More information about the culture of the country of origin could also help young adult adoptees to integrate their national and ethnic identities and achieve bicultural identity integration, which is related to higher levels of psychological wellbeing (Ferrari et al., 2015). On a university and college level, discrimination against international adoptees has received little attention, and it has been suggested that adoptees should be included in the work on anti-racism (Leirvik et al., 2021). The present study suggests that increased focus on discrimination and its negative consequences in general, and for international adoptees, could be beneficial in the student welfare organizations and the student health services. The student health services provide free counseling and could potentially help internationally adopted students deal with negative experiences related to discrimination.

Strengths and limitations

Strengths of the study include the large sample size of internationally adopted students and the inclusion of both pre- and post-adoption risk factors for mental health problems. Further, the SHoT is a population-based survey where adopted students were invited in the same manner as non-adopted students from the same base population. To the best of our knowledge, this is the first study to investigate the importance of perceived discrimination for more severe mental health outcomes among international adoptees.

Some limitations of the current study should be considered. Unfortunately, the questionnaire on perceived discrimination that was not completed by all the adoptees. As the participants who had identified themselves as international adoptees had already answered a question about country of origin, not all reported their birth country again later in the questionnaire, and thus did not receive the questions regarding perceived discrimination. Still, there were no significant differences regarding age at adoption or continent of origin between the adoptees who did and did not complete the questionnaire.

Another limitation concerns the use of age at adoption and continent of origins as proxies of risk factors in the time before adoption. Previous research on adolescents indicated that age at adoption was not important for mental health problems, but exposure to adversity was (Versluis-den Bieman & Verhulst, 1995). It has further been suggested that the importance of age at adoption varies with the degree of adversities, where severe deprivation is related to increased difficulties from 6 months at adoption

(Beckett et al., 2002), and studies were the entire population of adoptees with all levels of deprivation experiences is included only find increased difficulties at later ages (Hjern et al., 2002). It is possible that we would find other results regarding pre-adoption risk factors if more specific measures of exposure to adversities in the time before adoption could be included.

A final limitation concerns the representativeness of the sample. Although the sample of internationally adopted students is large, the response rate for the SHoT2018 was 31%. It is possible that students with more problems were less likely to participate in the survey, which could affect the generalizability of the findings. Still, this limitation applies both to adoptees and non-adopted peers and is less likely to affect the comparison between the two groups. Regarding the adoption sample, 80% were female. The higher rate of female participants among the adoptees could be related to the majority being adopted from Asia, as especially the vast majority of adoptees from China are girls. It is also important to keep in mind that the majority of participants were female also in the total SHoT-sample. Further, the sample of adoptees was recruited from a population of students, and might thus consist of well-functioning adoptees. The international adoptees with the most severe mental health problems in this age group are less likely to be enrolled as students. However, previous research suggests that the educational level of adoptees is on par with non-adoptees (Lindblad et al., 2003) and is seems like the differences in education and work life is smaller than differences in mental health outcomes (Tieman et al., 2006). Thus, this selection should apply to adopted and non-adopted young adults in a similar manner.

Conclusion

The present study suggests that international adoptees are at increased risk of mental health problems also in early adulthood. Although perceived discrimination was related to psychological distress, thoughts of self-harm and suicidal ideation, it was not significantly related to the more severe outcomes of NSSH and suicide attempts. As the increased risk of mental health problems in childhood and adolescence has been thoroughly documented, the present findings of these problems also in young adulthood point to the importance of early identification and interventions early in life to prevent further development of mental health problems into adulthood. Future research should also investigate factors that can protect against mental health problems in early adulthood. The present study further confirms the presence of discrimination of international adoptees in the student population and its negative effect on mental health,

suggesting this as a focus area for the universities and university colleges in Norway, as well as future research. Future research should also investigate whether perceived discrimination may affect academic performance and work life participation over time.

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Declaration of interests

The authors declare no relevant financial or non-financial competing interests.

Data availability statement

Researchers interested in collaboration are invited to propose research projects. The SHoT dataset is administrated by the Norwegian Institute of Public Health. Approval from a Norwegian regional committee for medical and health research ethics (https://helseforskning.etikkom.no) is a pre-requirement. Guidelines for access to SHoT data are found at https://www.fhi.no/en/more/access-to-data.

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