Ethnic socialisation profiles and depression among ethnic minority adolescents in China: a person-centred approach

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Abstract

Background Ethnic socialisation plays a vital role in the development of ethnic minority adolescents. However, the generalizability of research findings beyond the context of immigrant societies in the United States remains unclear.

Methods Utilising a person-centred approach, this study analysed a sample of 2,600 ethnic minority adolescents in China (55.8% female, Mage = 14.93 ± 1.82) to explore ethnic socialisation patterns, and their correlations with depression.

Results Latent profile analysis revealed four distinct ethnic socialisation profiles: low-frequency, moderate-frequency, high-frequency and proactive integration orientation. Adolescents with the high-frequency profile displayed the highest levels of depression, followed by those with the moderate-frequency profile, whereas adolescents with the low-frequency and proactive integration orientation profiles showed a lower risk of depression.

Conclusions Within the sociocultural context of China, ethnic minority families' ethnic socialisation practices demonstrate unique characteristics. Various ethnic socialisation messages are integrated in diverse patterns to exert influence on adolescents.

Keywords Ethnic socialisation, Depression, Ethnic minority adolescents, Person-centred approach

Background

Adolescence is a crucial stage in individual development, with rapid physiological and psychological changes, along with complex developmental tasks, highlighting the risk of mental health issues during this period. For ethnic minority adolescents, the challenges of multicultural adaptation, potential biases, and cultural conflicts accentuate the risk of mental health problems and warrant special attention.

Ethnic socialisation plays a pivotal role as a valuable resource for ethnic minority adolescents as they navigate the complexities of cultural diversity and conflicts [1]. It encompasses the processes through which families convey knowledge, values, and viewpoints related to ethnicity to their children [2]. Extensive research indicates that ethnic socialisation practices are closely linked to the psychological adaptation of ethnic minority adolescents [3, 4]. However, the current research predominantly focuses on immigrant ethnic minority groups in the United States (US), such as African Americans, Asian Americans, and Mexican Americans [2], thereby leaving a substantial knowledge gap in ethnic socialisation

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within different sociocultural contexts. Moreover, most studies employ variable-centred approaches, which may overlook individual differences among various subgroups and fail to capture the comprehensive effects of multiple, and sometimes conflicting, socialisation messages on adolescents [5]. Therefore, this study aims to adopt a person-centred approach to explore the profiles of ethnic socialisation among ethnic minority adolescents within the Chinese sociocultural context, and revealing the relationship between different patterns of ethnic socialisation practices and adolescent depression.

Social-Cultural context of ethnic minority adolescents in China

China is a unified multi-ethnic nation, with ethnic minority groups accounting for approximately 8.89% of the mainland's population [6]. Through extensive historical accumulation and integration, the 56 ethnic groups within China have formed a pattern of cultural assimilation, economic interdependence, and emotional closeness, resulting in a diverse yet unified Chinese nation structure [7, 8]. Numerous studies indicate that ethnic minority adolescents in China have a strong dual identification with both their own ethnic group and the Chinese nation [9, 10].

Unlike international immigrants who need to integrate into the mainstream culture of their new country, the majority of ethnic minority adolescents in China are indigenous inhabitants and have resided in ethnic enclaves for generations. The living patterns among different ethnic groups can be described as heterogeneous coexistence and small-scale clustering. Heterogeneous coexistence refers to the scattering and mixed living arrangements of various ethnic groups across provinces and cities. However, when examining specific provinces and cities, ethnic minority groups tend to cluster and reside together in certain townships or counties, forming localized clusters. Taking Sichuan Province as an example, there are ethnic enclaves such as Ganzi Zang Autonomous Prefecture, Aba Zang and Qiang Autonomous Prefecture and Liangshan Yi Autonomous Prefecture, where Zang, Qiang and Yi ethnic groups reside together, along with a small number of Han and other ethnic minority groups. Therefore, for ethnic minority adolescents, their schools and community environments are primarily composed of ethnic minority populations until they leave for college or work elsewhere. This difference in living environments may result in differences in ethnic socialisation between Chinese ethnic minority families and international immigrants in US.

Social policy differences may also influence parents' choices regarding ethnic socialisation. In China, ethnic enclaves implement a system of ethnic autonomy, which grants local ethnic minorities independent powers in administration, judiciary, finance, culture, and other areas [11]. Moreover, in the new era, promoting cross-ethnic exchanges, communication, and integration to solidify the consciousness of Chinese national community has become a key focus of the nation's ethnic work [12]. Government agencies, academic circles, educational institutions, local communities, and media platforms are increasingly dedicated to creating environments conducive to ethnic interactions. These efforts may also impact the ethnic socialisation practices within families of ethnic minority adolescents in China.

The content of ethnic socialisation

The different social and cultural backgrounds may result in variations in the content of ethnic socialisation. Hughes et al. [1] reviewed 46 studies on immigrant populations in the US, identifying four dimensions of ethnic socialisation: (1) Cultural socialisation, which involves transmitting cultural knowledge, traditions, and a sense of cultural pride to children; (2) Preparation for bias, which entails making children aware of their ethnic minority status and readying them to cope with racism or other biases; (3) Promotion of mistrust, which involves instructing children to be cautious and maintain interpersonal distance from individuals of different races, ethnicities, or cultural backgrounds; and (4) Egalitarianism and silence about race, which emphasises focusing on commonalities rather than racial or cultural differences, and avoiding discussions about race.

However, within the sociocultural context of China, ethnic socialisation among ethnic minority adolescents exhibits unique characteristics. Based on qualitative research on ethnic minority adolescents in China, Yin et al. [13] refined the ethnic socialisation scale and identified five key dimensions within this construct: promotion of harmony, promotion of mistrust, cultural socialisation, contact with out-groups, and preparation for bias. The dimensions of cultural socialisation, preparation for bias, and promotion of mistrust align with Western research, emphasising the 'differences' between ethnic groups. However, the content of ethnic socialisation among Chinese ethnic minority adolescents also includes fostering understanding, unity, and harmony among different ethnic groups, highlighting the aspect of 'unity' between ethnicities. Specifically, the promotion of harmony emphasises the importance of friendly and harmonious interactions in inter-ethnic relationships. Contact with out-groups involves teaching children the traditions and customs of other ethnic groups through instruction or participation in activities. This reflects the core idea of 'harmony in diversity' in Chinese culture.

Ethnic socialisation and adolescent depression

Ethnic socialisation is intricately linked to the mental health of adolescents, with its impact being multifaceted and complex. Conceptually, ethnic socialisation is a process through which ethnic minority adolescents inherit cultural traditions and prepare for cultural adaptation [14, 15]. This process bestows numerous protective benefits, enhancing group self-esteem, equipping youth to effectively navigate cultural conflicts, and reinforcing their ethnic identity [16–18]. Together, these benefits contribute to a reduction in depression among ethnic minority adolescents [4, 19, 20].

However, the role of different ethnic socialisation messages on adolescent depression may vary. Generally, cultural socialisation is positively associated with mental health [21–23] as this process provides adolescents with a stronger sense of ethnic identity and group self-esteem, which can in turn alleviate depression [24, 25]. Conversely, the promotion of distrust significantly predicts increased depression and both internal and external behavioural problems [21, 25–27]. The impact of preparation for bias is inconsistent, showing varied effects across different studies and psychological outcomes [20, 21, 28]. Although direct research on the relationship between ethnic socialisation messages and depression among ethnic minority adolescents in China is lacking, an exploratory study within the context of Chinese culture indicates that messages that promote harmony, cultural socialisation, and contact with out-groups have a positive impact on the self-esteem of these adolescents. In contrast, preparing for bias and promoting mistrust can be harmful to their self-esteem development [29]. Different dimensions of ethnic socialisation may have varied and even conflicting effects on adolescent depression; however, the interaction between these effects is often overlooked in existing research. Assuming that different dimensions of ethnic socialisation operate independently may oversimplify the actual situation.

The person-centred approach

Ethnic socialisation is a multifaceted process, yet most past research has relied on variable-centred approaches focusing on the relationship between different ethnic socialisation contents and outcome variables [1, 30], thereby overlooking the synergistic effects of various combinations of ethnic socialisation messages. In practice, parents rarely transmit single-themed ethnic socialisation messages to their children. On the contrary, they often combine different ethnic socialisation messages, and the meanings of these messages vary according to the combination. For instance, if parents convey preparation for bias to their children with the same frequency, but one set of parents emphasises the promotion of harmony while another emphasises the promotion of distrust, the conveyed preparation for bias would carry different meanings. However, traditional variable-centred methods have limited efficacy in exploring complex interaction effects [31] and their assumptions regarding sample homogeneity are often not satisfied in reality [32].

By contrast, person-centred approaches emphasise heterogeneity within a sample and aim to capture holistic, highly interactive, and individualised processes by identifying unique combinations or developmental patterns specific to the sample [33]. This method is particularly useful for exploring the diverse ethnic socialisation experiences of ethnic minority adolescents, as it involves identifying subgroups within the sample and comparing the differences among them. Several pioneering studies have begun to explore different types of ethnic socialisation profiles among international immigrants [5, 34]. For example, among African American youths, researchers identified five ethnic socialisation profiles: low-frequency, moderate-frequency, very high frequency, guarded, and empowered. The guarded pattern is associated with elevated depressive symptoms, while the empowered pattern partially buffers respondents against the mental health consequences of racial discrimination [34]. However, research on ethnic socialisation among Chinese adolescents remains scarce, with a notable absence of person-centred studies. The specific ways in which parents from ethnic minority groups in China combine and convey different ethnic socialisation messages, as well as the outcomes of these processes, have not been extensively explored and fully understood within the socio-cultural context of China.

The current study

In summary, this study will utilize Latent Profile Analysis (LPA) to explore ethnic socialisation among ethnic minority adolescents in the unique socio-cultural context of China. The research objectives of this study are to: (1) Identify different profiles of ethnic socialisation among ethnic minority adolescents in China and their demographic characteristic; (2) Examine whether these profiles are associated with adolescents' depression. Drawing on previous research on the international immigrants, this study expects that ethnic minority adolescents in China may exhibit 3–5 different profiles of ethnic socialisation. These profiles would include types of ethnic socialisation with varying frequencies, as well as combinations of ethnic socialisation information specific to Chinese social and cultural characteristics. Furthermore, different patterns of ethnic socialisation are expected to be associated with depression among ethnic minority adolescents.

Methods

Participants

This study employed a cluster sampling method to survey ethnic minority adolescents in five middle schools located in ethnic enclaves of Sichuan Province, southwestern China. The schools predominantly enrolled ethnic minority students, with Han students comprising approximately 5.1% of the total student population. A total of 2600 valid questionnaires were obtained from ethnic minority adolescents, including 1084 male adolescents (41.7%), 1450 female adolescents (55.8%), and 66 cases (2.5%) in which sex information was missing. Of the participants, 1350 were junior high school students (51.9%), and 1250 were senior high school students (48.1%). Among these ethnic minority adolescents, 1252 were Zang (45.2%), 748 were Yi (28.8%), 559 were Qiang (21.5%), and 41 belonged to other ethnic minorities (1.5%). The average age of participants was 14.93±1.82 years. All schools used Chinese as the medium of instruction, and the participants were proficient in reading and responding to the Chinese version of the questionnaire.

Procedures

This study received ethical approval from the institutional review board of the researcher's affiliated institution. Prior to data collection, informed consent was obtained from the relevant school authorities, adolescents' guardians, and adolescents. The survey was conducted from April to June 2023, using pencil-and-paper tests administered during regular classroom hours. The measurement process was jointly organised by trained researchers and teachers. The research experimenter initially provided instructions on how to complete the questionnaire, and the participants were encouraged to ask for assistance if they encountered any difficulties while responding. It was emphasised that the participants had the right to withdraw from the study at any time if they chose not to continue. Upon completion of the survey, the questionnaires were collected immediately and each participant received a small gift as a token of appreciation.

Measures

Ethnic Socialisation. This study employed the revised ethnic socialisation experience scale for Chinese ethnic minority adolescents [13]. This scale has been previously employed in various groups of Chinese ethnic minority adolescents [22, 24]. The scale consists of 20 items, spanning five dimensions: promotion of harmony, promotion of distrust, cultural socialisation, contact with out-groups, and preparation for bias. The promotion of harmony was assessed using six items (e.g. 'Encouraging you to make friends with people from other ethnicities'). The promotion of distrust was measured using three items (e.g. 'Saying something to indicate that you

should not associate with people from other ethnicities'). Cultural socialisation included four items (e.g. 'Discuss important events related to your ethnic group with you'). Contact with out-groups involved three items (e.g. 'Informing you about the customs and practices of other ethnicities'). Preparation for bias comprised four items (e.g. 'Discussing with you the possibility that others may form opinions about your abilities based on your ethnicity'). Participants reported the frequency of specific behaviours exhibited by their parents during their upbringing. Each item was rated on a 5-point Likert scale ranging from 1 ('Never') to 5 ('Always'). Higher average scores in each dimension indicated a greater prevalence of ethnic socialisation messages from parents in that particular aspect. The Cronbach's α coefficients for each dimension in this study ranged from 0.81 to 0.89, indicating good reliability.

Depression. The Chinese version of the Center for Epidemiological Studies Depression Scale [35] was used in this study [36]. The scale has been extensively employed in research involving adolescent populations in China [37]. The scale consists of 20 items that assess the participants' levels of depression across four dimensions: depressive mood, positive affect, somatic symptoms, retarded activity, and interpersonal relationships. The participants were asked to report the frequency of symptoms experienced during the past week. A sample item is 'I felt bothered by things that don't usually bother me'. Each item was scored on a 4-point Likert scale ranging from 0 ('rarely or none of the time') to 3 ('most or all of the time'). Higher total scores indicate a higher frequency of depressive symptoms. In this study, the Cronbach's α coefficient for the scale was 0.86, indicating good reliability.

Data analysis

This study employed SPSS 26.0 and Mplus 7.4 software for data management and analysis. Initially, descriptive statistical analysis and Pearson correlation analysis were conducted to examine the study variables. We then used LPA to identify the ethnic socialisation profile of ethnic minority adolescents in China. We compared the fit indices of the models with two to six profiles to determine the number of profiles that best fit the data. We used indicators such as the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), sample size Adjusted Bayesian Information Criterion (ABIC), Lo-Mendell Rubin Likelihood Ratio Test (LMR-LRT), Bootstrap Likelihood Ratio Test (BLRT), and Entropy for model comparison [38]. Lower AIC, BIC, and ABIC values generally indicate a better model fit. The significant LMRT and BLRT values suggest that the fit of the k-profile model is significantly better than that of the k-1 profile model. The Entropy, which ranges from 0 to 1, indicates

Table 1 Pearson Correlations among study variables

	1	2	3	4	5	6
1 Promotion of harmony	—					
2 Promotion of distrust	-0.08***	—				
3 Cultural socialisation	0.46***	0.18***	—			
4 Contact with out-groups	0.47***	0.22***	0.64***	—		
5 Preparation for bias	0.08***	0.59***	0.37***	0.39***	—	
6 Depression	-0.13***	0.16***	0.01	-0.01	0.15***	—
Mean	3.86	1.55	3.06	2.80	2.03	1.99
SD	0.93	0.94	1.04	1.10	0.97	0.49

Note: ***$p<0.001$

Table 2 Model Fit statistics from LPA of ethnic socialisation

Classes	AIC	BIC	ABIC	Entropy	LMRT (p)	BLRT (p)	Class N
1	36764.07	36822.70	36790.93				2600
2	33891.89	33985.71	33934.87	0.96	0.00	0.00	2203/397
3	32127.52	32256.52	32186.62	0.85	0.00	0.00	1434/771/395
4	31131.24	31295.42	31206.45	0.87	0.01	0.01	747/1302/374/177
5	30381.46	30580.81	30472.78	0.89	0.00	0.00	726/1184/363/200/127
6	29815.24	30049.77	29922.68	0.87	0.00	0.00	286/370/505/207/127/1105

the classification accuracy of each profile. A value greater than 0.8 suggests that the classification accuracy rate exceeds 90%. Subsequently, logistic regression and analysis of covariance (ANCOVA) were employed to further investigate the demographic differences among profiles and the relationship between profiles and outcome variables, respectively. This approach was chosen based on research indicating that when classification accuracy is high, employing a simple three-step approach (treating latent classes as regular categorical variables for subsequent analysis) facilitates a better understanding of the findings [39].

Results

Descriptive statistics and correlation analysis

Table 1 presents the means and standard deviations of the variables and their Pearson correlations. Among the ethnic socialisation dimensions, except for a significant negative correlation between promotion of harmony and promotion of distrust, all other ethnic socialisation dimensions showed significant positive correlations. Depression was significantly negatively correlated with promotion of harmony and significantly positively correlated with promotion of distrust and preparation for bias, whereas it was not significantly correlated with cultural socialisation and contact with out-groups.
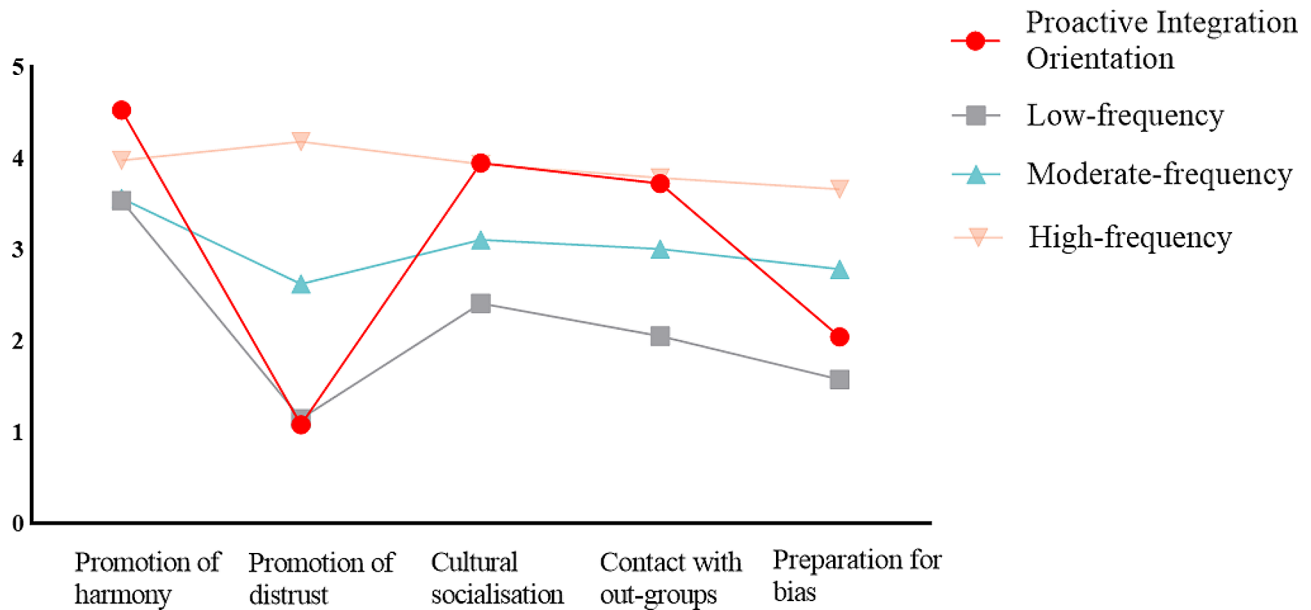
Identification of ethnic socialisation profiles

First, we conducted a LPA to ascertain the number of typologies in the sample based on the five dimensions of ethnic socialisation. The fit indices for each model are listed in Table 2. The Entropy values for all models exceeded 0.8, indicating high precision of the model

classification. The AIC, BIC, and ABIC values exhibited a downward trajectory from the two-profile solution to the six-profile solution. The LMRT and BLRT values were all significant, indicating that each additional profile significantly improved the model fit compared to the previous one. However, both the five-profile and six-profile solutions had issues with category probabilities. When the proportion of individuals in a particular class is too small (less than 5%), it suggests insufficient representativeness and inadequate classification [40]. Therefore, we determined that the four-profile model was the most appropriate choice. Figure 1 depicts the estimated averages for the four profiles across the five dimensions of ethnic socialisation.

The largest profile (50.1%, $n=1302$) exhibited nearly the lowest scores across all dimensions of ethnic socialisation and was therefore labelled as 'low-frequency'. The second profile (28.7%, $n=747$) exhibited high scores on dimensions such as promotion of harmony, cultural socialisation, and contact with out-groups, while scoring relatively low on the dimension of preparation for bias. Additionally, it had the lowest score on the dimension of promoting distrust. Therefore, it was named 'proactive integration orientation'. The third profile (14.4%, $n=374$) demonstrated relatively balanced scores across various dimensions of ethnic socialisation, all of which were maintained at moderate levels. Therefore, it was named 'moderate-frequency'. The fourth profile (6.8%, $n=177$) consistently scored at high levels across all dimensions of ethnic socialisation, leading to its designation as 'high-frequency'. Table 3 shows the mean differences in the five dimensions of ethnic socialisation among the four profiles.

Fig. 1 Ethnic Socialisation Patterns among Ethnic Minority Adolescents in China

Table 3 Estimated raw means and SDs by ethnic socialisation profiles

	Proactive Integration Orientation (*P*)	Low-frequency (L)	Moderate-frequency (M)	High-frequency (H)	F	Post hoc
Promotion of harmony	4.55 ± 0.51	3.53 ± 0.95	3.57 ± 0.83	3.98 ± 0.76	268.78***	P> H> M, L
Promotion of distrust	1.08 ± 0.21	1.15 ± 0.29	2.63 ± 0.45	4.18 ± 0.51	6612.32***	H> M> L> P
Cultural socialisation	3.99 ± 0.78	2.40 ± 0.74	3.11 ± 0.74	3.94 ± 0.76	795.87***	P, H> M> L
Contact with out-groups	3.78 ± 0.80	2.04 ± 0.67	3.02 ± 0.84	3.79 ± 0.93	976.98***	H, P> M> L
Preparation for bias	2.07 ± 0.89	1.57 ± 0.58	2.79 ± 0.85	3.66 ± 0.94	574.64***	H> M> P> L

Note: ***$p < 0.001$

Table 4 Ethnic socialisation profiles by demographic variables

	Proactive Integration Orientation			Moderate -frequency			High-frequency		
	B	SE	OR	B	SE	OR	B	SE	OR
Sex	0.02	0.10	1.02	0.67	0.13	1.96***	1.01	0.19	2.74***
Age	-0.04	0.03	0.96	0.01	0.04	1.01	-0.10	0.05	0.91
Subjective economic status	0.19	0.07	1.21**	0.12	0.09	1.13	0.18	0.12	1.20

Note: Sex (1 = male, 0 = female); **$p < 0.01$, ***$p < 0.001$

Profile demographic differences

To investigate potential demographic differences among the profiles, the multinomial logistic regression analysis was conducted to explore the likelihood of profile membership based on demographic variables including sex, age, and subjective socioeconomic status of ethnic minority adolescents. The low-frequency profile was used as the reference category. As shown in Table 4, in comparison to the low-frequency profile, males were found to have a higher likelihood of belonging to the moderate-frequency and high-frequency profiles. Additionally, individuals with higher socioeconomic status were more likely to belong to the proactive integration orientation profile.

Relations between ethnic socialisation profiles and depression

ANCOVA was conducted to examine the relationship between the four ethnic socialisation profiles and depression, while controlling for covariates such as sex, age, and economic status. Table 5 presents the differences in depression levels among the different profiles. Adolescents with a high-frequency profile exhibited the highest levels of depression, followed by those with a moderate-frequency profile. However, the difference in depression levels between adolescents with low-frequency and those with proactive integration orientation profiles was not statistically significant.

Table 5 Mean differences in depression by the ethnic socialisation profiles

	Proactive Integration Orientation (P)	Low-frequency (L)	Moderate-frequency (M)	High-frequency (H)	F
Depression	1.93 (0.02)	1.97 (0.01)	2.08 (0.03)	2.21 (0.04)	16.54[***]
	Mean difference	**SE**	**95%CI**		
P vs. L	-0.03	0.02	-0.08	0.01	
P vs. M	-0.14[***]	0.03	-0.21	-0.08	
P vs. H	-0.28[***]	0.05	-0.37	-0.19	
L vs. M	-0.11[***]	0.03	-0.17	-0.05	
L vs. H	-0.24[***]	0.04	-0.33	-0.16	
M vs. H	-0.14[**]	0.05	-0.23	-0.04	

Note: [**]$p < 0.01$, [***]$p < 0.001$

Discussion

Profiles of ethnic socialisation among ethnic minority adolescents in China

This study delineated four distinct ethnic socialisation profiles among ethnic minority adolescents in China: low-frequency, moderate-frequency, high-frequency and proactive integration orientation. These findings share similarities and differences with previous research conducted on African American families [34]. The similarities lie in both studies categorizing the profiles based on the degree of ethnic socialisation into low-frequency, moderate-frequency, and high-frequency classes. Additionally, in both studies, the low-frequency ethnic socialisation profile was the most prevalent, while the high-frequency profile was the least prevalent. These results indicate that despite ethnic minority parents engaging in ethnic socialisation practices, overall, the frequency of transmitting such information is relatively low.

In comparison, the low-frequency profile is more prevalent among Chinese ethnic minority parents, accounting for over 50% of the sample. This discrepancy may be attributed to differences in environmental contexts. Unlike international immigrants, who are immersed in the predominant culture of new countries, Chinese ethnic minority adolescents are indigenous inhabitants and have resided in ethnic enclaves for generations. Geographical clustering provides a buffer that may lessen parental concerns about the cultural conflict, preservation of cultural heritage and the risk of ethnic identity dilution. Consequently, ethnic minority parents in China may exhibit less investment in ethnic socialisation practices. Furthermore, the variation in the frequency of ethnic socialisation may also be influenced by factors associated with intergenerational transmission, which require further investigation in future studies.

Another significant difference is observed in the distinct combinations of information conveyed by ethnic minority parents. In China, ethnic minority families exhibit a unique pattern known as the proactive integration orientation. This group's defining characteristic is that parents selectively combine ethnic socialisation information in a positive manner. They place great importance on fostering intergroup harmony and interactions. While they do prepare their children to some extent to handle bias, they rarely provide information that promotes distrust. On the other hand, African American parents place considerable emphasis on the issue of discrimination and exhibit two distinct combination patterns: guarded and empowered [34]. The guarded pattern combines warnings about discrimination with instructions to be cautious and vigilant when interacting with members of the majority group. The empowered pattern, on the other hand, combines warnings about discrimination with strategies for overcoming racial prejudice. These differences primarily stem from the social and cultural environments in which they exist, as well as variations in their values and beliefs. This highlights the importance of studying ethnic socialisation in a broader range of social and cultural contexts.

Demographic characteristics associated with ethnic socialisation profile

We examined the impact of demographic factors such as sex, age, and socioeconomic status on the type of ethnic socialisation. The results indicate that in comparison to the low-frequency profile, males have a higher likelihood of falling into the moderate-frequency and high-frequency ethnic socialisation. Generally speaking, it is possible that ethnic minority males are more likely than females to be perceived as threatening [41]. Consequently, parents may modulate the conveyance of positive and negative messages within the ethnic socialisation process to equip their sons more effectively to adapt to societal expectations.

Additionally, relative to the low-frequency profile, adolescents from higher socioeconomic backgrounds were more likely to belong to the proactive integration orientation group. Considering the combination characteristics of ethnic socialisation information, it can be observed that families with higher socioeconomic backgrounds tend to transmit a higher frequency of messages promoting harmony, cultural socialisation, and contact with out-groups. They also relatively increase their children's

preparation for bias. This finding partially supports previous research on immigrant families, such as the higher frequency of cultural socialisation and preparation for bias among ethnic minority parents with higher income and education levels [42]. Furthermore, in the context of the Chinese government's strong promotion of policies aimed at fostering ethnic interaction, communication, and integration, families with higher socioeconomic status are more likely to align with the policy trends and prioritize the transmission of ethnic socialisation information that promotes harmony and contact with out-groups.

Profiles of ethnic socialisation and depression

Consistent with the findings of Liu and Lau, using diverse racial samples [25], this study also revealed an association between ethnic socialisation and depression among Chinese ethnic minority adolescents. Notably, adolescents in the high-frequency group exhibited the highest levels of depression, followed by those in the moderate-frequency group. These two types share a common characteristic: Parents relatively and evenly convey various types of ethnic socialisation information. They not only impart a greater amount of information encouraging harmony, cultural socialisation, and interaction with out-groups—elements known to benefit the mental health of ethnic minority adolescents [29]—but also frequently prepare their children for prejudice and encourage scepticism. This dual message may place adolescents in a state of internal conflict and ambivalence as they strive to integrate with other ethnic groups while simultaneously guarding against potential biases and injustices. This predicament is likely to engender depressive symptoms [34]. Furthermore, while moderate-frequency and high-frequency ethnic socialisation are associated with a higher risk of adolescent depression, it remains to be explored in future research whether they are also related to stronger conflict coping abilities among ethnic minority youth and whether they contribute to better cultural adaptation preparation.

Conversely, adolescents with the low-frequency or proactive integration orientation experience fewer conflicts, as their parents either downplay ethnic socialisation themes or emphasise positive cultural integration. Notably, no significant difference was found between these two groups, suggesting that the lack of ethnic socialisation messages in the low-frequency ethnic socialisation group does not necessarily lead to a deficit in identity and belonging, nor does it increase the risk of depression. This may be related to the development of a higher-level common identity—Chinese national identity [43]—among these ethnic minority adolescents.

These findings highlight the association between how parents in the Chinese socio-cultural context combine different ethnic socialisation messages and the depression experienced by their adolescent children. For schools predominantly attended by ethnic minority students, it is necessary to strengthen guidance on ethnic socialisation in family education, teaching ethnic minority parents how to better convey ethnic socialisation information and minimize the risk of psychological conflict and depression in adolescents. Additionally, cognitive education for student populations should be strengthened to guide them in developing a proper understanding and integration of various ethnic socialisation messages from different sources. It is important to note that these research findings were derived from the context of ethnic minority concentrated areas. Further research and exploration are needed to determine the applicability of these findings to ethnic minority adolescents attending schools predominantly attended by Han students in non-ethnic regions.

Limitations and future prospects

This study is cross-sectional, reflecting only the current state of ethnic socialisation at the time of measurement. This makes it challenging to reveal the development and changes in ethnic socialisation among ethnic minority adolescents. Additionally, it hinders the determination of whether ethnic socialisation influences depressive symptoms or vice versa, where adolescents' depressive status influences their perception of ethnic socialisation. Future research should collect longitudinal data, explore changes in ethnic minority adolescents' ethnic socialisation profiles, and understand the dynamic relationship between ethnic socialisation and depression.

Certain studies indicate that the correlation between ethnic socialisation and adolescent outcomes can vary based on the reporter [44]. In this study, with adolescents as the primary reporters of ethnic socialisation, there may be a risk of overestimating the association between ethnic socialisation and developmental outcomes. Future research could benefit from gathering matched parent-child data to more accurately delineate the relationship between ethnic minority parents' reported ethnic socialisation practices and the developmental outcomes observed in ethnic minority adolescents.

In addition, this study represents an initial attempt to explore the ethnic socialisation profiles of Chinese ethnic minority adolescents. There are several important research variables that were not taken into account. Future research should rigorously control for more confounding variables such as parental depression, experiences of discrimination, and further investigate predictive factors related to ethnic socialisation profiles, such as parental experiences and cultural identity. Additionally, it is important to examine more diverse developmental

outcomes related to ethnic socialisation, such as cultural adaptation readiness and conflict coping abilities.

Research significances

This study extends research on ethnic socialisation and adolescent depression beyond the commonly studied US context by examining non-immigrant indigenous ethnic minority adolescents in China. These findings emphasise the critical need to consider the composite of ethnic socialisation information through a person-centred lens. Furthermore, this study lays the foundational groundwork for understanding the practices of ethnic socialisation and provides strategies for the prevention and control of depression among ethnic minority adolescents in China. These insights not only contribute to the theoretical framework of ethnic socialisation, but also have practical implications for developing culturally tailored mental health interventions.

Conclusions

This study employed a person-centred approach to examine the relationship between ethnic socialisation profiles and depression among ethnic minority adolescents in China. The research identified that within China's sociocultural context, ethnic socialisation practices tend to cluster into four distinct profiles: low-frequency, moderate-frequency, high-frequency and proactive integration orientation. Adolescents with the high-frequency profile exhibited highest level of depression, followed by those with the moderate-frequency profile. Adolescents with low-frequency and proactive integration orientation showed lower risk of depression. These results highlight the intricately intertwined nature of ethnic socialisation practices, indicating that a comprehensive grasp of such practices is essential for devising culturally aligned and efficacious approaches aimed at enhancing the health of ethnic minority adolescents.

Author contributions
XY, and QC contributed to conception and design of the study. XY performed the statistical analysis and wrote the first draft of the manuscript. YG and LZ contributed to manuscript revision. All authors contributed to the manuscript and approved the submitted version.

Data availability
The datasets used and analysed during the study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
This study was strictly followed the Declaration of Helsinki and approved by the Professor and Ethics Committee, School of Education and Psychology, Southwest Minzu University (jx2023002). In this study, we obtained informed consent from both students and their parents. All procedures were performed in accordance with the relevant guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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