Discover Psychology

RESEARCH Open Access

Demographic and psychological factors for interpersonal civility in Mainland China

Lanxing Li[1], Shuzhi Zhang[1], Wenwen Lin[1], Huiyun Yan[1], Agnes Tang[1] and Samuel Ken-En Gan[1,2,3,4*]

*Correspondence:
Samuel Ken-En Gan
samgan@apdskeg.com
[1]Wenzhou-Kean University, Ouhai, Wenzhou 325060, Zhejiang, China
[2]Dorothy and George Hennings College of Science, Mathematics and Technology, Kean University, 1000 Morris Ave, Union, NJ 07083, USA
[3]Inha University, 100 Inha-ro, Incheon 22212, South Korea
[4]Department of Psychology, James Cook University, Singapore 387380, Singapore

Abstract

This study aimed to examine how interpersonal civility in Mainland China is related to both demographic and psychological factors. Forni's Choosing Civility: The Twenty-five Rules of Considerate Conduct was adapted to create a culturally relevant civility inventory. A total of 673 participants, primarily from Shandong and Zhejiang provinces, completed a survey comprising demographic information, the adapted civility inventory, the Self-Consciousness Scale–Revised (SCS-R), and the Rational-Experiential Inventory (REI-40). Statistical analyses revealed that civility scores correlated positively with private self-consciousness ($r=0.431$, $p<0.01$), public self-consciousness ($r=0.517$, $p<0.01$), rational ability ($r=0.304$, $p<0.01$), rational engagement ($r=0.215$, $p<0.01$), and experiential ability ($r=0.330$, $p<0.01$). However, no significant correlations were observed with other psychological or demographic parameters, including income, age, or education level. Additionally, there were no significant differences in civility scores, self-consciousness, or experiential factors between males and females, even though males demonstrated higher rational ability and rational engagement scores. These findings suggest that self-consciousness, rational ability, and experiential ability are critical psychological dimensions influencing civility in the Chinese context, while traditional socioeconomic factors such as education and income appear less relevant. The results underscore the distinct cultural and psychological landscape of civility in Mainland China and contribute to the growing body of literature exploring civility within non-Western contexts, providing insights for enhancing interpersonal behaviour and communication in culturally diverse settings.

Keywords Civility, Socio-economic status, Cultural influences, Etiquette, China, Civilization, Politeness, Behaviors, Interpersonal communication, Interpersonal behavior

1 Introduction

Chinese interpersonal behaviour and communicative civility are deeply rooted in Chinese cultural traditions and have developed within a unique domestic context. These behaviours exhibit distinct characteristics that differ significantly from conventional Western perceptions of global civil societies and remain underexplored. Existing research on civility in China has primarily focused on its relationship with political engagement, with relatively little attention given to interpersonal civility. Unlike Western

frameworks, which often emphasize individualism, civility in China is shaped by personal and hierarchical relationships within a cultural framework that prioritizes collectivism and social hierarchies. This nuanced understanding includes distinctions between hyperbole and lying, allusions' influence, and the role of cursing. These elements reflect the complex interplay between traditional Confucian values and modern societal dynamics, highlighting the unique characteristics of Chinese civility in interpersonal communication [1, 2].

Interpersonal civility is popularly conceptualised as courteous, respectful behaviour in everyday social interactions, reflecting consideration and adherence to social norms. This notion aligns with Forni's emphasis on "considerate conduct," highlighting how polite actions and respectful speech foster harmonious communities. Existing literature indicates that interpersonal civility is influenced by factors such as age, sex, religion, and socioeconomic status (SES). SES encompasses formal educational attainment, occupation, household income, and material possessions [3]. While some studies have reported weak correlations between civility and income, stronger associations have been observed with education and occupation [4]. Conversely, other research highlights a significant relationship between uncivil behaviour and chronic poverty, suggesting that economic hardship may exacerbate tendencies toward incivility [5, 6].

Among socioeconomic status (SES) components, educational attainment has been identified as the most influential factor affecting civility [7]. Research suggests that individuals with higher levels of formal education tend to exhibit greater social responsibility, likely due to the role of education in equipping individuals with strategies to manage complex or contentious situations civilly and peacefully. Factors such as parental influence, employment, and social status further reinforce the impact of formal education on behaviour, fostering a sense of responsibility and the capacity to navigate interpersonal challenges with civility [8, 9].

Keyes argued that although education is a significant factor influencing civility [8], it is not definitive, as its effects can be moderated by variables such as biological sex, age, and religious participation.

Research indicates that females tend to place greater value on teamwork and collaboration, often exhibiting a more positive attitude in interpersonal interactions, which may contribute to more civil behaviours [10]. Although studies have shown comparable levels of life satisfaction between males and females, females are reported to experience negative emotions more frequently and demonstrate higher levels of social supportiveness [11].

Notably, much of the existing research on civility has been conducted from a Western cultural perspective. A universally accepted definition of civility remains elusive, largely due to the diverse cultural contexts in which it is studied [12]. In the Chinese context, researchers have emphasized the importance of considering the influence of Confucianism on traditional philosophy and social structures. Modernized over recent decades, these traditions distinguish Chinese civility from Western conventions, which dominate most studies on interpersonal civility [13].

Confucianism strongly emphasizes literacy, civilization, civil virtues, and adherence to virtues and rites [14]. Influenced by these principles, Chinese culture prioritizes displaying respect for parents, ancestors, elders, and rulers [14, 15]. Previous research

highlights that this orthodox ideology significantly shapes Chinese societal values, particularly the importance placed on personal and hierarchical relationships [12].

Recent research in Singapore, which features an ethnic Chinese majority within a highly Westernized context, examined the relationships between socioeconomic status (SES), biological sex, rational-experiential processing styles, and self-consciousness to civility [16]. The findings revealed that civility was positively associated with experientiality and age, while negatively correlated with social anxiety [16]. Notably, no significant correlation was observed between civility and public self-consciousness or SES indicators. Males in the sample had higher rationality scores than females [16].

Building upon these findings, civility in the workplace was also found to influence social anxiety and work engagement [17], where workplace incivility diminished positive mental health outcomes and negatively impacted work engagement through increased social anxiety. This suggests that civility can have a professional and economic impact.

Further examining these dynamics within Mainland China, a more culturally homogenous environment, this research seeks to adapt the civility scale employed in the prior study [16] to better align with Chinese cultural norms. In selecting these factors, we drew on theory: Self-consciousness, or one's awareness of self in social contexts, may promote civility by encouraging adherence to polite norms. Likewise, dual-process cognitive theory suggests that rational and experiential thinking styles could shape courteous behaviour, where analytical thinkers may respond more deliberately, while intuitive individuals rely on social intuition. Furthermore, demographic variables (e.g., age, sex, education) were included because socialization and cultural norms tied to these factors can influence respectful conduct. By doing so, we aim to uncover the specific factors influencing civil behaviours in the Chinese context, The hypotheses guiding this study are as follows:

Hypothesis 1 There are significant differences in civility (1a), self-consciousness (1b), and rational–experiential thinking styles (1c) between the biological sexes in the Mainland China study population.

Hypothesis 2 Socio-Economic Status (SES) factors in the form of formal education level (2a), income (2b), and age (2c) would be correlated with civility scores in the Mainland China study population.

Hypothesis 3 Self-consciousness (3a) and rational-experiential thinking styles (3b) would correlate with the study population's civility scores.

2 Materials and methods

This study employed a cross-sectional design to examine the associations among demographic factors, self-reported measures of self-consciousness, civility, and cognitive processing styles. Ethics approval for the recruitment of human participants was obtained from the Wenzhou-Kean University Human Research Ethics Committee (Approval No: WKUIRB2022-016) per the principles outlined in the Declaration of Helsinki.

2.1 Power analysis and recruitment

Using G*Power 3.1, a minimum sample size of 220 was required to detect a medium effect size at a power level of 0.95 [18]. The recruitment target was set to 600 participants to accommodate for potential dropouts or incomplete responses. Participants were recruited between December 2022 and March 2023 through convenient and snowball sampling methods as previously defined [19]. The survey, distributed in Mandarin, was administered via a shared link or QR code on WeChat, ensuring that all participants provided informed consent before proceeding. Initial recruitment began with personal and social contacts, who subsequently invited additional participants to complete the survey.

2.2 Participants

A total of 746 participants responded to the study, comprising 271 males (36.33%) and 475 females (63.67%). After excluding 73 incomplete or erroneous surveys, 673 valid responses remained for analysis, consisting of 240 males (35.66%) and 433 females (64.34%). Participants aged 18 to 81 years (M = 35.26, SD = 12.49) were all Chinese citizens. Most respondents were from Shandong and Zhejiang provinces, selected for their geographic and cultural significance. Shandong, a northern province and the birthplace of Confucianism, is renowned for its rich cultural heritage. In contrast, Zhejiang, located near Shanghai, represents the economic vibrancy of southern coastal China and has been one of the fastest-developing provinces since the reform and opening-up policy of China in 1978 [20]. These provinces were chosen for their representative significance in cultural background and modern economic development.

Data were also collected from other regions, including municipalities like Chongqing and regions such as Xinjiang to enhance the reliability of the study's conclusions. Monthly income served as an indicator of socioeconomic status (SES) within the sample, while participants' education levels and income distributions are presented in Table 1. This diverse demographic representation strengthens the study's ability to reflect the social and cultural dynamics of Mainland China.

2.3 Procedures

Participants were invited to complete the survey via a WeChat QR code or link, following an online informed consent and instructions that informed them of their right to withdraw at any time. The online form had no time limit, although the survey was estimated to take approximately 10 min. The survey comprised of three sections presented in the following sequence: (1) the civility inventory, which included 25 items adapted from "Choosing Civility: The Twenty-Five Rules of Considerate Conduct" [16, 21]; (2) the Self-Consciousness Scale–Revised (SCS-R), consisting of 22 items divided into private self-consciousness (7 items), public self-consciousness (9 items), and social anxiety (6 items) [22]; and (3) the Rational-Experiential Inventory (REI-40). Additionally, a demographic survey based on prior research [23], collected data on participants' age, sex, education level, and income. The survey was hosted on the "Wenjuanxing" platform (https://www.wjx.cn/vm/rXARKCX.aspx).

Table 1 Demographic distribution (Proportion per Subgroup) for participants by monthly income (RMB) for overall, sex, and education level

	n	<¥1000	¥1000 - ¥2000	¥2000 - ¥5000	¥5000 - ¥8000	¥8000 - ¥10,000	¥10,000 - ¥15,000	¥15,000 - ¥20,000	¥20,000 - ¥30,000	¥30,000 - ¥40,000	¥40,000 - ¥50,000	>¥50,000
N Overall	673	110 (16.34%)	46 (6.84%)	252 (37.44%)	150 (22.29%)	71 (10.55%)	21 (3.12%)	2 (0.30%)	8 (1.19%)	4 (0.59%)	2 (0.30%)	7 (1.04%)
Sex												
Male	240	38 (15.83%)	10 (4.17%)	76 (31.67%)	69 (28.75%)	31 (12.92%)	5 (2.08%)	2 (0.83%)	3 (1.25%)	1 (0.42%)	1 (0.42%)	4 (1.67%)
Female	433	72 (16.63%)	36 (8.31%)	176 (40.65%)	81 (18.71%)	40 (9.24%)	16 (3.70%)	0 (0.00%)	5 (1.15%)	3 (0.69%)	1 (0.23%)	3 (0.69%)
Education Level												
Incomplete Primary Education	3	0 (0.00%)	0 (0.00%)	1 (0.40%)	1 (0.67%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (14.29%)
Primary Education	14	2 (1.82%)	2 (4.35%)	10 (3.97%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Junior Secondary Education	115	4 (3.64%)	12 (26.09%)	69 (27.38%)	22 (14.67%)	5 (7.04%)	0 (0.00%)	0 (0.00%)	1 (12.50%)	2 (50.00%)	0 (0.00%)	0 (0.00%)
Senior Secondary Education	68	12 (10.91%)	4 (8.70%)	38 (15.08%)	10 (6.67%)	3 (4.23%)	1 (4.76%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Short-cycle Courses	95	2 (1.82%)	3 (6.52%)	43 (17.06%)	31 (20.67%)	11 (15.49%)	1 (4.76%)	0 (0.00%)	1 (12.50%)	1 (25.00%)	1 (50.00%)	1 (14.29%)
Undergraduates	351	89 (80.91%)	23 (50.00%)	85 (33.73%)	82 (54.67%)	49 (69.01%)	14 (66.67%)	0 (0.00%)	4 (50.00%)	0 (0.00%)	1 (50.00%)	4 (57.14%)
Postgraduates (Master)	23	1 (0.91%)	1 (2.17%)	6 (2.38%)	4 (2.67%)	2 (2.82%)	3 (14.29%)	2 (100.00%)	2 (50.00%)	1 (25.00%)	0 (0.00%)	1 (14.29%)
Postgraduates (Doctor)	4	0 (0.00%)	1 (2.17%)	0 (0.00%)	0 (0.00%)	1 (1.41%)	2 (9.52%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

2.4 Measures

Civility Inventory: Forni's book, "Choosing Civility: The Twenty-Five Rules of Considerate Conduct" (2002), served as the basis for the civility inventory, which was adapted in previous studies [16, 21]. The inventory comprises 25 tenets of civility, which were transformed into 25 questions and subsequently translated and modified to ensure cultural relevance to the Mainland Chinese context. Participants rated their responses on a 5-point Likert scale, ranging from 1 ('All the time') to 5 ('Definitely not'). Reliability analysis indicated that the inventory demonstrated excellent internal consistency, with a Cronbach's α of 0.96.

Self-Consciousness Scale –Revised (SCS-R): The SCS-R, developed by Scheier and Carver (1985), consists of 22 items divided into three subscales: private self-consciousness (7 items), public self-consciousness (9 items), and social anxiety (6 items). Two items, "I never take a hard look at myself" and "It's easy for me to talk to strangers," are reverse-scored. Responses are measured on a 4-point Likert scale, ranging from 0 ('Not like me at all') to 3 ('A lot like me'). The SCS-R demonstrated good reliability, with Cronbach's α coefficients of 0.85 for private self-consciousness, and 0.76 for both public self-consciousness and social anxiety. The scale's content [22] supports an alternative factor structure for private self-consciousness, differentiating it into "Rumination on the General Self" and "Monitoring of Specific Aspects of the Self." The public self-consciousness measure was retained in its original form, with one item excluded from the final structure [24].

The Rational-Experiential Inventory (REI-40). The REI-40, developed by Pacini and Epstein (1999), comprises 40 items divided into two main dimensions: rationality (20 items) and experientiality (20 items). Each dimension is further subdivided into two components: rational ability (10 items) and rational engagement (10 items) for rationality, and experiential ability (10 items) and experiential engagement (10 items) for experientiality. Half of the items in both dimensions included negative descriptions and were reverse-scored. Responses were measured on a 5-point Likert scale ranging from 1 ('All the time') to 5 ('Definitely not'). Reliability analysis revealed acceptable internal consistency for rational ability (Cronbach's $\alpha = 0.70$). However, rational engagement ($\alpha = 0.56$), experiential ability ($\alpha = 0.44$), and experiential engagement ($\alpha = 0.49$) exhibited lower reliability. Notably, removing the item "I suspect my hunches are inaccurate as often as they are accurate" improved the Cronbach's α for experiential ability by 0.11. These findings suggest cultural limitations in the applicability of the REI-40 to the Mainland Chinese context, which is further supported by the absence of prior literature validating its use in this cultural setting.

3 Results

Statistical analyses were conducted using IBM SPSS Statistics software, version 26. All tests were two-tailed, with a significance level set at $\alpha = 0.05$.

The Mann-Whitney U test was employed to evaluate Hypothesis 1, which examined differences in civility, SCS-R, and REI-40 scores between biological sexes, as the Shapiro-Wilk test indicated non-parametric distributions ($p < 0.05$). For Hypothesis 2, which assessed the correlations between education level, income, age, and civility scores in Mainland China, Spearman correlation analysis was used due to the non-parametric nature of these variables as determined by the Shapiro-Wilk test. Similarly, Spearman

correlation analysis was applied to test Hypothesis 3, investigating the relationship between SCS-R and REI-40 scores and civility scores within the sample.

3.1 Descriptive statistics

The Mann-Whitney U test revealed significant differences in education level and income between male and female participants. Males with only junior high or secondary education comprised 20.42% of the male sample, a significantly higher proportion than females at 15.24%. Similarly, males with completed secondary education or high school qualifications accounted for 14.58%, compared to 7.62% among females. Conversely, males with undergraduate education represented 45.00% of the male sample, significantly lower than the 56.12% observed among females. Regarding income, 31.67% of males reported a monthly income of ¥2000 to ¥5000, significantly lower than the 40.65% of females. However, males with a monthly income of ¥5000 to ¥8000 accounted for 28.75%, significantly higher than the 18.71% of females. Further details are provided in Table 1.

3.2 Hypothesis testing

Hypothesis 1 There are significant differences in civility, self-consciousness, and rational-experiential thinking styles between males and females in Mainland China.

The Mann-Whitney U test revealed no significant differences in civility scores between males and females, leading to the rejection of Hypothesis 1a. Similarly, the sexes had no significant differences in private or public self-consciousness. However, females exhibited significantly higher levels of social anxiety compared to males (Table 2). Regarding rational-experiential thinking styles, males scored significantly higher on rational ability ($p < 0.01$) and rational engagement ($p < 0.01$). No significant differences were observed between males and females in experiential ability or experiential engagement. Based on these findings, Hypotheses 1b (SCS-R) and 1c (REI-40) were supported due to the observed differences in social anxiety, rational ability, and rational engagement (Table 2).

Hypothesis 2 Education level, income, and age would be correlated with civility scores in Mainland China.

Spearman correlation analysis indicated no significant relationships between civility scores and education level, income, or age (Table 3). Given that education level and income typically increase with age, Spearman's partial correlation analysis was conducted to control for the influence of age. The results showed no significant correlations

Table 2 Differences in scores for civility, SCS-R, and REI-40, between male and female ($n = 673$)

	Mean Ranks		Mann-Whitney U	*p*
Dependent Variable	**Males**	**Females**		
Civility	346.30	331.85	49729.0	0.356
SCS-R				
Private Self-Consciousness	348.62	330.56	49171.0	0.247
Public Self-Consciousness	344.38	332.91	50189.0	0.462
Social Anxiety	310.59	351.64	45621.0	**0.008****
REI-40				
Rational Ability	365.17	321.38	45198.5	**0.005****
Rational Engagement	365.69	321.10	45075.0	**0.004****
Experiential Ability	352.26	328.54	48297.0	0.126
Experiential Engagement	327.40	342.32	49655.0	0.329

***$p < 0.01$

Table 3 Spearman correlation matrix across age, education level, income, and scores for civility, SCS-R, and REI-40 ($n = 673$)

Variables	Age	Education Level	Income	Civility Scores	Private Self-Consciousness	Public Self-Consciousness	Social Anxiety	Rational Ability	Rational Engagement	Experiential Ability
Age										
Education Level	**-0.293****									
Income	**0.558****	**0.083***								
Civility Scores	-0.023	0.070	0.034							
Private Self-Consciousness	**-0.125****	0.003	-0.054	**0.431****						
Public Self-Consciousness	**-0.267****	**0.154****	**-0.116****	**0.517****	**0.672****					
Social Anxiety	**-0.224****	0.047	**-0.158****	0.051	**0.477****	**0.313****				
Rational Ability	-0.030	**0.159****	0.030	**0.304****	0.056	**0.281****	**-0.212****			
Rational Engagement	**-0.132****	**0.164****	-0.066	**0.215****	0.022	**0.240****	**-0.151****	**0.624****		
Experiential Ability	-0.007	0.067	0.036	**0.330****	**0.210****	**0.232****	-0.017	**0.112****	0.042	
Experiential Engagement	-0.071	-0.032	-0.033	-0.067	**0.094***	0.054	**0.113****	**-0.136****	**-0.148****	**0.346****

$^{*}p < 0.05$. $^{**}p < 0.01$

between civility scores and either education level or income. However, after controlling for age, the correlation between education level and income increased from 0.083 to 0.310 (Table 4). Based on these findings, Hypotheses 2a, 2b, and 2c were rejected.

Hypothesis 3 Self-consciousness and rational-experiential thinking styles would correlate with Mainland China's civility scores.

To test hypothesis 3, Spearman correlation analysis revealed significant positive correlations between civility scores and private self-consciousness ($r = 0.431$, $p < 0.01$) as well as public self-consciousness ($r = 0.517$, $p < 0.01$). Regarding the REI-40, no significant correlation was observed between civility scores and experiential engagement. However, civility scores were significantly positively correlated with rational ability ($r = 0.304$, $p < 0.01$), rational engagement ($r = 0.215$, $p < 0.01$), and experiential ability ($r = 0.330$, $p < 0.01$). Based on these findings, hypotheses 3a and 3b were supported (Table 3).

3.3 Correlation analyses

Among the 673 valid participants, a significant negative correlation was observed between age and education level (r = -0.293, $p < 0.01$). In relation to the SCS-R and REI-40 scores, age was negatively correlated with private self-consciousness (r = -0.125, $p < 0.01$), public self-consciousness (r = -0.267, $p < 0.01$), social anxiety (r = -0.224, $p < 0.001$), and rational engagement (r = -0.132, $p < 0.01$). Conversely, education level demonstrated positive correlations with income ($r = 0.083$, $p < 0.05$), public self-consciousness ($r = 0.154$, $p < 0.01$), rational ability ($r = 0.159$, $p < 0.01$), and rational engagement ($r = 0.164$, $p < 0.01$). Additionally, income was negatively correlated with public self-consciousness (r = -0.116, $p < 0.01$) and social anxiety (r = -0.158, $p < 0.01$).

4 Discussion

This study investigated factors influencing civility among Chinese individuals from Mainland China, focusing on demographic and psychological variables. The findings revealed that civility scores were significantly associated with self-consciousness, rational ability, rational engagement, and experiential ability. However, no significant associations were observed with traditionally assumed factors such as education level, age, income, or experiential engagement. An exploratory factor analysis was initially conducted, but the extraction values for the demographic parameters were all below 0.3, and thus the factor analysis was discarded. However, this reflected the overall results here where the demographic factors were not associated with civility.

These results were in stark contrast to a previous study using the same civility inventory conducted in Singapore [16], where most participants (~70%) were ethnic Chinese exposed to a more Westernized education system. In the current study, males demonstrated higher rationality scores, aligning with findings from earlier research [25–27]. However, no significant differences in civility scores were found between males and females, suggesting that neither rationality nor biological sex serves as a determinant of civility in the Mainland China context. Thus hypothesis 1a is rejected.

The findings may reflect broader societal changes, such as the impact of the one-child policy introduced in 1979, which increased educational opportunities and improved biological sex equality in subsequent generations [28]. Despite this progress, females in the sample exhibited higher levels of social anxiety, consistent with prior research by

Table 4 Spearman partial correlation matrix across civility scores, education level, and income ($n = 673$)

	Civility Scores	Education Level	Income
Civility Scores			
Education Level	0.66		
Income	0.57	**0.31****	

*$p < 0.05$. **$p < 0.01$

Bahrami and Yousefi [29]. This may partly be attributed to the timing of the study that was still under COVID-19 restrictions in Mainland China, a period marked by heightened stress and anxiety, particularly among women [30].

The findings of this study diverged from the Singapore study, where females demonstrated higher levels of self-awareness [16]. This difference may be attributed to the relatively equal attention given to males and females during upbringing under the one-child policy in China, compared to possible differing upbringing practices in Singapore.

In our Mainland China sample, SES factors: education levels, income, and age did not significantly influence civility scores. This contrasts sharply with studies suggesting higher education levels are associated with greater civility [31]. However, these results align with the Singapore study, which found no biological sex effects on civility [16]. The Singapore study attributed this lack of difference to implementing mandatory moral and social education. Similarly, it is notable that Mainland China introduced a nationwide policy of moral education in the 1980s [32], which has been incorporated into the curriculum for all students, potentially contributing to the findings observed in this study. In this study, we did not collect occupation data used frequently in SES analysis, as unemployment would be high or transient during COVID-19 restrictions and confound the analysis [33].

Hypothesis 3 was supported, as SCS-R and REI-40 scores showed significant positive correlations with civility scores. This finding contrasts with the Singapore study [16], where such correlations were less evident, potentially due to the greater emphasis on external image and performance in social contexts. In Mainland China, this attention to social etiquette and behaviour may foster more deliberate efforts to ensure proper interpersonal interactions and civility. Beyond Singapore, other Asian societies also offer context for our findings. For instance, Japanese culture's emphasis on politeness and Korean norms of harmonious interaction suggest that correlatation with civility scores may similarly involve self-regulation and respect for elder. While systematic studies are scarce, our results likely resonate with these cultural values, and cross-country comparisons (e.g., with Japan or Korea) could further illuminate shared vs. unique predictors of civility in Asia.

Although not directly addressed in the hypotheses, additional insights emerged from the study. The younger generation in China displayed higher average education levels than older generations, reflecting the effects of rapid modernization. Following the compulsory education law in 1986 [34], Mainland China developed the world's largest higher education system. Notable milestones include a substantial increase of 337,000 university enrollments in 1999 and a gross higher education enrollment rate of 51.6% by 2019 [35] before the onset of the COVID-19 pandemic. Moreover, rural local governments received significant support to enhance educational access and opportunities [36], further contributing to these trends.

The correlations observed between age and higher levels of private self-consciousness, public self-consciousness, social anxiety, and rational engagement in SCS-R and REI-40 may reflect the upbringing environment of Generation Z in China. Thus, this generation has been suggested to prioritize materialistic concerns over community and social issues, often exhibiting decreased levels of compassion and civic engagement [37].

Our findings indicate that demographic factors had minimal impact on civility, whereas psychological traits played a more pronounced role. Neither age nor education level showed a significant correlation with civility, and no male–female differences in civility emerged. In contrast, higher self-consciousness and stronger rational/experiential thinking abilities were clearly associated with more civil behavior. This suggests that interpersonal civility in Mainland China is driven more by individual psychological dispositions (self-awareness and cognitive style) than by one's demographic background. Despite no significant relationship found between income and civility scores in this study, participants with lower incomes demonstrated higher levels of social anxiety, as expected. This anxiety may stem from concerns about their position within the social hierarchy, exacerbated by intense competition for status [38, 39] and the psychological impact of income inequality [40, 41]. Such conditions are consistent with findings linking income inequality to elevated anxiety levels [42], and that social anxiety increased incivility [43].

When controlling for age, the positive correlation between income and education level highlights the role of education in shaping outcomes within the labour market [44].

4.1 Limitations

This study has several notable limitations. Although the sample size exceeded the minimum required by G*Power calculations and provided valuable insights into factors influencing civility, it does not represent Mainland China's vast population of over 1.3 billion or its geographically diverse regions. Cultural and behavioural variations across provinces, cities, and districts may have influenced the findings. The sample primarily included participants from Shandong and Zhejiang provinces, representing regions with distinct external cultural forces shaping ideologies related to civility and education.

Additionally, the survey-based data collection method introduces potential biases. Participants with higher levels of education or civility may be more likely to engage in the study, contributing to a sampling bias. Furthermore, responses are subject to self-reporting bias, as participants may have portrayed an idealized version of themselves rather than their authentic behaviours. These limitations restrict the generalizability of the findings to the broader population of Mainland China.

Future research should address these limitations by implementing larger-scale sampling across multiple cities and provinces and utilize observation of others to represent the population and its diverse cultural contexts comprehensively.

5 Conclusion

This study focused on identifying factors that contribute to civility in Mainland China. Using a cross-sectional design, we found that enhancing residents' self-consciousness, rational ability, rational engagement, and experiential ability at the individual level significantly improves interpersonal behaviour and communicative civility. However, placing excessive emphasis on education and income appeared to have a limited impact, at

least within the context of our sample. These findings are particularly relevant to stakeholders interested in promoting civility, including policymakers, educators, and psychologists, particularly within Mainland China and the broader Asian context.

Acknowledgements
ChatGPT 4.0 was used to improve the readability and clarity of the article.

Author contributions
S.G: Conceptualization, Project administration, Supervision, Writing – original draft, Writing – review & editing. S.G, L.L, A.T: Data curation, Formal Analysis, Validation, Writing – review & editing. L.L, S.Z, W, H.Y: Writing – review & editing, S.G, A.T.

Funding
This research was financially supported by Wenzhou-Kean University High Level Talent Program (No. WB20220901000091) and the Zhejiang Province Fourteenth Five-Year Plan" Education Reform Project ".

Data availability
All data is provided within the manuscript.

Declarations

Ethics approval and consent to participate
All procedures were carried out per the relevant guidelines and regulations. All research protocols were approved by the Wenzhou-Kean University Human Research Ethics Committee (No: WKUIRB2022-016) per the Declaration of Helsinki with informed consent.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 11 April 2025 / Accepted: 13 August 2025
Published online: 17 August 2025

References

1. Hasmath R, Hsu JYJ. Rethinking global civil society in an era of a rising China. China Rev. 2021;21:221–46. https://www.jstor.org/stable/48618342.
2. Walter AS. Political incivility in the parliamentary, electoral and media arena: crossing boundaries. New York: Routledge; 2021.
3. Avvisati F. The measure of socio-economic status in PISA: A review and some suggested improvements. Large Scale Assess Educ. 2020;8:1–37. https://doi.org/10.1186/s40536-020-00086-x.
4. Ferriss AL. Studying and measuring civility: A framework, trends and scale. Sociol Inq. 2002;72:376–92. https://doi.org/10.1111/1475-682X.t01-1-00023.
5. Baum A, Garofalo J, Yali AM. Socioeconomic status and chronic stress: does stress account for SES effects on health. Ann NY Acad Sci. 1999;896:131–44. https://doi.org/10.1111/j.1749-6632.1999.tb08111.x.
6. Brady HE, Verba S, Schlozman KL, Beyond SES. A resource model of political participation. Am Polit Sci Rev. 1995;89:271–94. https://doi.org/10.2307/2082425.
7. Herrnstein RJ, Murray C. The bell curve: intelligence and class structure in American life. New York: Simon and Schuster; 2010.
8. Keyes CL. Social civility in the united States. Sociol Inq. 2002;72:393–408. https://doi.org/10.1111/1475-682X.00024.
9. Queen JA. Student transitions from middle to high school: improving achievement and creating a safer environment. Larchmont, NY: Eye On Education; 2002.
10. Apaydin EA, Rose DE, Yano EM, Shekelle PG, Stockdale SE, Mohr DC. Gender differences in the relationship between workplace civility and burnout among VA primary care providers. J Gen Intern Med. 2022;37:632–6. https://doi.org/10.1007/s11606-021-06818-1.
11. Chen X, Cai Z, He J, Fan X. Gender differences in life satisfaction among children and adolescents: A meta-analysis. J Happiness Stud. 2020;21:2279–307. https://doi.org/10.1007/s10902-019-00169-9.
12. Flores M, Nair M, Rasmussen M, Sydnor E. Civility through the comparative lens: challenges and achievements. In: Walter AS, editor. Political incivility in the parliamentary, electoral and media arena. London: Routledge; 2021. pp. 19–34.
13. Li M. Confucian revival from both Chinese and western, ancient and modern perspectives: observations and reflections on Post-Millennium research into confucianism. Int Confucian Stud. 2022;1:145–61. https://doi.org/10.1515/icos-2022-2008.
14. De Bary WT. Nobility and civility: Asian ideals of leadership and the common good. Cambridge: Harvard University Press; 2004.
15. Ala'I P, Beshkardana K. The limits of transparency: china, the united States and the world trade organization. In: Berger S, Fengler S, Owetschkin D, Sittmann J, editors. Cultures of transparency. London: Routledge; 2010. p. 19.
16. Cheok TS, Quek YS, Choo BJK, Gan SKE. What makes one civil? The associations between civility scores, gender, rational-experiential processing styles, self-consciousness and socioeconomic factors in Singapore. Soc Arxiv. 2020;24. https://doi.org/10.31235/osf.io/5jcx2.

17. Gan SK-E, Zeng Y, Wang Z. Social anxiety mediates workplace incivility and work engagement. Front Psychol. 2023;14:1320703. https://doi.org/10.3389/fpsyg.2023.1320703.
18. Erdfelder E, Faul F, Buchner A, GPOWER. A general power analysis program. Behav Res Methods Instr Comput. 1996;28:1–11. https://doi.org/10.3758/bf03203630.
19. Nikolopoulou K. What Is Snowball Sampling? | Definition & Examples. 2022. Available online:https://www.scribbr.com/methodology/snowball-sampling/#:~:text=Snowball%20sampling%20 begins%20with%20a (accessed on 5 October 2023).
20. Ye X, Wei YD. Geospatial analysis of regional development in china: the case of Zhejiang Province and the Wenzhou model. Eurasian Geogr Econ. 2005;46:445–64. https://doi.org/10.2747/1538-7216.46.6.445.
21. Forni PM. Choosing civility: the twenty-five rules of considerate conduct. St. Martin's Griffin: New York; 2002.
22. Scheier MF, Carver CS. The Self-Consciousness scale: A revised version for use with general populations 1. J Appl Soc Psychol. 1985;15:687–99. https://doi.org/10.1111/j.1559-1816.1985.tb02268.x.
23. Gan S, Loh C, Seet B. Hypertension in young adults- an under-estimated problem. Singap Med J. 2003;44:448–52.
24. Martin AJ, Debus RL. Alternative factor structure for the revised self-consciousness scale. J Person Assess. 1999;72:266–81. https://doi.org/10.1207/S15327752JP720211.
25. Epstein S, Pacini R, Denes-Raj V, Heier H. Individual differences in intuitive-experiential and analytical-rational thinking styles. J Pers Soc Psychol. 1996;71:390. https://doi.org/10.1037/0022-3514.71.2.390.
26. Epstein S. Cognitive-experiential self-theory of personality. In *Comprehensive Handbook of Psychology*; Schinka, J.A., Ed.; John Wiley & Sons: Hoboken, NJ, 2003; pp. 159–184.
27. Sladek RM, Bond MJ, Phillips PA. Age and gender differences in rational and experiential thinking preferences. Pers Indiv Differ. 2010;49:907–11. https://doi.org/10.1016/j.paid.2010.07.028.
28. Lee MH. The one-child policy and gender equality in education in china: evidence from household data. J Fam Econ Issues. 2012;33:41–52. https://doi.org/10.1007/s10834-011-9277-9.
29. Bahrami F, Yousefi N. Females are more anxious than males: a metacognitive perspective. Iran J Psychiatry Behav Sci. 2011;5:83–90. https://pubmed.ncbi.nlm.nih.gov/24644451/.
30. Hou F, Bi F, Jiao R, Luo D, Song K. Gender differences of depression and anxiety among social media users during the COVID-19 outbreak in china: a cross-sectional study. BMC Public Health. 2020;20:1–11. https://doi.org/10.1186/s12889-020-09738-7.
31. Levine P. Teaching and learning civility. New Direct High Educ. 2010;2010:11–7. https://doi.org/10.1002/he.407.
32. Cheung KW, Pan S. Transition of moral education in china: towards regulated individualism. Citiz Teach Learn. 2006;2:37–50.
33. Kang JK, Jiao P-D, Tay J-H, Gan SK-E. The relationship between perceived workplace bureaucracies, Self-Efficacy and job motivation over the COVID-19 pandemic. SAGE Open. 2024;14(4). https://doi.org/10.1177/21582440241293505.
34. Fang H, Eggleston KN, Rizzo JA, Rozelle S, Zeckhauser RJ. The returns to education in china: evidence from the 1986 compulsory education law. National Bureau of Economic Research; 2012.
35. Xiong W, Yang J, Shen W. Higher education reform in china: A comprehensive review of policymaking, implementation, and outcomes since 1978. China Econ Rev. 2022;72:101752. https://doi.org/10.1016/j.chieco.2022.101752.
36. Yue A, Tang B, Shi Y, Tang J, Shang G, Medina A, Rozelle S. Rural education across china's 40 years of reform: past successes and future challenges. China Agric Econ Rev. 2018;10:93–118. https://doi.org/10.1108/CAER-11-2017-0222.
37. Twenge JM. The evidence for generation me and against generation we. Emerg Adulth. 2013;1:11–6. https://doi.org/10.1177/2167696812466548.
38. Paskov M, Gërxhani K, Van De Werfhorst HG. Income inequality and status anxiety. Grow Ineq Impacts. 2013;90:1–46.
39. Wilkins K, Caldarella P, Crook-Lyon R, Young KR. Implications of civility for children and adolescents: A review of the literature. Online Subm. 2010;33:37–45. https://doi.org/10.1074/jbc.M509381200.
40. Wilkinson RG, Pickett KE. Income inequality and population health: a review and explanation of the evidence. Soc Sci Med. 2006;62:1768–84. https://doi.org/10.1016/j.socscimed.2005.08.036.
41. Layte R, Whelan CT. Who feels inferior? A test of the status anxiety hypothesis of social inequalities in health. Eur Sociol Rev. 2014;30:525–35. https://doi.org/10.1093/esr/jcu057.
42. Zhou Y, Song L. Income inequality in china: causes and policy responses. China Econ J. 2016;9:186–208. https://doi.org/10.1080/17538963.2016.1168203.
43. Gan SK-E, Zeng Y, Wang Z. Social anxiety mediates workplace incivility and work engagement. Front Psychol. 2024;14:1–7. https://doi.org/10.3389/fpsyg.2023.1320703.
44. Orazem P, Glewwe P, Patrinos H. The benefits and costs of alternative strategies to improve educational outcomes. *Department of Economics Working Paper* 2007, *7028*.

Publisher's note