Chinese culture became more individualistic: Evidence from family structure, 1953-2017 [version 3; peer review: 2 approved]

Yuji Ogihara

1Faculty of Science Division II, Tokyo University of Science, Tokyo, 162-8601, Japan
2Department of Psychology, University of California, Los Angeles, Los Angeles, 90095-1563, USA
3Department of Cognitive Psychology in Education, Graduate School of Education, Kyoto University, Kyoto, 606-8501, Japan

Abstract

Previous research has indicated that some aspects of Chinese culture became more individualistic. However, prior studies have suggested a decrease in individualism in other aspects of China. Thus, it was unclear whether China became more individualistic. Therefore, the current research investigated whether Chinese culture became more individualistic by examining historical changes in family structure. Specifically, I analyzed temporal shifts in the divorce rate and household size, which have been confirmed as valid representative indicators of individualism. Results showed that the divorce rate increased between 1978 and 2017 and household size decreased between 1953 and 2017, indicating a rise in individualism. Moreover, analyses suggested that the one-child policy was unlikely the sole and major factor in the decrease in household size. Additionally, the aggregated score of divorce rate and household size demonstrated a clear increase in individualism. Therefore, the present research provided further evidence of the rise in individualism in China.

Keywords

individualism, family, cultural change, China, temporal change, divorce, household, family structure
Introduction
Increase in individualism in China
Previous research has indicated that Chinese culture has become more individualistic over time. Taras, Steel, and Kirkman (2012) conducted a meta-analysis of studies that used Hofstede (1980)’s cultural framework (four dimensions; individualism, power distance, masculinity, uncertainty avoidance). In this research, they found that individuals in China came to hold more individualistic values from the 1980s to the 2000s, which shows that Chinese culture became more individualistic at the individual level.

Not only at the individual level, but also at the cultural (group) level, Chinese culture has changed toward greater individualism. A previous study examined historical changes in individualism-collectivism in China between 1950 and 2008 (Hamamura and Xu, 2015). It analyzed changes in the frequency of first-person singular/plural pronouns used in Chinese published books over the period by utilizing a database of millions of books published in various languages (Google Books Ngram). It found that the rate of first-person singular pronouns increased and the rate of first-person plural pronouns decreased. These results suggest an increase in individualism in China (also see, Yu et al., 2016). Moreover, Zeng and Greenfield (2015) have indicated that the prevalence of words that were considered to reflect individualistic values/behaviors (e.g., “autonomy”, “choose”) increased in Chinese books published between 1970 and 2008, reflecting a shift toward greater individualism in Chinese culture.

Not only values but also behaviors may have become more individualistic. It has been claimed that unique names increased in China between 1950 and 2009, suggesting a rise in the need for uniqueness and individualism (Cai, Zou, Feng, Liu, & Jing, 2018; Bao, Cai, Jing, & Wang, 2021; but also see, Ogihara, 2020b).

Decrease in individualism in China
In contrast, regarding values, some studies have indicated that Chinese culture has become less individualistic. It has been reported that individuals in China came to hold less individualistic values between 1990 and 2007 (Santos, Varnum, & Grossmann, 2017). This study demonstrates that at the individual level, China has shifted toward a less individualistic culture.1

Further, Zeng and Greenfield (2015) found that, contrary to their hypothesis, the prevalence of the two words (“obliged” and “give”; out of eight words examined) that were considered to reflect collectivistic values/behaviors increased in usage in Chinese books published between 1970 and 2008. This result may show that China became less individualistic at the cultural level.2

Current research
Thus, it is unclear whether Chinese culture has become more individualistic. Particularly, there have been only two studies examining changes in the behavioral aspect in China (naming; Bao et al., 2021; Cai et al., 2018). Thus, it is important to examine cultural changes in China by using other behavioral measurements. Therefore, the current research investigated cultural changes in China using two other behavioral indicators of individualism that have already been validated but have not been used to examine cultural changes in China: divorce rates and household size.

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1 Although this study described global trends of temporal changes in individualism, it has some limitations. For example, the authors aggregated three items from the World Values Survey to examine temporal shifts in individualistic values, but the inter-item correlations were not high (.11 < rs < .24; ordinal-level Kendall’s τ), possibly implying that the validity of these items may be low. Moreover, as the authors already noted in their article, the data points for China were only four (1990, 1995, 2001, and 2007), and they covered a relatively short period of time (17 years). This limited number of data points might have led to a failure to detect actual historical changes in individualistic values in China. These limitations may be related to the inconsistency of the findings. Indeed, their study showed that most (39 out of 53) of the countries they examined indicated a substantial increase in individualistic values, whereas only five countries (China, Armenia, Croatia, Ukraine, and Uruguay) exhibited a nonnegligible decrease in individualistic values.

2 However, these words increased in frequency only slightly. As the authors emphasized in their article, the contrasting individualistic words (“choose” and “get”) that were analyzed increased more remarkably (for the details of their interpretation, see Zeng and Greenfield, 2015).
Divorce rates and household size are behavioral measurements reflecting individualistic tendencies. In individualistic cultures, family structure tends to be freer and looser compared to that in collectivistic cultures (e.g., Georgas et al., 2001; Triandis, 1995). This leads people to live separately and independently of other family members, contributing to higher divorce rates and smaller households.

Indeed, divorce rates and household size are correlated with the indices of individualism developed by Hofstede (1980) and Triandis in the predicted direction at the national level (e.g., Diener, Diener, & Diener, 1995; Hamamura, 2012; Lester, 1995; Toth & Kemmelmeier, 2009). Moreover, prior research has shown that both indicators are associated with variables whose relations to individualism have been conceptually and empirically confirmed, such as pronoun drop (Kashima & Kashima, 1998) and pathogen prevalence (Murray & Schaller, 2010) at the national level (e.g., Hamamura, 2012). Thus, divorce rates and household size have been frequently used as indices of individualism (e.g., Diener et al., 1995; Grossman & Varnum, 2015; Hamamura, 2012; Ogihara, 2018b, 2020a; Vandello & Cohen, 1999).

**Methods**

**Indicators**

As the measure of divorce rates, the divorce-to-marriage ratio was used. Data covered the period between 1978 and 2017 and came from the National Bureau of Statistics of China (2018). Data on household sizes covered the period between 1953 and 2017 and were drawn from the National Bureau of Statistics of China (2018).

**Aggregated score**

Although divorce rates and household size have been confirmed as valid indicators of individualism, each indicator may be simultaneously influenced by factors other than individualism. For instance, celebrity divorces may impact divorce rates. By aggregating the two indicators, the random errors of each indicator cancel each other out, successfully reducing the influence of these random errors. Thus, an aggregated score was calculated by averaging the divorce rate (z-transformed) and household size (z-transformed and reversed). This strategy of analysis has been frequently used in prior research (e.g., Diener et al., 1995; Grossmann & Varnum, 2015; Hamamura & Xu, 2015; Ogihara, 2018b, 2020a; Santos et al., 2017; Yu et al., 2016; Vandello & Cohen, 1999).

**Results**

Simple Pearson’s and Kendall’s correlation coefficients among each indicator are shown in Table 1.

**Divorce rate**

Figure 1 shows historical shifts in the divorce rate between 1978 and 2017 in China. The divorce rate significantly rose over the last 40 years. In 1978, 4.8 out of 100 couples divorced, but in 2017, 41.1 out of 100 couples experienced a divorce. The correlation between the year and the divorce rate was strongly positive (Table 1), suggesting an increase in individualism.

<table>
<thead>
<tr>
<th>Year</th>
<th>Divorce rate</th>
<th>Household size</th>
<th>Aggregated score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>—</td>
<td>.94</td>
<td>-.90</td>
</tr>
<tr>
<td>Divorce rate (N = 40; 1978-2017)</td>
<td>.95</td>
<td>—</td>
<td>-.85</td>
</tr>
<tr>
<td>Household size (N = 33; 1953-2017)</td>
<td>-.86</td>
<td>-.85</td>
<td>—</td>
</tr>
<tr>
<td>Aggregated score (N = 31; 1978-2017)</td>
<td>.94</td>
<td>.96</td>
<td>-.89</td>
</tr>
</tbody>
</table>

**Note.** Scores in the upper half indicate Pearson’s correlation coefficients, while those in the lower half represent Kendall’s correlation coefficients. Both results were consistent with each other. The aggregated score was calculated by averaging the divorce rate (z-transformed) and household size (z-transformed and reversed).

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3 Although the validities of the two indicators have been confirmed at the national level, it is desirable to check the validities at the area (e.g., provincial) level in China.

4 In some studies, other socio-demographic variables were used as indicators representing individualism such as percentage of self-employed people (e.g., Vandello & Cohen, 1999) and the ratio of single-child families relative to multi-child families (e.g., Grossmann & Varnum, 2015). Although their conceptual associations with individualism are understandable, their empirical relations with individualism are not sufficiently clear so far. Thus, in this research, divorce rates and household sizes, which have already been empirically confirmed to be valid indicators of individualism (e.g., Hamamura, 2012; Grossmann & Varnum, 2015), were used.
Household size

Figure 2 indicates temporal shifts in household size between 1953 and 2017 in China. Household size declined over the past 60 years. In 1953, the average household consisted of 4.3 people, but in 2017 the average was 3.1 people. The correlation between year and household size was highly negative (Table 1), which indicates a rise in individualism.

The one-child policy and household size. One might expect that the decrease in the average household size was caused solely by the one-child policy and may thus not reflect an increase in individualism. China’s one-child policy, which was introduced in 1980 and ended in 2015, penalized parents for having more than one child. This policy may have decreased the birth rate, in turn decreasing the average household size.

However, it is difficult to assert that the decrease in the average household size was caused solely by the one-child policy for three reasons. First, it is not necessarily correct that the one-child policy continued to decrease the birth rate (Whyte, Feng, & Cai, 2015). Indeed, after the one-child policy was introduced in 1980, the fertility rate did not continue to decrease (Figure 3A). Contrary to a common myth, even after the implementation of the one-child policy, the fertility rate increased between 1983 and 1986, and between 2000 and 2017. For more than half period of time (22 years; 1983-1986, 2000-2017) when the one-child policy was introduced (36 years; 1980-2015), the fertility rate did not decrease.

Second, it is not always correct that decreases in birth rate lead to decreases in household size. Indeed, for these periods when the fertility rate increased (1983-1986, 2000-2017), the household size continued to decrease. Moreover, the fertility rate remarkably decreased before, rather than after, the one-child policy was adopted in 1980 (Figure 3B). In 1960, approximately six babies were born to one woman, whereas in 1979 approximately three babies were born to one

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**Figure 1. Divorce rate in China, 1978-2017.**

**Figure 2. Average household size in China, 1953-2017.**
woman. Even during this period when the fertility rate remarkably decreased, the average household size did not seem to decrease.

Third, even after the one-child policy ended in 2015, the average household size continued to decrease. If the one-child policy had a strong influence on household size, after the policy ended, household size should have increased (but it decreased).

Thus, although the one-child policy may have contributed to the decrease in household size to some extent, its effect was not large. Therefore, the one-child policy was unlikely to be the sole and major factor in this decrease in the average household size.

**Aggregated score**
The aggregated score of divorce rate and household size showed a clearer and more consistent pattern of increased individualism than each indicator (Figure 4). The correlation between the year and the aggregated score was strongly positive (Table 1), suggesting an increase in individualism.

**Crude divorce rate**
When the crude divorce rate (rate per 1,000 persons in general, not limited to married people) was used instead of divorce-to-marriage ratio, the results were unchanged (Table 2; Figure 5; Figure 6). The Pearson’s and Kendall’s correlation coefficients between crude divorce rate and divorce-to-marriage ratio were .95 and .92, respectively.
Figure 4. Aggregated score of individualism in China, 1978-2017.
Note. The aggregated score was calculated by averaging the divorce rate (z-transformed) and household size (z-transformed and reversed).

Table 2. Simple Pearson’s and Kendall’s correlation coefficients among year and indicators of individualism (crude divorce rate).

<table>
<thead>
<tr>
<th>Year</th>
<th>Year</th>
<th>Crude divorce rate</th>
<th>Household size</th>
<th>Aggregated score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude divorce rate (N = 40; 1978-2017)</td>
<td>—</td>
<td>.93</td>
<td>-.90</td>
<td>.99</td>
</tr>
<tr>
<td>Household size (N = 33; 1953-2017)</td>
<td>.97</td>
<td>—</td>
<td>-.83</td>
<td>.96</td>
</tr>
<tr>
<td>Aggregated score (N = 31; 1978-2017)</td>
<td>-.86</td>
<td>-.84</td>
<td>—</td>
<td>-.95</td>
</tr>
</tbody>
</table>

Note. Scores in the upper half indicate Pearson’s correlation coefficients, while those in the lower half represent Kendall’s correlation coefficients. Both results were consistent with each other. The aggregated score was calculated by averaging the crude divorce rate (z-transformed) and household size (z-transformed and reversed).

Figure 5. Crude divorce rate in China, 1978-2017.
The current research showed that Chinese culture became more individualistic over the past 60 years by using behavioral indicators that had not been sufficiently examined. Past research showed the rise in individualism in China (Bao et al., 2021; Cai et al., 2018; Hamamura & Xu, 2015; Taras et al., 2012; Yu et al., 2016; Zeng & Greenfield, 2015). However, some studies indicated the fall of individualism in China (Santos et al., 2017; Zeng & Greenfield, 2015). Thus, it remained unclear whether Chinese culture became more individualistic. Particularly, it was unclear whether China shifted toward greater individualism in the behavioral aspect. The present research investigated temporal changes in the two behavioral indicators (divorce rate and household size), which have been used to examine cultural changes in other countries (e.g., Hamamura, 2012; Grossmann & Varnum, 2015; Ogihara, 2018b, 2020a).

Results showed that the divorce rate increased dramatically between 1978 and 2017, and that household size steadily shrank between 1953 and 2017, suggesting an increase in individualism in China. Further, analyses indicated that the one-child policy was not the major factor of the decrease in household size. Many factors could explain this decrease in household size (e.g., an increase in people living alone, a decrease in households with multiple generations). Moreover, the aggregated score of divorce rate and household size demonstrated a clearer pattern of the increase in individualism than each indicator. Therefore, this research contributes to the accumulation of the literature demonstrating the rise in individualism in China by using different behavioral indicators of individualism.

**Similar phenomena in Japan**

It is more likely that these mixed changes are found in historically collectivistic cultures that are becoming more individualistic. Indeed, such changes were also found in Japan, another country in East Asia (for a review, see Ogihara, 2017, 2018a).

On the one hand, people in Japan came to live more independently from other family members (Hamamura, 2012; Ogihara, 2018b), increasingly gave more unique names to their babies (Ogihara, 2015, 2021a, 2021b; Ogihara et al., 2015), and came to hold more individualistic values (Hamamura, 2012; Taras et al., 2012), indicating an increase in individualism. On the other hand, a decrease in and non-change of individualistic values have been reported (Hamamura, 2012).

It is suggested that these mixed changes may be related to difficulties in adapting to a new environment (e.g., Ogihara, 2016; Ogihara & Uchida, 2014; Ogihara et al., 2014, 2016). Still, it is difficult to say that there is a sufficient amount of research on how cultures change and how people adapt to such cultural changes in East Asia. Therefore, it is important to investigate historical changes in these cultures in more detail.

**Limitations and future directions**

The current research used family structure (divorce rate and household size) as representative indicators of individualism. Nevertheless, it is still unclear whether other aspects of individualism show the same trend. To examine cultural changes in China, it is necessary to investigate various aspects of cultural changes by analyzing different indicators from a broad set of perspectives.

Although the present research demonstrated that Chinese culture became more individualistic, it is not clear why this change arose. There are many possible factors to cause this change (e.g., economic wealth, social mobility, subsistence styles, ecological/societal threats, and urbanization). Future studies should answer this question.
Data availability
Data used in this study are available from the National Bureau of Statistics of China (2018) website (http://www.stats.gov.cn/english/).

Acknowledgement
I thank Muwei Chen and Yuyan Chen for their assistance in data collection. I appreciate Pamela Taylor for her helpful comments on earlier versions of the manuscript.

References


Open Peer Review

Current Peer Review Status:  

Version 3

Reviewer Report 21 June 2023

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Eunsoo Choi
School of Psychology, Korea University, Seoul, South Korea

The author has addressed all my comments.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 09 May 2023

https://doi.org/10.5256/f1000research.146975.r158977

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Eunsoo Choi

1 School of Psychology, Korea University, Seoul, South Korea
2 School of Psychology, Korea University, Seoul, South Korea

The present research looked at the changes in divorce rates and household size in China as indices measuring individualistic behaviors. The results showed that aggregated score of combining divorce rates and household size steadily increased over the past 40 years in China, indicating that the individualism increased in this culture.
This research demonstrates the changes in these two indices that are known to be related with individualism of the society.

There are a couple of minor comments on this brief report:
- Table 1 is missing which parts (above and below) of the diagonal are about Pearson’s correlation and Kendall’s correlation coefficients.
- As a more comprehensive test, the crude divorce rate is used in addition to the divorce-to-marriage ratio. Please clarify how crude divorce rate is calculated. Are they the ratio of individuals who got divorced amongst 1,000 married people or people in general?
- As this study is looking at social structural change in China, which I agree is intricately related with the cultural values of the members of the society, it would be important not to overgeneralize the finding to changes in individualism. It is possible that there is a mismatch between individuals’ cultural values and societal structure (household size, in particular), therefore, it should be clearly noted that the cultural values systems of individuals may not have caught up with the changes in the social system as indicated by the increased divorced rates & decreased household size.
- The author argues that the reason why the one-child policy might not have driven the decrease in household size is due to the disconnect between the policy and birthrate. Then, additional explanation for why the household size decreased may render insight into the changes in culture in China. Is the decreased household size due to decreased households living with grandparents or an increase in one-person household? Some interpretation of this may be helpful.

Is the work clearly and accurately presented and does it cite the current literature?  
Yes

Is the study design appropriate and is the work technically sound?  
Yes

Are sufficient details of methods and analysis provided to allow replication by others?  
Partly

If applicable, is the statistical analysis and its interpretation appropriate?  
I cannot comment. A qualified statistician is required.

Are all the source data underlying the results available to ensure full reproducibility?  
Yes

Are the conclusions drawn adequately supported by the results?  
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Emotion, well-being, culture
I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Yuji Ogihara

May 20th, 2023

Dear Dr. Eunsoo Choi,

Thank you very much for reviewing my manuscript and providing valuable comments. I have modified the manuscript according to your comments. I offer my responses to each comment below.

I have copied and pasted all of your comments without making changes.

*The present research looked at the changes in divorce rates and household size in China as indices measuring individualistic behaviors. The results showed that aggregated score of combining divorce rates and household size steadily increased over the past 40 years in China, indicating that the individualism increased in this culture.*

*This research demonstrates the changes in these two indices that are known to be related with individualism of the society.*

*There are a couple of minor comments on this brief report: Table 1 is missing which parts (above and below) of the diagonal are about Pearson’s correlation and Kendall’s correlation coefficients.*

Thank you for your helpful comment. The PDF and the submitted manuscript of this article have a note of Table 1 (“Note. Scores in the upper half indicate Pearson’s correlation coefficients, while those in the lower half represent Kendall’s correlation coefficients. Both results were consistent with each other. The aggregated score was calculated by averaging the divorce rate (z-transformed) and household size (z-transformed and reversed).”) However, as you pointed out, this note is missing on the webpage of this article. I asked the F1000Research office to modify this editorial error.

*As a more comprehensive test, the crude divorce rate is used in addition to the divorce-to-marriage ratio. Please clarify how crude divorce rate is calculated. Are they the ratio of individuals who got divorced amongst 1,000 married people or people in general?*

I appreciate your suggestion. Following your suggestion, I have added an explanation of the crude divorce rate as below. It is the rate per 1,000 persons in general, not limited to
married people.

“When the crude divorce rate (rate per 1,000 persons in general, not limited to married people) was used instead of divorce-to-marriage ratio, the results were unchanged (Table 2; Figure 5; Figure 6).”

As this study is looking at social structural change in China, which I agree is intricately related with the cultural values of the members of the society, it would be important not to overgeneralize the finding to changes in individualism. It is possible that there is a mismatch between individuals’ cultural values and societal structure (household size, in particular), therefore, it should be clearly noted that the cultural values systems of individuals may not have caught up with the changes in the social system as indicated by the increased divorced rates & decreased household size.

Thank you for your comment. In fact, I discuss these complex changes in individualism, which includes not only values but also other aspects such as behaviors and cultural products, in China (and Japan) in this paper. The indices I used in this paper (i.e., divorce rate and household size) have been confirmed to be valid indicators of individualism and show the changes in some aspects of individualism. Thus, I explain this point as a limitation in the Limitations and future directions section as below. If you think this is insufficient, I would appreciate it if you could specify which part is insufficient.

“The current research used family structure (divorce rate and household size) as representative indicators of individualism. Nevertheless, it is still unclear whether other aspects of individualism show the same trend. To examine cultural changes in China, it is necessary to investigate various aspects of cultural changes by analyzing different indicators from a broad set of perspectives.”

The author argues that the reason why the one-child policy might not have driven the decrease in household size is due to the disconnect between the policy and birthrate. Then, additional explanation for why the household size decreased may render insight into the changes in culture in China. Is the decreased household size due to decreased households living with grandparents or an increase in one-person household? Some interpretation of this may be helpful.

I appreciate your constructive suggestion. Following your suggestion, I have added a possible explanation of why the household size decreased as below.

“Many factors could explain this decrease in household size (e.g., an increase in people living alone, a decrease in households with multiple generations).”

Thank you for your further consideration of this manuscript.

I look forward to hearing from you at your earliest convenience.
Reviewer Report 25 April 2023

https://doi.org/10.5256/f1000research.146975.r170836

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Han-Wu-Shuang Bao 1,2
1 Manchester China Institute, The University of Manchester, Manchester, UK
2 Manchester China Institute, The University of Manchester, Manchester, UK

Thanks for the author's revised version that has properly addressed my concerns. Regarding the first point about adding more data points, I agree with the author that this is less critical to the main purpose of the article. The currently tested year range has already provided convincing evidence. As a further suggestion that the author may consider in future studies, it will be meaningful to test a longer time period and conduct a time-series analysis (e.g., Granger causality test) to examine the socio-ecological causes and/or consequences of the increasing individualism in China. Overall, I have no further comments to make on the current version of this article.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Cultural psychology, Cultural change, Individualism, Name, China

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

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**Version 1**

Reviewer Report 13 January 2023

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Han-Wu-Shuang Bao

1 Manchester China Institute, The University of Manchester, Manchester, UK
2 Manchester China Institute, The University of Manchester, Manchester, UK

In this article, the author summarized previous contradictory findings on the changes in individualism in China over the past decades, and provided further evidence from two social indicators (i.e., divorce rate and household size) for the increasing individualism in China. While data on such indicators are publicly available and quite easy to be collected from the National Bureau of Statistics of China (data.stats.gov.cn), it was indeed surprising that to date no studies have reported these indicators as evidence for cultural changes in China. Thus, the author's current brief report would be necessary for a more complete understanding of Chinese cultural changes.

Nonetheless, I have some suggestions for the author to further improve this article, and also expect a revised version of the manuscript from the author.

1. The author collected the data in 2018, which covered the period only until 2017. This made the results somewhat out of date. Based on my own search (data.stats.gov.cn), it is certain that now the National Bureau of Statistics of China has updated the data until 2021. Therefore, I strongly suggest the author collecting more data points (i.e., 2018, 2019, 2020, and 2021) to provide the latest evidence. This would strengthen the potential impact of this article, and also help address the concern about the one-child policy because more data points (than merely 2016 and 2017) could be tested after the policy's end in 2015 (i.e., to check whether household size continued to decrease even when Chinese parents are encouraged to give birth to more than one child since 2015).
2. It would be better to disclose the limitations of previous findings, which would help readers better evaluate different pieces of evidence. For example, in Santos et al.’s (2017) study, they only had 4 data points for China (1990, 1995, 2001, 2007) on three self-report items of cultural values\(^1\). This could be a main limitation of this specific finding and would make the idea that “individualism is decreasing in China” less convincing. The author may provide further critical comments when summarizing the literature.

3. Since Bao et al. (2021) has provided more valid evidence for the increasing name uniqueness in China\(^2\) and has addressed Ogihara’s (2020)\(^3\) concerns on Cai et al. (2018)\(^4\), it is necessary to also cite Bao et al. (2021)\(^2\) when citing Cai et al. (2018)\(^4\) in this article:

1. P. 2 (of the pdf version of the article) “Particularly, there has been only one study examining changes in the behavioral aspect in China (naming; Cai et al., 2018).” should be “Particularly, there has been two studies examining changes in the behavioral aspect in China (naming; Bao et al., 2021; Cai et al., 2018).”

2. P. 8 “Past research showed the rise in individualism in China (Bao et al., 2021; Cai et al., 2018; ...).”

References

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

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Yes

Are the conclusions drawn adequately supported by the results?
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Cultural psychology, Cultural change, Individualism, Name, China

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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Author Response 14 Apr 2023

Yuji Ogihara

Dear Dr. Han-Wu-Shuang Bao,

Thank you very much for reviewing my manuscript and providing valuable comments.

I have modified the manuscript according to your comments. I offer my responses to each comment below.

I have copied and pasted all of your comments without making changes.

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1. The author collected the data in 2018, which covered the period only until 2017. This made the results somewhat out of date. Based on my own search (data.stats.gov.cn), it is certain that now the National Bureau of Statistics of China has updated the data until 2021. Therefore, I strongly suggest the author collecting more data points (i.e., 2018, 2019, 2020, and 2021) to provide the latest evidence. This would strengthen the potential impact of this article, and also help address the concern about the one-child policy because more data points (than merely 2016 and 2017) could be tested after the policy’s end in 2015 (i.e., to check whether household size continued to decrease even when Chinese parents are encouraged to give birth to more than one child since 2015).

I appreciate your constructive comment. I agree with you that including more data points is important in providing the latest evidence. Nevertheless, the four data points (2018, 2019, 2020, 2021) have not been newly added for three reasons.
First, it is necessary to consider the complex effects of COVID-19 from 2019. This pandemic should have enormously affected Chinese culture and people. For example, the pandemic might have made Chinese people less individualistic. This hypothesis should be investigated in an independent study in detail, considering a series of previous studies regarding pandemics (e.g., Na et al., 2021; Schaller et al., 2022).

Second, the main purpose of this article is to examine temporal changes in individualism in China. This purpose is already fulfilled in the current version of the article, which investigated changes over the past 65 years between 1953 and 2017. Again, I agree that adding the four data points would describe the latest situation, but describing the latest situation is not the main purpose of this article.

Third, it is not always necessary to analyze the latest data when researchers publish academic articles. As you know, it takes time to publish academic articles. When I conducted this study, the data after 2017 were unavailable.

However, if you think adding the four data points is a must, I will reconsider this point.


2. It would be better to disclose the limitations of previous findings, which would help readers better evaluate different pieces of evidence. For example, in Santos et al.’s (2017) study, they only had 4 data points for China (1990, 1995, 2001, 2007) on three self-report items of cultural values. This could be main limitations of this specific finding and would make the idea that “individualism is decreasing in China” less convincing. The author may provide further critical comments when summarizing the literature.

Thank you for your helpful comment. Following your suggestion, I have added some explanations of the limitations of previous findings (Santos et al., 2017; Zeng & Greenfield, 2015) in Footnotes 1 and 2 as below.

“Although this study described global trends of temporal changes in individualism, it has some limitations. For example, the authors aggregated three items from the World Values Survey to examine temporal shifts in individualistic values, but the inter-item correlations were not high (.11 < rs < .24; ordinal-level Kendall’s τ), possibly implying that the validity of these items may be low. Moreover, as the authors already noted in their article, the data points for China were only four (1990, 1995, 2001, and 2007), and they covered a relatively
short period of time (17 years). This limited number of data points might have led to a failure to detect actual historical changes in individualistic values in China. These limitations may be related to the inconsistency of the findings. Indeed, their study showed that most (39 out of 53) of the countries they examined indicated a substantial increase in individualistic values, whereas only five countries (China, Armenia, Croatia, Ukraine, and Uruguay) exhibited a nonnegligible decrease in individualistic values. “(Footnote 1)

“However, these words increased in frequency only slightly. As the authors emphasized in their article, the contrasting individualistic words (“choose” and “get”) that were analyzed increased more remarkably (for the details of their interpretation, see Zeng and Greenfield, 2015).” (Footnote 2)

3. Since Bao et al. (2021) has provided more valid evidence for the increasing name uniqueness in China and has addressed Ogihara’s (2020) concerns on Cai et al. (2018), it is necessary to also cite Bao et al. (2021) when citing Cai et al. (2018) in this article:

1. P. 2 (of the pdf version of the article) “Particularly, there has been only one study examining changes in the behavioral aspect in China (naming; Cai et al., 2018).” should be “Particularly, there has been two studies examining changes in the behavioral aspect in China (naming; Bao et al., 2021; Cai et al., 2018).”

2. P. 8 “Past research showed the rise in individualism in China (Bao et al., 2021; Cai et al., 2018; ...)”.

I appreciate your suggestion. Actually, I already cited Bao et al. (2021) in the text (p. 3 in the PDF file) and the reference list in the previous version of the article, but I failed to cite the study in some points. Thus, following your comment, I have added the reference (Bao et al., 2021) in the two points in the new version of the article as you suggested.

Thank you for your further consideration of this manuscript.

I look forward to hearing from you at your earliest convenience.

Sincerely,

Yuji Ogihara, Ph.D.
Department of Psychology, College of Education, Psychology and Human Studies, Aoyama Gakuin University
Address: 4-4-25 Shibuya, Shibuya-ku, Tokyo, 150-8366, Japan
E-mail: yogihara@ephs.aoyama.ac.jp
Web: https://sites.google.com/site/yujiogiharaweb/english

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