



Just world beliefs and altruistic behaviors of college students during the COVID-19 pandemic: The mediating role of empathy

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Accepted: 30 December 2022 / Published online: 10 January 2023

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Abstract

Altruistic behavior is of great significance for individual happiness and social development. The study has focused on the influence of two factors at the individual level on college students' altruistic behavior. The self-report questionnaires of 2,272 college students on belief in a just world, empathy and altruistic behavior were investigated. The results of the study found that: 1) Just-world belief and empathy both positively predicted altruistic behavior; 2) Empathy influenced altruistic behavior through just-world belief. And from the perspective of motivation theory, it explains that individuals affirm that altruistic behavior will bring spiritual pleasure, so individuals will maintain the consistency of their own internal factors to promote altruistic behavior. This study enriches the research value of altruistic behavior at the individual level and provides an empirical basis for the cultivation of altruistic behavior at the individual level.

Keywords Altruistic behavior · Empathy · Belief in a just world · Motivation

Introduction

Altruistic behavior is also called prosocial behavior (Batson, 1987; Curry et al., 2018; Pfattheicher et al., 2022), it has the following two characteristics: the helper must take practical actions in the process of helping others and benefit the recipient; the motivation and original intention of the helper must be to seek benefits for others without any return (Batson & Shaw, 1991; Jhony et al., 2018; Preston, 2022). From a positive psychology perspective, altruism as a positive behavioral quality (Irani, 2018) can promote the acquisition of

life meaning and well-being for individuals (Li et al., 2018c; Moynihan et al., 2015; Park, 2015; Van Tongeren et al., 2016; Xi et al., 2022). Altruistic behavior is shaped or influenced by the environment or needing individual effort (Kim & Seock, 2019; Preston, 2022; Zheng & Gu, 2010). Generally speaking, individuals' differences in behavior are more likely to be caused by intra-individual factors such as motivation rather than by the environment when they are faced with the same difficult situation or challenging event (Cho et al., 2022; Kifle Mekonen & Adarkwah, 2022). In particular, among the factors at the individual level, cognition and emotion can have an impact on an individual's altruistic behavior. Belief in a just world (BJW) as a cognition factor can reflect an individual's attitude towards the environment and, thus, may increase his altruistic behavior (Cui, 2016; Zhang et al., 2021). What is more, to induce altruistic behavior requires the individual having the ability to empathize. If the individual does not have the ability to empathize, it is difficult for altruistic behavior to occur (Feng et al., 2021). Therefore, paying attention to the effect of intra-individual factors on individuals' altruistic behaviors may be helpful to promote the development of their prosocial behaviors. Especially for college students, as a new force for future social citizens and social development, having high altruistic behaviors themselves, can not only reduce the impact of negative emotions (Feng et al., 2022), improve their own well-being (Li et al., 2017a; Lu et al., 2021), but also

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improve their motivation to volunteer (Huang et al., 2021; Li & Lin, 2018). That is, showing altruistic behavior to others can enrich the sense of meaning in life of college students as well as help to form a good social style of helping others, which has a value guide for actively promoting individual participation in creating a harmonious society. Overall, there are two reasons why the study focuses on BJW and empathy on altruistic behaviour, firstly, the reason for focusing on these variables is that individual altruistic behaviour is related to individuals' perceptions of the interpersonal relationships they live in and the social rules they live by (Zheng & Gu, 2010; Zheng et al., 2021), these variables relate to individuals' perceptions of the social rules they live by, of others and of themselves. Thus, it is possible to reflect the size of the contribution of different focuses of attention to individual altruistic behaviour. Secondly, it is particularly important to note that the COVID-19 pandemic caused many cities and groups to fall into a variety of difficulties in China, but the Chinese government's philosophy of people-centred work (supporting and helping those social numbers who are in need to maintain social justice) and media campaigns has widely influenced people's perceptions of the social order and attitudes towards disadvantaged individuals (Li et al., 2022b), and to some extent it has shaped individuals' higher beliefs about a just world (Wei et al., 2022) and enhanced their altruistic motivations (Li et al., 2022a). Secondly, changing epidemics invariably increase social members' understanding of others' distress, anxiety and other emotions, as most social members experience similar emotional experiences, and thus for early adults they may develop a higher capacity for empathy, which may also enhance their altruistic behaviour (Jiang et al., 2021; Luo et al., 2022). Based on this realistic consideration, we have a potential hypothesis that the COVID-19 pandemic as a collective public crisis event may have strongly contributed to the development of individuals on these variables, and that these changes would be reflected in the higher levels of altruism they report.

Belief in a just world and altruistic behavior

The belief in a Just World (BJW) is people forming belief about the world that people get what they deserve and that they equally deserve what they get (Lerner, 1980). It can help people establish a sense of control over the world and maintain a sense of fairness, make individuals willing to follow social norms, and provide motivation for their pursuit of long-term goals (Bartholomaeus & Strelan, 2019; Lerner & Miller, 1978; Zhou & Guo, 2013). As a stable personal belief, the BJW may influence volunteer motivation or prosocial behaviors (Guo et al., 2022). If individuals believe that the world is just, then everyone's efforts will be rewarded accordingly (Dalbert, 2001). Generally speaking, the just world belief consists of two dimensions: personal

belief in a just world (PBJW) reflects individual's belief that what happens in one's own life is fair and general belief in a just world (GBJW) imply that a person believes the world is a just place where everyone is treated fairly. Previous research shows that PBJW, rather than GBJW, is connection with altruistic behaviour or against getting bullied (Correia & Dalbert, 2008; Donat et al., 2012; Fox et al., 2010; Li et al., 2018b). Individuals who have positive attitude towards those in need and donate more money to charitable institutions report higher PBJW (Bègue, 2014; Bègue et al., 2008; Correia et al., 2016; Guo et al., 2022; Khera et al., 2014). Besides, employees with a stronger PBJW are more likely to engaged in extracurricular activities that benefit the organization (Cheng et al., 2020; Spence et al., 2011). Conversely, GBJW is often relation to negative social attitudes and aggressive behavior (Sutton & Winnard, 2007), such as discrimination and prejudice against marginalised groups, social transgressions and retaliation (Bègue & Bastounis, 2003; Strelan & Sutton, 2011). The social exchange theory holds that there are no external benefits for altruists, but they actually get internal rewards. Actors affirm their self-worth through altruistic behavior and experience well-being in self-realization. Altruistic behavior may improve individual psychological well-being (Li et al., 2017a). That is, when a person has a higher self-just world belief that "good is rewarded", it brings more frequent prosocial behavior than others, while the individual do not have positive beliefs about a just world and it will decrease the prosocial behaviors.

The relationship between empathy and altruistic behavior

The altruistic behavior of human beings to their relatives is considered to be caused by kinship selection theory, but the theory cannot reasonably explain the altruistic behavior of human beings to other non-relative groups (Hamilton, 1964; Palmer & Palmer, 2022). In fact, the emergence of altruistic behavior also requires the individual to have a physical and mental shared emotional imagination. The academic term for this emotional capacity is empathy. It refers to an individual's ability to penetrate into the subjective world of others and understand the feelings of others. That is, empathy can enable humans to generalize altruistic behavior to people outside of relatives (Bohns & Flynn, 2021; Pan et al., 2013; Toi & Batson, 1982). In fact, on the one hand, empathy is considered to be a bond of pro-social relationship building in both Eastern and Western cultures. In Chinese Confucian culture, there are many empathy sayings such as "Ji Suo Bu Yu, Wu Shi Yu Ren (Treat others as you want to be treated)" (Li et al., 2017b), and in western, a well-known quote from the Bible is "Love your neighbor as yourself". which both deeply reflected the "GOLDEN RULE" of human social

interaction (Lu, 2022). On the other hand, empirical evidence shows a positive connection between empathy and pro-social performance across ages or groups (Ding & Lu, 2016; Pang et al., 2022; Van der Graaff et al., 2018). When empathy is regarded as one's value pursuit (Ringwald & Wright, 2021), which can often motivate individuals to engage in pro-social behaviors, such as volunteering and helping those in need (Persson & Kajonius, 2016; Van der Wath & Van Wyk, 2020).

Empathy has a function that promotes the maintenance and strengthening of interpersonal relationships, when empathy is perceived by individuals as an emotional depletion, individuals tend to exhibit lower levels of empathy, tend to be self-centered or develop selfishness values (Kashirska, 2020). So a person's lack of empathy may result in certain mental health and behavioural problems and even reduce pro-social performance. Recent views in the literature suggest that empathy is even considered to be a highly altruistic personal quality (Yue et al., 2021). For example, empathy can increase medical students' prosocial performance (Hu et al., 2022). The job on education and social work is a profession for the purpose of altruism or helping others, which also emphasizes the cultivate empathy in teachers or social workers (Clark & Butler, 2020; Jaber et al., 2018) in order to have a positive impact on others (Aldrup et al., 2022; Greeno et al., 2018; Hong et al., 2022; Navarro-Mateu et al., 2019). Therefore, a positive influence or intervention on the individual's empathy will provide a good basis for the individual's future social or work adaptation.

The relationship among belief in a just world, empathy and altruistic behavior

The relationship between BJW and empathy has been mentioned in more studies on behaviour and attitudes. Yet the evidence for the relationship between the two in the literature does not find consistent findings, for example, some studies have found a positive correlation between individual' BJW and empathy (Donat et al., 2022; Zheng et al., 2022) while another study found no correlation between adolescents' and prisoners' BJW and empathy in a study of bullying victims' attitudes (Donat et al., 2020; Fox et al., 2010; Lopez-Perez et al., 2017). Among the variables that affect altruistic behavior, the study further showed that empathy, as a psychological resource, can act as a mediating variable between BJW and altruistic behavior (Bi, 2019; Li et al., 2017a; Wang et al., 2021). These studies show that BJW and empathy may both have positive effects on altruistic behavior. Nudelman (2013) analyzed the literatures and found that the BJW can not only promote the development of individual personality, but can also serve as personal resources to increase emotions, and they can jointly promote the occurrence of friendly behaviors. However, as Nudelman

(2013) mentioned, more research is needed in the future to explore the influence of individual-level factors such as just-world beliefs and empathy on altruistic behavior. Therefore, this study aims to expand on previous research and explore these individual-level factors' effect on altruistic behavior. And the theory of altruistic motivation is more often used to explain the altruistic behavior of individuals. According to the BJW theory of justice motivation, individuals with stronger BJW have stronger other-referenced justice motivation and are more willing to help others (Li et al., 2018b; Wu et al., 2016). The empathy-altruism mechanism suggests that empathy can motivate individuals to show stronger internal altruistic motives (Messineo et al., 2021; Wu et al., 2016). Thus, only when the BJW and empathy are simultaneously higher, implying that individuals may be motivated to make altruistic choices or decisions, because the individuals with altruistic behaviors gain internal spiritual satisfaction such as a sense of well-being and worthiness (Lu et al., 2021). According to the self-determination theory of motivation (Church et al., 2013), it is believed that the BJW and empathy are all internal factors and motivations that can promote altruistic behavior. When the two are positively correlated, it implies that individuals agree that they can obtain meaning or sense of value through altruistic behavior (Peetz & Milyavskaya, 2021); while the two are negatively correlated, it implies that individuals disagree that altruistic behavior can make them gain a sense of meaning or value. Through this study, it may enlighten to improve the individual's positive cognition of himself, help to exert the individual's initiative, or stimulate the highlight of the individual's positive qualities, so that the individual can show higher altruistic motivation or behavior from the inside. Based on the above analysis, the present study provides the following hypothesis (structural diagram see Fig. 1):

H1: There exists a positive correction among just-world beliefs, empathy and altruistic behavior.

H2: Empathy mediates the relationship between just-world beliefs and altruistic behavior.

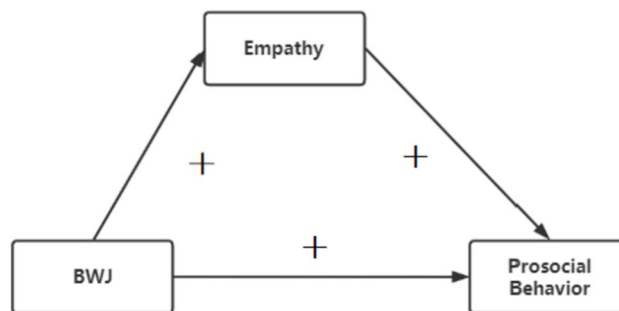


Fig. 1 The graphic representation of the hypotheses

Method

Participants

After obtaining approval from the academic and ethics committee of the first author's university, sample selection used convenience sampling to restrict the survey to undergraduate level, we centrally contacted four universities' faculty teachers who teach at different universities with special education majors or courses to distribution questionnaires. The teachers sent the electronic questionnaires to the students in their classes time, requesting students to fill in the questionnaires during the first guided class, and the teacher introduced the content of the course as well as asked the students about their learning expectations. The survey also used the WeChat network to spread the distribution, the data collection process took one week. Ultimately, received 2,289 questionnaires and exclude 17 invalid responses, remaining 2,272 valid responses, the participants were from Zhengzhou Normal University (36.5%) in the city of Zhengzhou in Henan Province, Henan Institute of Science and Technology (36.3%) in the city of Xinxiang in Henan Province, Guizhou Education University (11.1%) in the city of Guiyang in Guizhou Province, Longdong University (9.3%) in the city of Qingyang in Gansu Province, and other universities (7.8%) located in different cities and provinces. The number of male participants is 593 (26.1%) and female participants is 1679 (73.9%), and the age range of the students is from 17 to 23 years old, with an average age of 20.00 ($sd = 1.24$).

Measurements

Belief in a Just World (BJW) scale

The BJW scale was developed by Dalbert (1999) and Chinese version adapted by Su et al. (2012), it includes two subscales: personal just world beliefs (PJWB) and general just world beliefs (GJWB). The PJWB scale comprises seven items that assess the extent to which individuals believe that things and incidents in their personal life are just (e.g., "Overall, events in my life are just."). The GJWB scale includes six items that assesses the extent to which individuals believe that the world, in general, is a just place (e.g., "I think that basically the world is a just place."). Both scales used a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Scores were computed by taking the averages of the items, with higher scores indicating stronger PJWB and GJWB values, the Chinese version of the scale was shown to have good internal consistency reliability of 0.885 in a previous

study on college students (Su et al., 2012). In this study, the internal consistency coefficient of this scale was 0.88.

The Questionnaire of Cognitive and Affective Empathy (QCAE)

The QCAE was developed by Reniers et al. (2011) within a study of typical adult development groups, and Chinese version was adapted to survey college students by Liang et al. (2019). The scale entails a multi-dimensional view of empathy, which incorporates four commonly used empathy scales: the Interpersonal Reactivity Index (IRI), the Empathy Quotient (EQ), Impulsiveness Venturesomeness Empathy Inventory (IVE), and the Hogan Empathy Scale (HES), all of which, demonstrate good reliability and validity. Thus, the QCAE scale incorporates the advantages of these four scales and has gained increasing attention and been deployed by empathy researchers in recent years. The scale includes 31 items scored with a Likert 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree), of which, six items are derived from the IRI scale and eight items from the IVE scale. In the empathy subscale, 15 items are from the EQ scale and two items are from the HES scale. These items were combined to generate affective and cognitive empathy scores as well as a global total empathy score and the five subscale scores (two for the cognitive component and three for the affective component). The Chinese version of the scale was shown to have good internal consistency reliability of 0.86 in a previous study on college students (Liang et al., 2019). In this study, the internal consistency coefficient of this scale was 0.90.

Altruistic behavior scale

The Altruistic Behavior Scale of College Students compiled by Li (2008) was applied in the study. The scale includes 4 items on a 7-point scale ranging from 1 (completely disagree) to 7 (completely agrees). For example, "When I take the bus, I usually give up my seat to the elderly and the weak." In this study, the internal consistency coefficient of this scale was 0.93.

Data analysis

SPSS 26.0 was used for descriptive statistical analysis of the data, and Process 3.4 plug-in (Hayes, 2018) was used to test the mediating models (Model 4). The 5,000 bias-corrected bootstrapped re-sampling was adopted to estimate the mediating effects' 95% confidence interval (95% CI). When the 95% CI does not contain zero, the mediating effect will be considered statistically significant (Mallinckrodt et al., 2006).

Results

Common method bias test

As this study used the questionnaire method, the data were obtained through the self-report of the subjects, which may have led to the common method bias effect. Therefore, Harman's single factor test was used to test common method bias in this study according to the advice of Podsakoff et al. (2003). Exploratory factor analysis was carried out for all items of the scale. Common factors were extracted by the principal component method, and partial correlations were obtained by separating the first common factor. The results showed that the variance explanation rate of the first factor without rotation was 26.30%, which, less than 40%, meaning that the single-factor confirmatory factor analysis model is the worst-fitting model among the competing models, and implying the common method bias is not serious (Iverson & Maguire, 2000; Tang & Wen, 2020). Therefore, there was no serious common methodological bias in the data of this study.

Descriptive statistics and correlation

Descriptive statistics and correlation analysis were conducted on the participants' belief in justice, total score of empathy, and altruistic behavior. The mean values and correlation coefficients of each variable are shown in Table 1. The results showed that justice belief was positively correlated with the total score of empathy ($r = 0.336$, $p < 0.01$), and with altruistic behavior ($r = 0.569$, $p < 0.01$). Altruism was positively correlated with the total score of empathy ($r = 0.422$, $p < 0.01$). The relationship between the variables supported the subsequent false test.

The mediation effect

In order to verify whether there was significant mediating effect of variable Empathy in the process of influence of variable BWJ on prosocial behavior, this paper adopted Bootstrap method to analyze its mediating effect (Mallinckrodt et al., 2006), and the results were shown in the Table 2,

Table 1 Statistical Description and Correlation Coefficient

	Mean \pm SD	1	2	3
1. BJW Total Score	4.191 \pm 0.838	1.000		
2. Empathy Total Score	2.831 \pm 0.372	0.336**	1.000	
3. Altruistic behavior	5.331 \pm 1.024	0.569**	0.422**	1.000

** The correlation is significant at a confidence level (two tests) of 0.01

Table 2 Mediating Effect Model

Variables	Mod1 altruistic behavior	Mod2 Empathy Total Score
BJW Total Score	0.5852*** 26.2493	0.1461*** 16.6502
Empathy Total Score	0.4849*** 8.64	
Gender	0.2119*** 5.4972	-0.0378** -2.2302
Grades	-0.0227 -1.4189	-0.028*** -3.98
Constant	0.3134** 1.9731	2.3373*** 47.8977
Observations	2272	2272

** = $p < .01$, *** = $p < .001$

(gender and grade were control variables). The results showed that the total utility coefficient of BWJ on prosocial behavior was 0.6914 (significant at 0.01 significance level). When the mediating effect of empathy is controlled, the direct effect coefficient of BWJ on prosocial behavior was 0.5852, and its 95% confidence interval didn't include 0. This direct effect was significant, that is, BWJ has a significant and direct positive prediction effect on the improvement of prosocial behavior. In the indirect influence of BWJ on prosocial behavior, the effect coefficient of the mediating variable empathy was 0.1062, and its 95% confidence interval did not include (see in Table 3), so the mediating effect of empathy was significant.

In summary, the intermediary variable empathy played a partial intermediary role in BWJ's influence on Prosocial Behavior, that is, BWJ could not only directly affect prosocial behavior (0.5852), empathy could also indirectly influence prosocial behavior through the intermediary variable (0.1062), and the indirect effect accounts for 15.4% of the total effect. The action path was shown in the Fig. 2.

Discussion

This study obtained cross-sectional data on college students and aimed to explore individual-level factors: the BJW, empathy effects on altruistic behavior. The study identified the mediating role of empathy between BJW and altruistic behavior.

First, this study shows that the college students' BJW positively predicted prosocial behavior, which is consistent with previous studies by (Cui, 2016; Guo et al., 2022). It shows that higher BJW among college students means that they believe the world is fair and just, which helps to induce their positive pro-social attitude, and college students, as a member of society, will show a more positive helping attitude

Table 3 Mediation effect test of Bootstrap method

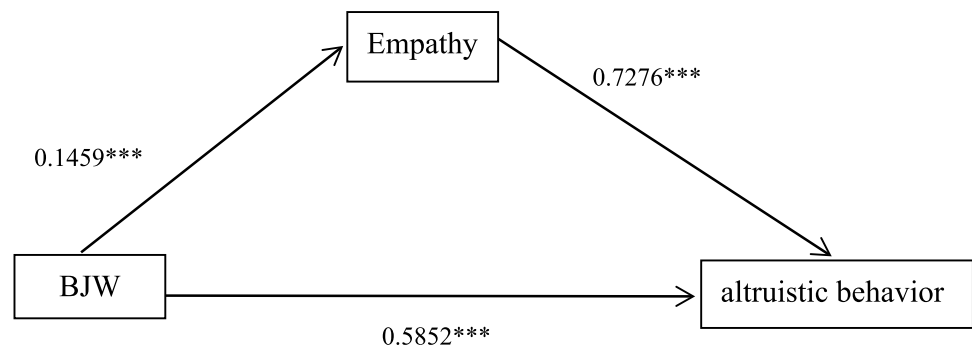
Effect type	Effect path	effect coefficient	SE/BootSE	t	p	95% confidence interval
Total effect of X on Y	BWJ → Prosocial Behavior	0.6914	0.0211	32.760	0	(0.65,0.7328)
Direct effect of X on Y	BWJ → Prosocial Behavior	0.5852	0.0213	27.455	0	(0.5434, 0.627)
Indirect effect(s) of X on Y:	BWJ → Empathy → Prosocial Behavior	0.1062	0.0116	/	/	(0.0845,0.1287)

when facing individuals in need of help or situation with volunteering (Geng et al., 2022). In addition, empathy can also predict altruistic behavior, which has been confirmed in previous studies (Li et al., 2018a; Wu et al., 2020), due to the similarity of human life experiences and emotions, the exposure and transmission of such similar experiences and emotions helps individuals feel a sense of relaxation, comfort and strength, which, to a certain extent, generally improves the college students' empathy awareness and competence. In particular, the survey for this study took place in the wake of the COVID-19 pandemic. Respondents felt empathy for this common suffering of mankind, so for those in need, can evoke pure altruism by experiencing events and emotions from the perspective of others. Thus, motivating individuals to help others at any cost (Jiang et al., 2021).

Second, empathy mediated between the BJW and altruistic behavior was consistent with previous research (Cui, 2016; Li et al., 2021a. When a person has a high BJW, the individual will have a positive attitude and feel that the world is fair, which can increase the frequency of prosocial behavior. In this study, the way of the government worked to protect people's property and lives helped those individuals or organizations in distress or help due to COVID-19 pandemic (Jing, 2021), despite the hardships suffered by many cities and groups, the government's practices actually set a good altruistic example that every member of society could be aware of this altruistic behavior, which not only increases college students' trust in the government (Gong & Ye, 2021), but also makes individuals believe

that they are living in a more justice world or society (Wang et al., 2022). So when these college students experience these things, they show higher altruistic motivation and behavior when they realize that those in difficult or vulnerable situations may need help. At the same time, the BJW has the debugging function of individual psychological and emotional, and is a protective factor for emotional adaptation, which can awaken an individual's positive emotions (Bartholomaeus & Strelan, 2019; Wang & Meng, 2015). When college students face people in need of help in society, they consider themselves as the maintainers of the justice order and take the act of helping others as a personal meaning and value pursuit; meanwhile, they may also be the beneficiaries of the rules of justice, helping others is helping themselves because they hope that someone can also help themselves when they are in help, and thus they will mobilize their empathic ability to enhance their positive interactions with others (Jiang et al., 2021). So students with higher BJW are more likely to induce their empathic abilities, especially because they are influenced by the COVID-19 pandemic, college students have experienced similar emotional experiences, which make them have a stronger ability to empathize (Wu-Ouyang & Hu, 2022). Therefore, people with higher beliefs about justice are more likely to induce their own empathy abilities, show sympathy and support for those in difficult situations according to the interpersonal maintenance role of empathy (Betzler, 2019; Reynolds & Scott, 1999). And thus are willing to help others or volunteering.

Fig. 2 Schematic Diagram of the Mediating Effect



Enlightenments and limitations

The COVID-19 pandemic initially had a significant negative impact on members of society (Li et al., 2021b), but this study may suggest that it may also have a fundamentally positive impact on members of society. The contribution of this study is to support the view that the COVID-19 pandemic, despite being a public crisis event, has led to a sense of justice in the world in which people live due to the correct government response, which may increase people's altruistic motivation; and it has also generally increased empathy among members of society. These changes made them more willing to make decisions that benefit others in their interpersonal interactions. To sum up, the present study affirms the importance of emphasizing individual strengths and individual initiative in positive psychology in their positive mental world life, and indicates that positive cognition or experience in social interaction is of promoting significance in maintaining individual altruistic motivation and enriching their mental world. The implication of this study for individuals is that it helps individuals to recognize the roles and value of their own just beliefs and empathy in promoting their own altruistic development, which can stimulate individuals to affirm their own positive cognition and take the initiative to play the value of their own character advantages, so as to improve their civil literacy to better interact with the people around them. Thus, laying the foundation for the establishment of positive interpersonal relationships in the future and the development of altruistic behavior, and becoming a future social citizen with a sense of justice and social responsibility.

However, the present study has several limitations. The first limitation is that this study is a cross-sectional study, which only investigated the performance level of college students on these variables at a certain time point, and no follow-up study has been carried out. Longitudinal research design will more effectively capture trends in the relationship between individuals' empathy, the BJW and prosocial behavior in the context of the pandemic. The second limitation is that this study aimed to explore the potential impact of the COVID-19 pandemic on changes in individual factors of college students, and did not focus on the impact of other personal factors such as personality (McGinley et al., 2022) and environmental factors such as social support (Esparza-Reig et al., 2022) on altruistic behavior, which could be considered in future studies. Third, the group selected for this study was Chinese college students, so the applicability of the findings to other culture groups is limited, considering that altruistic behavior is influenced by groups culture (Luengo Kanacri et al., 2021; Luria et al., 2015) and cross-cultural research can be carried out in the future.

Acknowledgements We would like to thank all of the teachers or students who completed questionnaires or provided assistance for this study.

Funding This work was supported by the program of “The Professional Competence Structure, Index System and Construction Mechanism of Itinerant Instructors for Inclusive Education Quality Improvement”, in the International Joint Research Project of Huiyan International College, Faculty of Education, Beijing Normal University [grant number ICER202103]. It was also supported by the Department of Social Sciences, Ministry of Education [grant number 20YJC880015].

Data Availability The datasets generated and analysed about the current study are available from the corresponding author on reasonable request.

Declaration

Conflicting interests The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

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