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Determinants of Intention to Adopt Recycled Water: Evidence from Four High-Water-Stress Provinces in China

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Abstract: Promoting the use of recycled water is essential for environmental sustainability. A key part of promoting the use of recycled water is effectively increasing the public's intention to adopt it. This research attempts to explore the factors that influence the public's intention to adopt recycled water. It therefore introduces the baseline water stress indicator and extends the survey area to areas of high water stress. Based on the Diffusion of Innovation Theory (DOI), a new research model is developed from the perspective of "information disclosure (knowledge)–psychological factors (persuasion)–adoption intention (decision)", and the moderating role of policy instruments is considered. Structural equation modeling and hierarchical regression analysis are used to empirically analyze 724 valid questionnaires. The results indicate that psychological factors (trust, awareness of water environment protection, herd mentality) have multiple parallel mediating effects between recycled water information disclosure and adoption intention, and herd mentality is the key factor influencing the public's intention to adopt recycled water. Command-and-control policy instruments inhibit adoption intention, while economic incentives and publicity-and-guidance policy instruments promote adoption intention. These findings can help policymakers seek and adopt effective policy measures and provide a reference for popularizing and promoting recycled water in areas with high water stress.

Keywords: recycled water adoption; diffusion of innovation; baseline water stress; policy instruments; structural equation modeling

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1. Introduction

In China, the imbalance between supply and demand for water resources has become increasingly fierce with the continuous expansion of urban boundaries and urban populations, the continuous growth of economic aggregates, the reduction in surface water resources, the depletion and overdraft of groundwater resources, and the deterioration of water quality [1]. According to the China Statistical Yearbook compiled by the National Bureau of Statistics [2], per capita water resources decreased from 2180.5 m^3/person in 2012 to 1918.2 m^3/person in 2022. The recycled water produced through sewage treatment can not only reduce the discharge of pollutants in the process of sewage treatment, but also serve as an alternative water source to alleviate the shortage of water supply, which is of great significance to solving the water resource problem in the process of urban development [3]. Presently, wastewater treatment technology has advanced to the point where it can produce recycled water suitable for almost all areas, while the scale of utilizing recycled water still remains small and the reuse options are limited [4]. Also, the promotion of recycled water is highly valued by the government, and the utilization rate of recycled water is a key performance indicator for central and local administrative agencies [5]. The government has developed a series of subsidy and publicity policies to accelerate the adoption of recycled water [5], but the use of recycled water still remains low. Previous studies found that the low intention of the public to use recycled water is the biggest obstacle to its use

and promotion [6]. Positive public perception and the acceptance of recycled water is now considered a key factor in successfully introducing recycled water projects [7–9]. Therefore, ensuring the robust and effective improvement of the public's acceptance of recycled water is pivotal in its promotion [10]. To achieve this, the determinants of intention to adopt recycled water need to be explored.

This study explores the factors affecting the public's intention to adopt recycled water. The results of this study are helpful for policymakers to seek and adopt effective policy measures and provide a reference for the popularization and promotion of recycled water use in areas with high water stress. The rest of the article is structured as follows: Section 2 reviews the previous literature, identifies research gaps and describes the innovations of this study. Section 3 introduces some theories and presents the research hypothesis. Section 4 introduces the research framework and describes the sample and data acquisition steps. Section 5 introduces the data analysis and model results. Section 6 discusses the research findings. Finally, Section 7 states this research's conclusions, implications, and limitations.

2. Literature Review

Many scholars have focused on the public's external and internal environmental factors when studying the factors influencing their intention to adopt recycled water [5]. For example, external environmental factors include recycled water nomenclature, regional water resource conditions, the reuse purpose, etc. [11,12]. Hou et al. [10] also examined the impact of information disclosure on the acceptance of recycled water, emphasizing the impact of environmental information on public behavior. The public's internal factors include objective factors such as age, education, income level, religious and cultural beliefs [13–15], and psychological factors such as trust [16], health risk perception, awareness of water conservation [17], awareness of water environment protection [10] and moral obligation [5]. However, there are few studies on the comprehensive influence mechanism of external and internal factors on the intention to adopt recycled water, so further exploration is needed.

Liu's [18] empirical study shows that in the absence of external policies, the recycled water reuse behavior of residents is not optimistic. Li et al. [5] found that most recycled water policies are implemented with a relatively strict approach, and that the decision-making power of individuals is limited to some extent. However, the extent of the restriction and the mechanism of the influence of relevant policies on adoption intention have not been evaluated in previous studies. Therefore, it is also necessary to consider the influence of policy instruments on adoption intention and find more effective policy measures.

Public attitudes towards the acceptance of recycled water in China have been examined in the majority of the existing literature, but the scope of the research has been restricted to the typical northern areas of China facing water scarcity issues [5,10,19] due to natural conditions. However, from a demand perspective, urban expansion and large-scale industrialization have also exacerbated water scarcity. Some economically developed and densely populated areas, such as the Yangtze River Delta Region, have abundant water resources but low per capita water resources. Therefore, there is also a demand for popularizing recycled water in these areas. Moreover, a highly developed infrastructure and a well-educated population are conducive to the spread of recycled water. Therefore, it is necessary to expand the survey area to such atypical water-scarce areas where the supply and demand of water resources are unbalanced. The Baseline Water Stress [20], which refers to the ratio of the annual regional water withdrawal to the multi-year average of available water resources on the surface, helps to screen out areas with imbalances between water supply and demand, that is, the areas with high water stress.

Diffusion of Innovation (DOI) [21] refers to the dissemination of innovation among members of a social group through specific channels, including individual and social diffusion processes [22]. Considering recycled water as an innovation, the DOI theory suggests that the formation of adoption intention goes through three stages: knowledge, persuasion, and decision. In the past, the literature rarely studied the intention to adopt recycled

water from the perspective of "knowledge–persuasion–decision", and few studies have studied internal factors (mainly psychological factors) as mediating variables. Developing a research model based on the DOI theory can effectively combine the influence of external and internal factors and better explore the psychological mechanism behind the intention to adopt recycled water.

This study selects four provinces (Beijing, Shandong, Henan and Shanghai) experiencing high water stress as case studies. On the basis of Diffusion of Innovation Theory, a research model is constructed from the perspective of "information disclosure (knowledge)–psychological factors (persuasion)–adoption intention (decision)". The purpose of this study is to explore the direct role of recycled water information disclosure and the mediating role of psychological factors in the public's intention to adopt recycled water. In addition, the moderating role of policy instruments is considered.

Compared with previous studies, the main contributions are as follows: (1) A new research model is constructed from the perspective of "knowledge–persuasion–decision", in which "policy instrument" is introduced as a moderating variable. The model integrates the influence of internal factors (psychological factors) and external factors (information disclosure and policy factors), which further reveals the interactions between them. (2) This paper introduces the concept of Baseline Water Stress, selects the survey area with a new perspective, which expands the survey area to high-water-stress areas, and supplements the study of atypical water-scarce areas with high water stress that may have been overlooked.

3. Theoretical Basis and Research Hypothesis

3.1. Theoretical Basis

Rogers' Diffusion of Innovation Theory (DOI) [21] is a milestone in the field of technology adoption and dissemination [23]. The theory originated from Rogers' investigation of the adoption of new technologies and products (machinery, pesticides, breeds, etc.) in rural areas. It is widely used in the promotion of new ideas, products, and technologies, such as how grassroots individuals successfully conceptualize and promote frugal innovation [24]. The promotion of recycled water is also a research problem related to the diffusion of innovation; from a social communication perspective, recycled water needs to be recognized and accepted by society or users through marketing and promotion [5].

The DOI theory holds that the formation of the intention to adopt technology innovation needs to go through three stages: knowledge, persuasion, and decision. In the knowledge stage, people collect and process information, emphasizing the influence of the external environment. In the persuasion stage, people form psychological perceptions toward innovation. Finally, a decision is made at the decision stage on whether to adopt the technology or not. The formation of each stage is influenced by the previous stage. Social Cognitive Theory (SCT), which is widely used to identify ways to change behavior [25,26], can support it well. According to SCT, psychological perception acts as a mediator between the external environment and behavior. Psychological perception impacts individual behavior, and the environment influences psychological perception [27].

3.2. Research Hypothesis

Based on the above analysis, we construct the influence path of "information disclosure (knowledge)–psychological factors (persuasion)–adoption intention (decision)" and observe the moderating effect of policy instruments (command-and-control, economic incentive, publicity-and-guidance) between psychological factors and adoption intention. The specific research model is shown in Figure 1, where CC = Command-and-control policy instruments; EI = Economic incentive policy instruments; and PG = Publicity-and-guidance policy instruments.

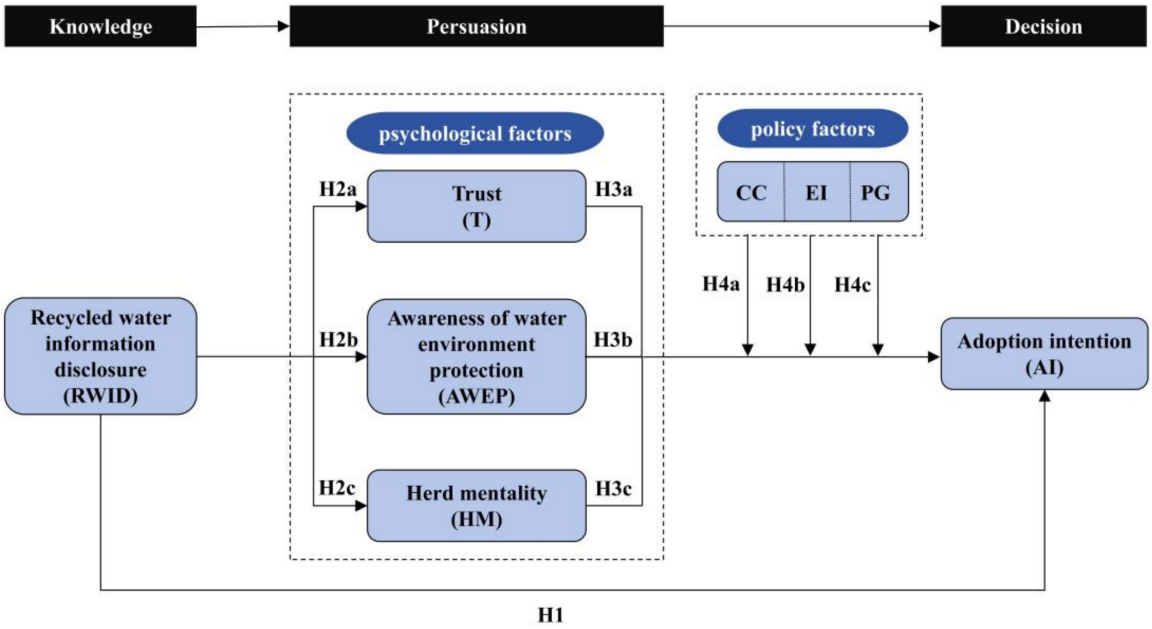

Figure 1. The proposed hypothetical model.

3.2.1. Information Disclosure Factor

The innovation–decision-making process is essentially an act of information gathering and information processing, and it is a means used by individuals to reduce the uncertainty caused by the pros and cons of innovation. This information-seeking behavior occurs centrally in the innovation knowledge phase of the innovation–decision–making process [21]. Economics has been the main field of research on the impact of information disclosure on public or group behavior [28–30]. The degree of information disclosure plays a crucial role in public perception and directly affects public decision-making [31], and having more information can improve public decision-making [32].

Jeffrey and Jefferson conducted a study in the UK, and they found that people who knew more about the water cycle were likely to have a positive attitude towards wastewater reuse [33]. In Crete, Greece, Tsagarakis and Georgantzis found that providing farmers with additional information about water reuse increases their intention to irrigate their farmland [34]. External factors such as information disclosure not only directly affect public behavior but also have a profound influence on users' psychology [35]. For example, Shi and Song [36] conclude that environmental perception influences behavior through the mediation of residents' attitudes. Zhang et al. [37] found that external factors such as the quality of energy-saving products and social norms affect energy-saving behaviors through the mediating role of individual segmentation characteristics. Therefore, the following hypotheses are proposed:

H1. *Recycled water information disclosure positively influences the public's adoption intention.*

H2a–c. *Recycled water information disclosure positively influences psychological factors (trust, awareness of water environment protection, and herd mentality).*

3.2.2. Psychological Factors

In the persuasion stage of the innovation–decision-making process, the impact of innovation on individuals is mainly psychological. The way of thinking in the persuasion stage is mainly perceptual. Of course, individuals develop perceptions regarding a new idea only after they have gained information about it [21].

In the field of recycled water, trust is defined as "a mindset involving a willingness to accept vulnerability due to positive expectations about the authority's intentions or

actions" [16]. Siegrist et al. [38] argue that many people lack the resources, knowledge and interest to make decisions or take actions related to science and technology, and therefore often rely on relevant authorities or government agencies to make decisions for them. In the context of urban water management, water management programs will run more smoothly if people trust the water management authority to provide them with a safe water supply [39,40]. Therefore, we propose the following hypothesis:

H3a. *Trust positively influences the public's adoption intention.*

Several studies have shown that using recycled water is a pro-environmental behavior strongly influenced by environmental awareness [5]. For example, Hou et al. [17] argue that the higher the public's environmental awareness, the more likely the public is to engage in environmentally friendly behavior. In the study by Lopez-Ruiz et al. [41], environmental awareness explains the difference in the public's acceptance of recycled water usage. Environmental awareness and behavior are moral behaviors formed spontaneously by residents in the consciousness of benefiting themselves, others, and society [5]. Water environmental awareness influences certain environmentally friendly behaviors [42]. In other words, the higher the public's awareness of water environment protection, the more inclined they are to participate in environmentally friendly behaviors, and the higher the residents' acceptance of recycled water. Therefore, we propose the following hypothesis:

H3b. *Awareness of water environment protection positively influences the public's adoption intention.*

Herd mentality refers to the psychological tendency of individuals to doubt and change their views, judgments, and behaviors under the influence of the group in order to conform to the majority of the group [35]. In the persuasion phase of the innovation–decision-making process, the primary outcome is the formation of an attitude of approval or disapproval towards the innovation (i.e., adoption or non-adoption). However, in many cases, attitudes and behaviors are not the same. All innovation carries a certain degree of uncertainty to the individual, who is often not entirely sure of the outcome of such an idea and feels the need for others to support his or her attitude towards the new idea [21]. Therefore, the attitudes formed during the persuasion phase do not necessarily coincide with the decision-making behavior. The thoughts or actions of others can influence the transition from perception to intention. Nemeroff et al. [43] found that adaptation is insensitive after conducting a review of publications on recycled water use from the perspective of decision psychology. As a result, individuals constantly exposed to the environment where recycled water is used will become more and more familiar with recycled water. This familiarity results in attitudes towards recycled water that are more aligned with the general population, and a decrease in resistance to the use of recycled water. A study in Qatar reported that 38% of people who resisted the use of recycled water claimed they would change their behavior if their family and friends started using it [44]. Therefore, we propose the following hypothesis:

H3c. *The herd mentality has a positive impact on the public's intention to adopt recycled water.*

3.2.3. Policy Factors

Fu et al. believe that policy factors are external factors that influence individuals' water reuse behavior [45]. The effects of different policy factors on recycled water use behavior are different, and the formulation and promulgation of effective policy measures can have a multiplying effect on further promoting recycled water. To promote recycled water, the relevant administrative departments of China have issued a series of policies, which have played a significant role in promoting the production and utilization of recycled water in China [45]. Based on the OECD's classification of policy instruments [46], this paper divides the policy instruments for recycled water reuse into three categories: command-and-control policy (CC), economic incentive policy (EI), and publicity-and-guidance policy

(PG). The use of policy instruments as a typical external factor has been demonstrated in much of the literature: it has a significant moderating effect on the relationship between the willingness and the behavior of the individual [45,47]. Mi's [48] study found that different types of policy instruments (including CC, EI, and PG) increase the positive impact of urban residents' intention to engage in green-energy-purchasing behaviors. It is important to note that these policies are not mutually exclusive and can be used in combination to achieve the desired outcome. Therefore, we propose the following hypothesis:

H4a. *Command-and-control policy instruments positively moderate the relationship between psychological factors and the public's adoption intention.*

H4b. *Economic incentive policy instruments positively moderate the relationship between psychological factors and the public's adoption intention.*

H4c. *Publicity-and-guidance policy instruments positively moderate the relationship between psychological factors and the public's adoption intention.*

4. Methodology

4.1. Questionnaire Design

The data collection was conducted in the form of a questionnaire, which consisted of two parts: the first part contained fundamental details about the participants, including their age, gender, education level and annual income. The second part of the questionnaire contained a scale of recycled water adoption intention and its influencing factors, which included three main aspects: information disclosure, psychological factors, and policy factors. The scale was adapted from previous maturity scales and based on the specific conditions of the survey area. The specific measurement items are shown in Table 1.

Table 1. Description of the scale.

Latent Variables	Observed Variables	Definition
Recycled water information disclosure (RWID)	RWID1	Do you know where the recycled water comes from?
	RWID2	Do you know the quality of recycled water?
	RWID3	Do you know the price of recycled water?
Trust (T)	T1	I am confident that the water authorities will provide a good water supply
	T2	I think the Water Authority has good intentions in managing the water supply.
	T3	I can rely on the water department to provide a quality water supply
Awareness of water environment protection (AWEP)	AWEP1	I have a responsibility to protect the water environment
	AWEP2	All residents should take responsibility for protecting the city's water environment.
	AWEP3	I will recycle water in my daily life
Herd mentality (HM)	HM1	The more people use recycled water, the more I want to use it
	HM2	Other people's opinions on recycled water affect my opinion directly.
	HM3	My friends' use of recycled water prompted me to embrace it
Command-and-control policy instruments (CC)	CC1	If discharging sewage is prohibited, I will follow the rules.
	CC2	If there's a fine for wasting water, I will follow the rules.
	CC3	If water conservation was a regulatory requirement, I would comply
Economic incentive policy instruments (EI)	EI1	If the government strengthens the construction of recycled water for households, I will consider using it.
	EI2	If there is a subsidy to purchase household recycled water equipment, I will consider buying it.
	EI3	If recycled water is subsidized, I will consider using it.
Publicity-and-guidance policy Instruments (PG)	PG1	If the community strongly promotes the use of recycled water, I would consider using it.
	PG2	I would consider using recycled water if I had read in the news that it was affordable and convenient.
	PG3	I would be willing to attend a training session about the usage of recycled water if I am free.
Adoption intention (AI)	AI1	I can accept the use of recycled water for purposes other than drinking in my daily life.
	AI2	I will be using recycled water a lot.
	AI3	I feel honored to use recycled water.

Hou et al. argue that the disclosure of recycled water information cannot be directly measured, and that the degree of residents' knowledge of recycled water information

can indirectly explain the degree of disclosure [10]. Therefore, based on the scale of Hou et al. [10], this study used three indicators to measure the degree of recycled water disclosure: (1) "Do you know where the recycled water comes from?" (2) "Do you know the quality of recycled water?" (3) "Do you know the price of recycled water?".

The scale was measured on a 5-point Likert scale [49], using a method of subjective evaluation to determine a score that represents the level of disclosure of recycled water information. Here, 1 means "I don't know at all", 2 means "I don't know very much", 3 means "generally", 4 means "I know a little", and 5 means "I know very well". For other issues, "Strongly Disagree" was fixed at 1 and "Strongly Agree" was fixed at 5. All items were adapted from Li et al. [5], Hou et al. [10], Ross et al. [16], Hou et al. [17], Li et al. [35], Akhtar et al. [50], Kaplan et al. [51] and Song et al. [52].

4.2. Survey Area

In the Aqueduct Water Risk Atlas developed by World Resources Institute (WRI), the Baseline Water Stress (the ratio of the annual regional water withdrawal to the multi-year average of available water resources on the surface, or BWS) is a comprehensive indicator of water risk, which can measure the long-term competition and consumption of available water resources in a region, with a value of greater than 0.4 considered to be high [20]. A larger BWS indicates a greater imbalance between the supply and demand of available water resources, and a greater need for recycled water promotion. Aqueduct 4.0 [20] is the latest version of the WRI Water Risk Database, which provides BWS data for almost all areas in China. Considering the convenience of the research and the generalizability of the results, we selected the survey area by province (China administrative region unit). Based on Aqueduct 4.0, we calculated the high BWS coverage ratio for each province, as shown in Figure 2. The high BWS coverage ratio for each province refers to the ratio of the area where the BWS is greater than 0.4 in each province to the total area of the province. This ratio helps to filter out the provinces with high water stress. Hong Kong and Macau are not listed separately, and their data are included in Guangdong Province. Figure 2 also shows the geographical regions in which each province is located, which provides us with a geographic region perspective from which to observe water stress.

As can be seen in Figure 2, in addition to the typical northern water-scarce provinces (mostly in the Northwest Region and North China Region), there are also many atypical water-scarce provinces in the Eastern and Central China Region with high water stress, but these have rarely been included in the investigation area in previous studies. This further illustrates the need for an extension of the survey area. Accordingly, this paper selects Beijing (typical water-scarce province), Shandong, Henan and Shanghai (atypical water-scarce provinces) as the survey areas, which are located in North, Central and East China, respectively, as shown in Figure 3. Among them, Beijing, as the typical water-scarce province, has reached 100% coverage of high-water-stress-areas and its use of recycled water is more mature. More than 80% of Shandong and Henan are under high water stress. Neither of them is in a typical northern water-scarce region, but both are under high water stress due to their high population density and industrial and agricultural development. Shanghai, located in the more populous and industrially developed Yangtze River Delta economic region, also has nearly 70% high BWS coverage.

The levels of recycled water use vary from one area to another. Beijing has the most mature use of recycled water, and some residential areas have established a recycled water flushing pipe network system. However, in the remaining three provinces, homes are not yet covered by the recycled water pipeline system. Therefore, we define the explanatory variable as "adoption intention" rather than "adoption behavior".

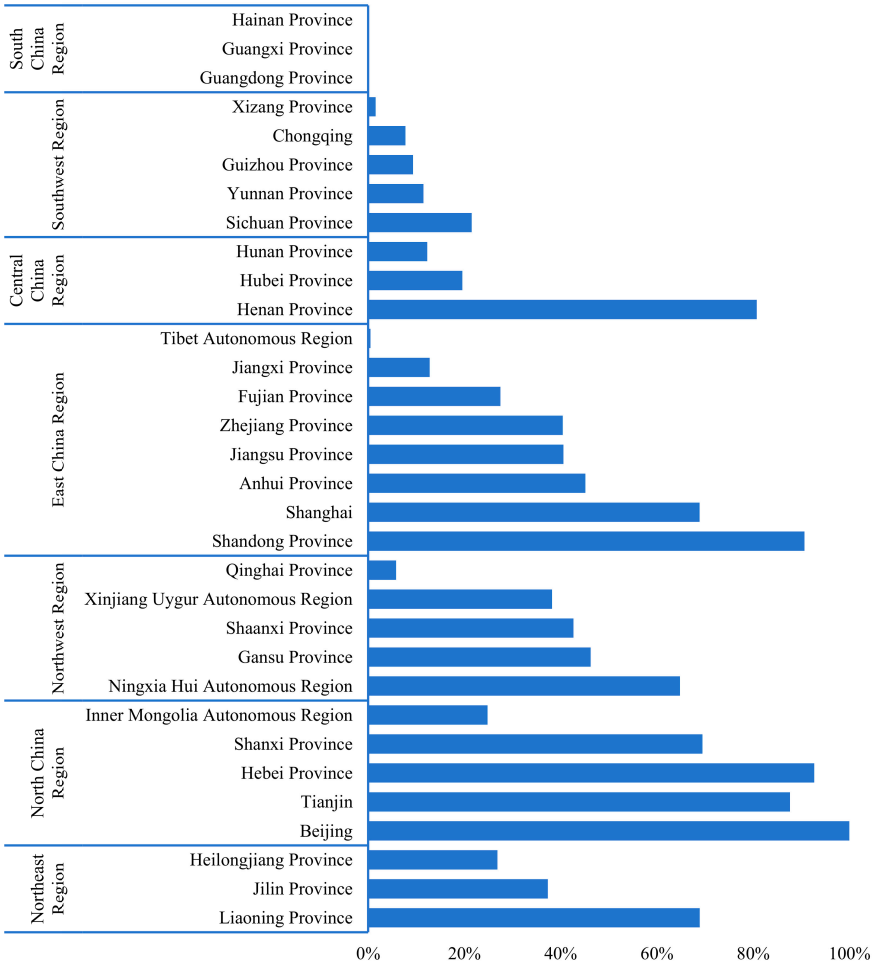

Figure 2. The high BWS coverage ratio for each province.

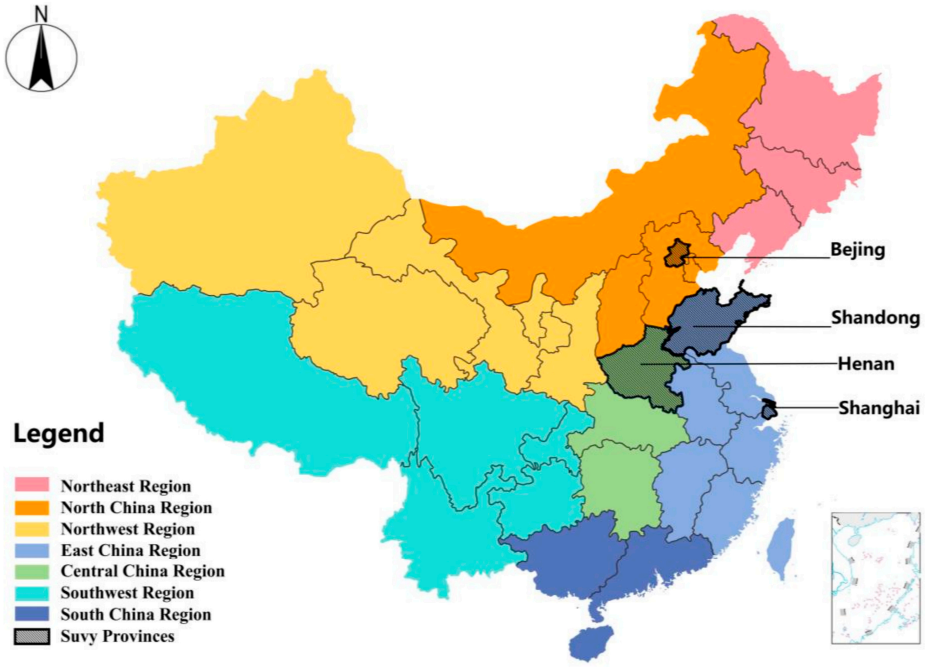

Figure 3. Distribution of survey areas.

4.3. Data Acquisition and Sample Description

As shown in Figure 4, the data acquisition process includes four procedures:

(1) Online pre-survey. We posted the questionnaire online for a pre-survey and made several revisions to the overall logic of the questionnaire and the comprehensibility of the questions based on the feedback from the respondents.

(2) Offline pre-survey. An offline pre-survey was organized after the online pre-survey. We invited relevant experts and public representatives to conduct in-depth interviews, and made further revisions to the questions included in the questionnaire. It is worth noting that the questionnaire length was reduced to ensure that residents had enough patience to complete it.

(3) Formal survey. After preliminary investigations, the research team conducted investigations for more than two months in four provinces: Shandong, Henan, Shanghai, and Beijing. Considering that most recycled water use in the community is on a household basis, only one copy was answered per household to make sure that the survey samples were representative, and a total of 10–15 households were surveyed per community.

(4) Data screening. In the end, we distributed 831 questionnaires, and 107 of them were deleted after further screening. We screened the data according to the following criteria: questionnaires with more than 10 unanswered questions and questionnaires that gave the same response to over 10 consecutive questions were deleted. We obtained a total of 724 valid questionnaires after eliminating invalid questionnaires, including 188 surveys from Beijing, 191 from Shandong, 186 from Heinan, and 179 from Shanghai, and the effective rate was 87.12%.

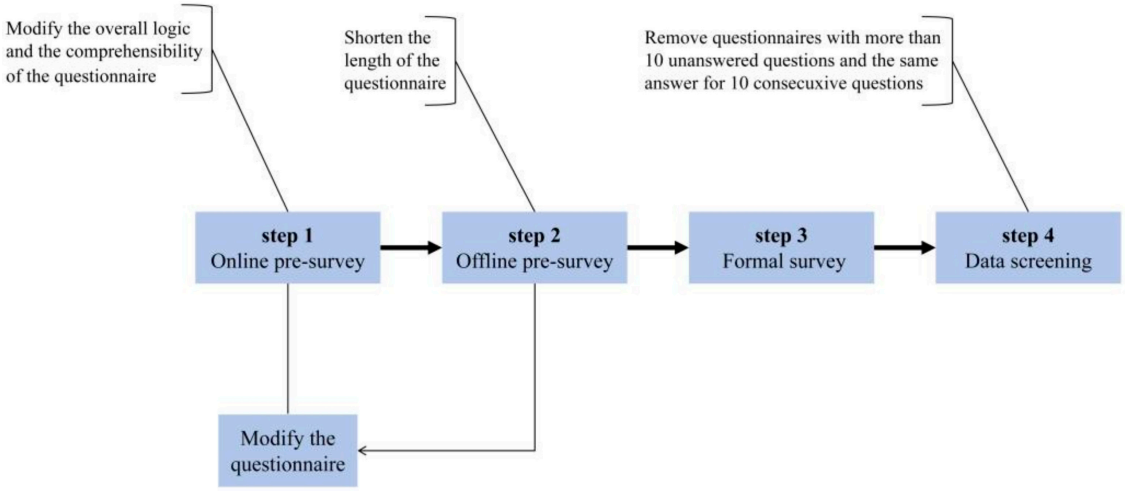

Figure 4. Data collection process.

After data screening, the samples were analyzed descriptively, and the results are shown in Table 2. The number of male (49.17%) and female (50.83%) respondents was almost equal. Most respondents (91.16%) were middle-aged and young people aged 18–50, and relatively few were over 50 years old (8.56%). A large number of respondents (82.87%) had a university degree or higher, and the respondents had a higher level of education overall. In terms of annual income, more than 70% of respondents said their annual income was between CNY 30,000 and CNY 100,000.

Table 2. Sample description (n = 724).

Items	Sample Characteristics	Frequency	Percentage (%)
Gender	Female	368	50.83%
	Male	356	49.17%
Age	Under 18 years	2	0.28%
	18–30 years	284	39.23%
	30–50 years	376	51.93%
	Over 50 years	62	8.56%
Education	Middle school degree or below	38	5.25%
	High school degree	86	11.88%
	Associate degree	292	40.33%
	Bachelor's degree	286	39.50%
	Master's degree or more	22	3.04%
Income level annual (yuan)	Less than 10,000	2	0.28%
	10,000 to less than 30,000	61	8.43%
	30,000 to less than 50,000	279	38.54%
	50,000 to less than 100,000	241	33.29%
	100,000 or more	141	19.48%

5. Results

5.1. Reliability and Validity Tests

This study used questionnaires for data collection, so reliability and validity tests of the scale were necessary to ensure valid results. Confirmatory Factor Analysis (CFA) [53] was used to test the reliability, convergent validity, and discriminative validity of the measurement terms. The data in this section were processed by SPSS 26.0 [54] software. Composite reliability (CR) and Cronbach's alpha [55] were used together to explain internal consistency. They are often used for reliability tests in Likert scale methods. As can be seen in Table 3, the minimum value of the Cronbach's alpha coefficient is 0.825, while the minimum value of CR is 0.833. Both metrics are greater than the recommended threshold of 0.700 [55]. This indicates that the internal consistency of the scale is good and that the reliability of the scale used in this study is well established and stable.

Table 3. Indexes of model accuracy for the measurement model.

Likert-Scaled Construct	Number of Items	Cronbach's Alpha	Standardized Factor Loadings	AVE	CR
RWID	3	0.884	0.845 0.861 0.835	0.717	0.884
T	3	0.871	0.791 0.825 0.883	0.702	0.875
AWEP	3	0.825	0.825 0.744 0.781	0.616	0.828
HM	3	0.851	0.859 0.803 0.771	0.662	0.854
AI	3	0.864	0.874 0.826 0.775	0.686	0.867
CC	3	0.832	0.766 0.8 0.802	0.624	0.833
EI	3	0.873	0.905 0.774 0.814	0.696	0.872
PG	3	0.873	0.905 0.77 0.816	0.694	0.871

The factor loadings and Average Variance Extraction (AVE) [56] reflect the convergent validity of the model. The standardized factor loading coefficients of the items measured by the scale ranged from 0.744 to 0.905, which is higher than the reference value of 0.5 [56]. Every item's AVE was higher than 0.5, and Fornell and Larcker [56] proposed that the ideal standard value of AVE must be greater than 0.5. Therefore, on the whole, the measurement model has good convergent validity.

AVE was also used to test the discriminative validity [57]. Each variable is considered to have good discriminative validity if the square root of the AVE for that variable is greater than the absolute value of the correlation coefficients between it and the other variables [57]. The results of the discriminative validity analysis are shown in Table 4. Most of the correlation coefficients of the potential variables are less than the square root of the AVE, indicating good discriminative validity.

Table 4. Factor correlation coefficient and square roots of the AVE.

Latent Variables	RWID	T	AWEP	HM	AI
RWID	**0.847**				
T	0.326	**0.838**			
AWEP	0.383	0.125	**0.785**		
HM	0.313	0.102	0.120	**0.814**	
AI	0.436	0.240	0.384	0.533	**0.828**

Note: The diagonal (in bold) shows the square root of AVE.

5.2. Influence Path Analysis

The Structural Equation Model (SEM) [58], a statistical method for analyzing the relationships between variables based on their covariance matrices, was used to test the above hypothesis (H1, H2a–c and H3a–c). AMOS 24.0 [59] software was used to construct and analyze the SEM. Table 5 displays the model fitting index values and test criteria. The RMSEA value of the model was 0.071, the CMIN/DF was 4.657, the GFI was 0.931, the AGFI was 0.9, the NFI was 0.936, the IFI was 0.949, the TLI was 0.935, and the CFI was 0.949, all of which met the test criteria [60]. Therefore, the model's goodness of fit in this paper is satisfactory.

Table 5. Structural equation model fitting index.

Index	CMIN/DF	GFI	AGFI	NFI	IFI	TLI	CFI	RMSEA
Model results	4.657	0.931	0.9	0.936	0.949	0.935	0.949	0.071
Standard	1 < CMIN/DF < 5	>0.9	>0.9	>0.9	>0.9	>0.9	>0.9	<0.08

In this study, the structural equation model was drawn using AMOS 24.0 software, as presented in Figure 5. Table 6 lists the results of the structural equation model analysis. From the analysis results, it can be seen that the path coefficient of the influence of recycled water information disclosure on the intention to adopt recycled water is 0.166, and that it is significant at the level of 0.1%, suggesting that the disclosure of information about recycled water has a positive impact on the intention to adopt of recycled water, so H1 is confirmed. H2a–c are confirmed, as the regression coefficients were 0.326 ($p < 0.001$), 0.383 ($p < 0.001$) and 0.313 ($p < 0.001$), respectively, suggesting that the disclosure of recycled water information has a significant positive impact on psychological factors such as awareness of water environment protection, trust, and herd mentality, and that its influence is gradually weakened. H3a–H3c are confirmed, as the regression coefficients were 0.109 ($p < 0.01$), 0.254 ($p < 0.001$) and 0.44 ($p < 0.001$), respectively, suggesting that psychological factors such as trust, water environment protection awareness, and herd mentality can positively influence the public's intention to adopt recycled water. Notably, the influence of herd mentality emerges as the strongest among them.

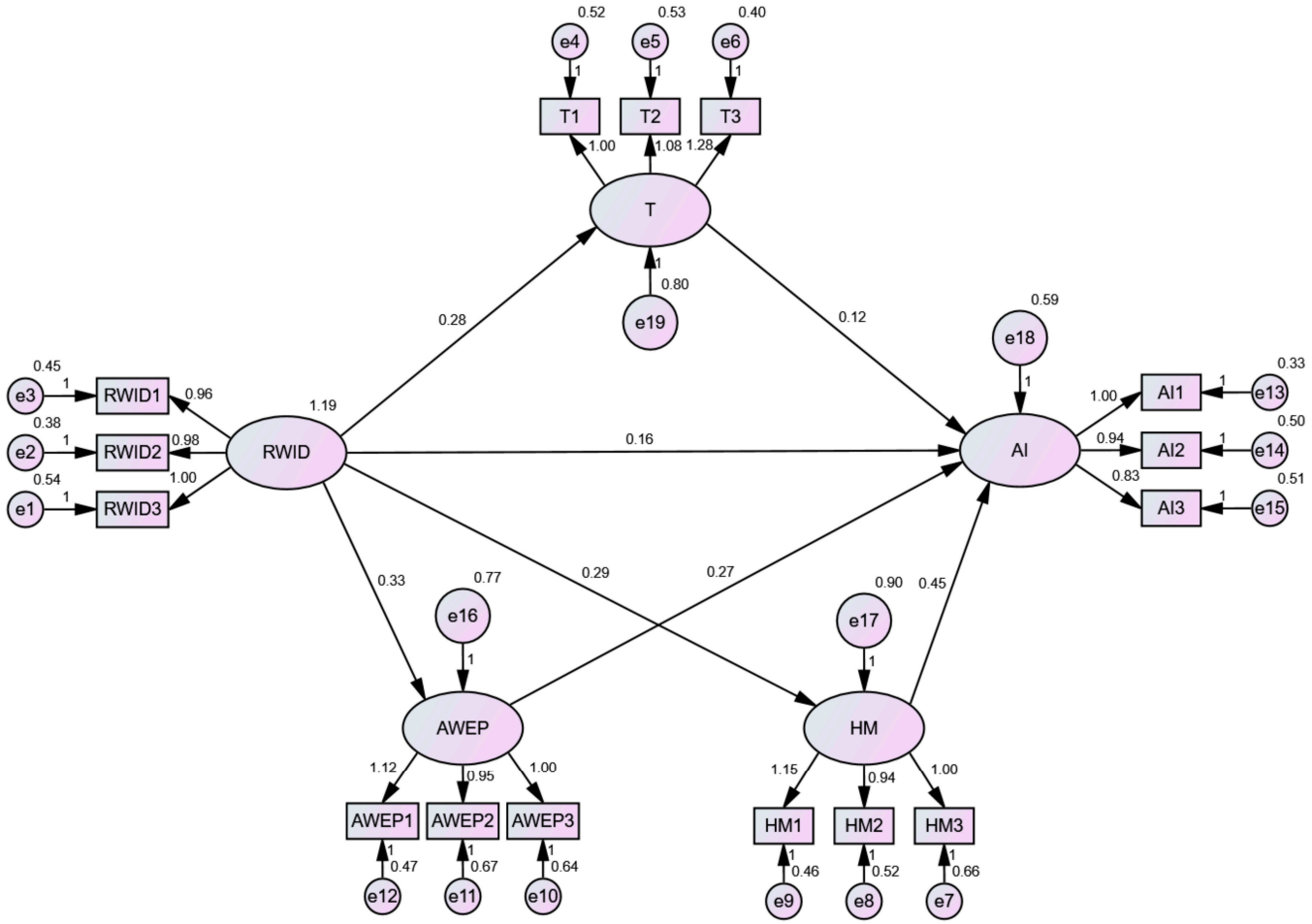

Figure 5. Results of the recycled water adoption intention model.

Table 6. Results of the structural equation model analysis.

Hypothesis	Path	UnStd. Coefficient	Std. Coefficient	S.E.	CR	*p*	Results
H1	RWID→AI	0.155	0.166	0.041	3.818	***	Supported
H2a	RWID→T	0.283	0.326	0.037	7.715	***	Supported
H2b	RWID→AWEP	0.334	0.383	0.038	8.742	***	Supported
H2c	RWID→HM	0.288	0.313	0.039	7.318	***	Supported
H3a	T→AI	0.118	0.109	0.04	2.914	0.004	Supported
H3b	AWEP→AI	0.273	0.254	0.044	6.233	***	Supported
H3c	HM→AI	0.448	0.44	0.042	10.77	***	Supported

Notes: *** $p < 0.001$.

As can be seen from Table 7, the model is a partial mediation model. The impact of recycled water information disclosure on the public's intention to adopt recycled water is completed through four paths, namely "RWID→AI", "RWID→T→AI", "RWID→AWEP→AI", and "RWID→HM→AI". Among these four paths, the disclosure of information about recycled water has the most considerable direct impact on the intention to adopt recycled water, and the mediating effect of herd mentality on the indirect impact is strong.

Table 7. Results of the mediating effect analysis.

Relationship	Point Estimate	Boot SE	Bias-Corrected 95% CI	
			Lower	Upper
Total effect	0.409	0.042	0.329	0.491
Direct effect	0.155	0.038	0.081	0.232
Indirect effect	0.254	0.034	0.192	0.325
RWID→T→AI	0.033	0.014	0.008	0.064
RWID→AWEP→AI	0.091	0.021	0.056	0.139
RWID→HM→AI	0.129	0.025	0.086	0.181

5.3. Moderating Effect Analysis of Policy Instruments

To examine the moderating effect of policy instruments (H4a–c), hierarchical regression analysis was used for further verification. The hierarchical regression analysis was performed through the following three steps: (1) Decentering the psychological variables (AWEP, T, HM) and the policy variables (CC, EI, PG); (2) Multiplying the decentered psychological variables (AWEP, T, HM) and the policy variables (CC, EI, PG) separately to obtain the interaction term; and (3) Establishing a regression model with AI as the dependent variable, and psychological variables (AWEP, T, HM) and policy variables (CC, EI, PG) as independent variables, i.e., Model 1. Model 2 was obtained by adding the interaction terms CC × T, CC × AWEP, and CC × HM to Model 1. Model 3 was obtained by adding the interaction terms EI × T, EI × AWEP and EI × HM to Model 1. Model 4 was obtained by adding the interaction terms PG × T, PG × AWEP and PG × HM to Model 1. The results of the regression analysis can be found in Table 8 and Figure 6.

Table 8. Regression and moderating effect analysis.

Variables	Model 1	Model 2	Model 3	Model 4
T	0.100 **	0.095 **	0.103 ***	0.103 ***
AWEP	0.248 ***	0.243 ***	0.248 ***	0.249 ***
HM	0.339 ***	0.339 ***	0.341 ***	0.340 ***
CC	0.182 ***	0.198 ***	0.185 ***	0.184 ***
EI	−0.0002	0.046	0.005	0.019
PG	0.087	0.034	0.083	0.069
CC × T		−0.053		
CC × AWEP		−0.050		
CC × HM		−0.078 *		
EI × T			−0.047	
EI × AWEP			−0.045	
EI × HM			0.076 **	
PG × T				−0.046
PG × AWEP				−0.055
PG × HM				0.082 **
R2	0.375	0.390	0.383	0.384
Adjust R2	0.369	0.382	0.375	0.376
F-value	71.555 ***	50.623 ***	49.178 ***	49.453 ***

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The results of Model 1 suggest that command-and-control policy instruments can significantly influence the public's intention to adopt recycled water, while economic incentive policy instruments and publicity-and-guidance policy instruments cannot. In Model 2, the regression coefficient of the interaction between command-and-control policy instruments and herd mentality was −0.078 ($p < 0.05$), indicating that command-and-control policy instruments negatively moderate the relationship between herd mentality and adoption intention. In Model 3, the regression coefficient of the interaction between economic incentive policy instruments and herd mentality was 0.076 ($p < 0.01$), indicating that economic incentive policy instruments play a positive role in moderating the relationship between

herd mentality and adoption intention. In Model 4, the regression coefficient of the interaction between the publicity-and-guidance policy instruments and herd mentality was 0.082 ($p < 0.01$), indicating that publicity-and-guidance policy instruments enhance the influence of herd mentality on adoption intention.

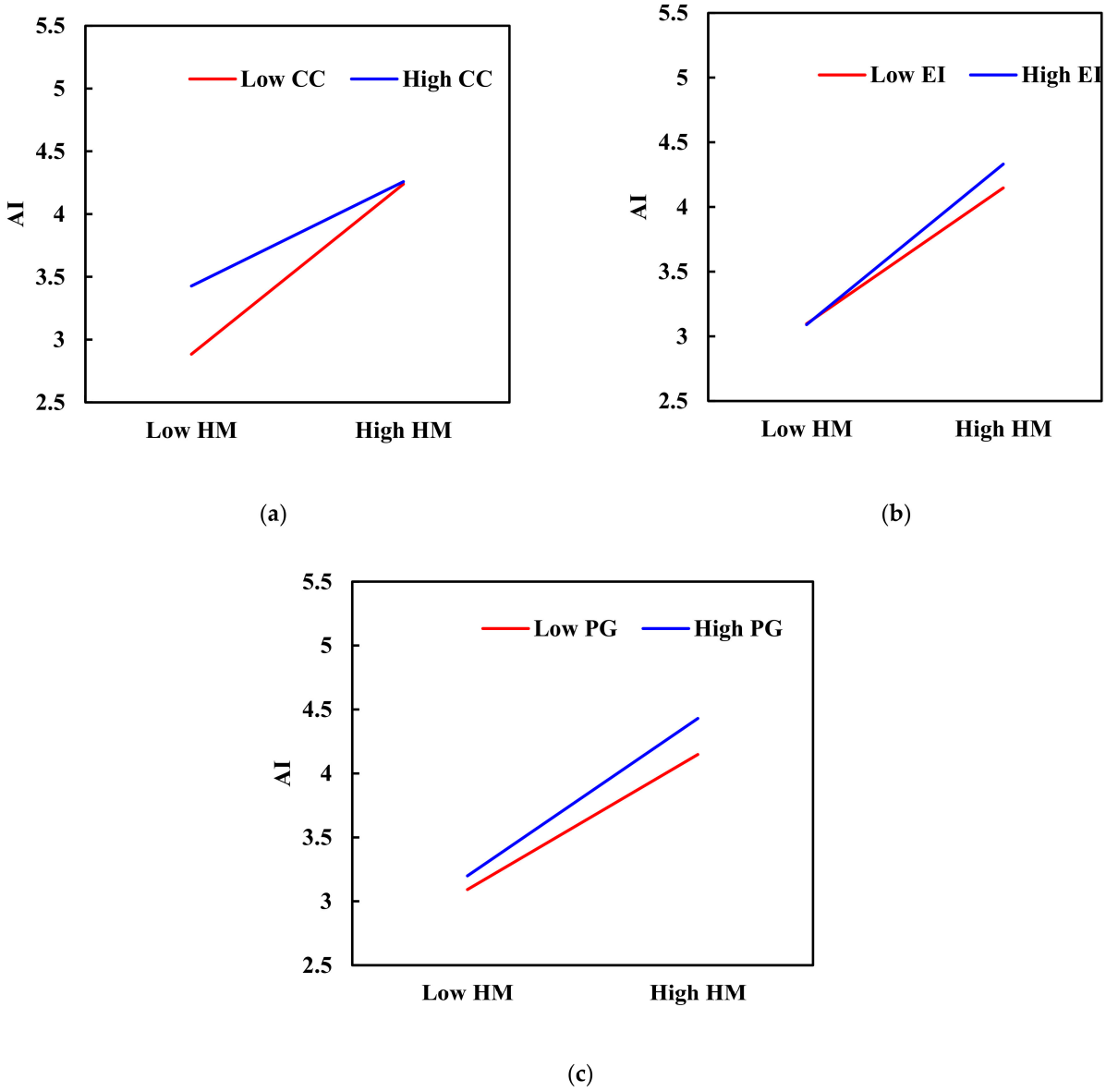

Figure 6. Moderating effect of CC (**a**), EI (**b**) and PG (**c**).

To further explore the moderating effect of different policy instruments on the relationship between psychological factors and adoption intention, this paper drew a simple slope plot, as shown in Figure 6, based on the simple slope analysis of Toothaker [61]. The policy instruments are divided into two levels, namely weak and strong, and herd mentality is divided into high and low levels. Figure 6a shows that the higher the intensity of command-and-control policy instruments, the worse the effective transformation of herd mentality to adoption intention. Figure 6b shows that the shift from herd mentality to adoption intention can be improved when economic incentive policy instruments are used intensively. Figure 6c shows that when the intensity of the use of publicity-and-guidance policy instruments is high, the shift from herd mentality to adoption intention can be improved.

6. Discussion

6.1. The Direct Role of Recycled Water Information Disclosure and the Mediating Role of Psychological Factors

The results indicate that the disclosure of recycled water information has a significant positive impact on the public's intention to adopt recycled water, which is in line with the conclusion of Hou et al. [10]. Guasch and Hahn [32] conclude that more information enhances public decision-making. The perception of and response to environmental issues are not only based on personal experience. People's access to environmental knowledge and information sources could change environmental decision-making in an age of an information explosion [10]. More information about recycled water will facilitate positive decision-making by the public, while a lack of information about recycled water will limit public adoption.

At the same time, psychological factors (trust, awareness of water environment protection, and herd mentality) have multiple parallel mediating effects between recycled water information disclosure and adoption intention. Previous publications have realized the impact of psychological factors on clean energy adoption intentions [35,62], and this study found that psychological factors can serve as a bridge between recycled water adoption intentions and external factors. The results of this study suggest that having more information about recycled water can stimulate the public's trust, awareness of environmental water protection and herd mentality, thereby increasing the public's intention to adopt recycled water. The transparency of environmental information disclosure by the government can support environmental decision-making at the government level and active public participation in environmental issues [10]. Therefore, when the government discloses more information about recycled water, this move can enhance public awareness of environmental water protection, thus promoting public acceptance of recycled water. Also, Ross et al. [16] conclude that greater trust in the government to provide safe recycled water will be associated with greater intention to adopt recycled water. The government should therefore disclose more information relating to the safety of recycled water in order to increase public trust and thus facilitate promotion.

6.2. The Prominent Role of Herd Mentality

It is worth noting that among all the psychological factors, the mediating effect of the indirect influence of herd mentality is the strongest, and the influence on the intention to adopt recycled water is also the most significant. This is inconsistent with the findings of Li et al. [5]. Song et al. [52] argue that an important reason for herd mentality is the limited and asymmetric information available to consumers. Currently, the promotion of recycled water use in China is still in its infancy and has not been widely employed. Also, the information available to the public is relatively limited. Therefore, to gather more product information, people often refer to other people's reviews, which changes their perception of the product and drives them to make a decision. This study sees the promotion of recycled water as a promotion of innovation, which, according to Rogers [21], is "the process by which innovation spreads among members of a social system through certain channels over time". The flow of information through peer effects and social networks influences the diffusion of innovation. Faced with the uncertainty of innovation, individuals want to know if their thinking is similar to the views of their peers. Rogers [21] divides adopters into five categories: innovators, early adopters, early majority, late majority, and laggards. Most research has focused on innovators and early adopters, as these adopters are the first to use new technologies, and their attitudes toward innovation may hinder or facilitate the diffusion process. The "herd mentality" best reflects this effect, and consumers' perception of costs and risks may gradually weaken with network effects while the perceived benefits gradually increase. In addition, the perception of the environment and the pressure from other groups to be ethical and socially responsible will increase consumers' environmental awareness.

6.3. Differences in the Moderating Role of Policy Instruments

The moderating effect analysis showed that the moderating effect of the three policy instruments was only significant between herd mentality and adoption intention, which once again confirmed the importance of herd mentality. However, the moderating effects of different policy instruments on herd mentality are different.

Economic incentive policy instruments have a positive moderating effect on the relationship between herd mentality and adoption intention, which is in line with the previous findings of Li et al. [63]. They report that the peer effect significantly impacts an individual's behavior and that if the income of an individual who takes a green action does not increase, it will significantly discourage others from engaging in green actions. Conversely, when some people receive subsidies for green behaviors, others will be motivated to take green actions [64]. This provides a reasonable explanation for the moderating effect of economic incentives, as subsidies tend to amplify the herd mentality of the public. Therefore, subsidies should be offered and demonstration projects established within the recycled water pilot project's scope to maximize herd mentality's effect.

Our findings also show that publicity-and-guidance policy instruments play a positive role in moderating the relationship between herd mentality and adoption intention. As mentioned earlier, herd mentality arises due to the limitations and asymmetry of the information that consumers obtain, which requires seeking confirmation and support from peers and others. The publicity-and-guidance policy is information-based, and its essence lies in the amount of information disseminated and the expansion of information disclosure. This suggests that applying high-intensity publicity-and-guidance policy can improve the public's access to recycled water information effectively so that the herd mentality can be transformed into adoption intention more effectively. Therefore, in the future, it is necessary to further strengthen the implementation of the publicity-and-guidance policy and expand the dissemination of information.

Notably, we find that command-and-control policy instruments negatively moderate the relationship between herd mentality and adoption intention. This confirms the view of Li et al. [5] that strict policies on the promotion of recycled water will limit the decision-making power of individuals to some extent. The command-and-control policy is a coercive policy, which is a mandatory and robust legal regulation adopted by the government to influence the reuse of recycled water by individuals, and the effect of implementation on the behavior is very obvious. The results show that the command-and-control policy can significantly and positively affect the intention to adopt recycled water, which is related to the public's instinct to comply with laws and regulations. However, its moderating effect on herd mentality is contrary to the hypothesis. Cheng et al. [65] argue that the government implements policy more from the perspective of "contributors" and ignores the perspective of "consumers", leading to the separation of policy from personal intentions. In the case of limited individual decision-making, the adoption intention under the influence of command-and-control policy is a response from the public's perspective as a "contributor", deviating from their true intention. This policy ignores the psychological notion of the public as "consumers", who actively collect information and weigh the benefits and risks of recycled water, weakening the network effect and inhibiting the transformation from herd mentality to adoption intention.

7. Conclusions and Policy Implications

7.1. Conclusions

Based on the Diffusion of Innovation Theory, we constructed a new research model and explored the process of adopting recycled water, including its internal and external influencing factors. Based on data from four provinces with high water stress in China, this paper draws the following conclusions:

The disclosure of recycled water information positively influences the public's intention to adopt recycled water, and having more information about recycled water will facilitate the public's positive decision-making. Psychological factors (trust, awareness

of water environment protection, and herd mentality) have multiple parallel mediating effects on recycled water information disclosure and adoption intention. Recycled water information disclosure indirectly affects adoption intentions by positively influencing psychological factors.

Herd mentality's mediating effect is the strongest, and its direct influence on the intention to adopt recycled water is also the most significant. This shows that the public's intention to adopt recycled water is primarily influenced by the people around them. As the community embraces the reuse of recycled water, individuals will also put it into use.

Command-and-control policy instruments negatively moderate the relationship between herd mentality and the intention to adopt recycled water, while economic incentives and publicity-and-guidance policy instruments positively moderate the relationship between herd mentality and the intention to adopt recycled water. This shows that in the process of recycled water promotion, coercive policies (CC) inhibit adoption intentions while guiding policies (EI, PG) promote it. The command-and-control policy ignores the psychology of the public as "consumers", weakens the network effect, and inhibits the transformation from herd mentality to adoption intention, while the subsidy for recycled water use and publicity guidance will effectively increase the public's adoption intentions.

7.2. Policy Implications

In a practical sense, the results of this paper can help policymakers seek and adopt effective policy measures and provide a reference for the promotion of recycled water in areas with high water stress. Specific policy implications include the following:

When formulating various policies related to the popularizing of recycled water, we should concentrate on the disclosure of relevant information about recycled water, strengthen the public's understanding of recycled water, and stimulate the public's trust, awareness of environmental water protection and herd mentality, to effectively promote it.

The overall utilization rate of recycled water in China is low, and residents' level of recycled water reuse behavior can be improved in a relatively short period through command-and-control policies, such as forcing urban car washes to only use recycled water. However, a one-size-fits-all policy is not conducive to increasing the public's acceptance of and positive attitudes toward recycled water. Therefore, the government should pay close attention to the public's attitude and acceptance of the policy and formulate appropriate command and control policies in parallel according to the current situation of different cities and different social groups.

Economic incentives should be further improved, with the establishment of a special fund for recycled water, tax incentives, and financial subsidies for enterprises or individuals who actively use recycled water, the determination of a reasonable price for recycled water, and the maintenance of an appropriate gap between the price of recycled water and tap water. At the same time, the construction of recycled water pilot sites should be further accelerated. Through field investigations, combined with the intentions of residents, some communities were selected as pilot sites, and residents were guided to use recycled water in the pilot area by offering subsidies for the use of recycled water, taking full advantage of herd mentality and progressively guiding other residents to accept and use recycled water.

Publicity and education regarding recycled water reuse should be increased and the public's understanding of recycled water should be improved. The long-term stability of the impact of information-based policies should be considered, and the public should be conferred an in-depth understanding of recycled water reuse through multi-channel publicity and education activities. It is necessary to further strengthen the promotion and publicity of knowledge about recycled water, and disseminate it to residents through billboards, banners, and regular training for community cadres. The public should be encouraged to start using recycled water gradually during their daily lives.

7.3. Limitations and Future Research

This study has some limitations, allowing further discussions and improvements in future research. Firstly, this paper uses a questionnaire to obtain cross-sectional data, which allows for the study of correlations between variables, but has limitations in causal inference. Therefore, we will design more in-depth studies, such as longitudinal or experimental studies, to investigate causal relationships in the future. Secondly, when measuring RWID, this study measured the respondents' knowledge of local recycled water information through questionnaires without taking into account the difference between the respondents' knowledge perception and the actual information they were exposed to. Future research is recommended to examine the differences between these two aspects and their impact on AI. Thirdly, the acceptance of recycled water in households may vary depending on its intended uses, such as bathing, washing clothes, cleaning the house, growing food, irrigation, etc. [66]. In the future, we will conduct a subdivided study on the use of recycled water and explore the impact of different recycled water uses on the public's intention to adopt. Finally, the results of this study suggest the prominent role of herd mentality, as opinion leaders in groups often play an important role in information dissemination and technology diffusion [21]. It is recommended that future research focuses on investigating the characteristics and roles of opinion leaders in providing valuable insights for the promotion of recycled water initiatives.

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References

1. Zhu, Z.F.; Li, A.H.; Wang, H.R. Public perception and acceptability of reclaimed water: The case of Shandong province, China. *J. Water Reuse Desalin.* **2018**, *8*, 308–330. [CrossRef]
2. China Statistical Yearbook 2023. Available online: https://www.stats.gov.cn/sj/ndsj/2023/indexch.htm (accessed on 9 July 2024).
3. Tortaiada, C.; Rensburg, P.V. Drink more recycled wastewater. *Nature* **2020**, *577*, 26–28. [CrossRef] [PubMed]
4. Li, L.; Liu, X.J.; Zhang, X.Y. Public attention and sentiment of recycled water: Evidence from social media text mining in China. *J. Clean Prod.* **2021**, *303*, 126814. [CrossRef]
5. Li, L.; Liu, X.J.; Ding, Y.Z.; Liu, N. Urban residents' acceptance of recycled water: An improved innovation-decision model considering the needs satisfied and social characteristics. *Sustain. Prod. Consump.* **2022**, *33*, 1005–1017. [CrossRef]
6. Gao, X.K.; Liu, Q. National economic evaluation of reclaimed water project. *Environ. Sci. Technol.* **2019**, *42*, 229–236. [CrossRef]
7. Dolnicar, S.; Hurlimann, A. Water alternatives—Who and what influences public acceptance? *J. Public Aff.* **2011**, *11*, 49–59. [CrossRef]
8. Dolnicar, S.; Hurlimann, A.; Grun, B. What affects public acceptance of recycled and desalinated water? *Water Res.* **2011**, *45*, 933–943. [CrossRef] [PubMed]
9. Dolnicar, S.; Hurlimann, A.; Nghiem, L.D. The effect of information on public acceptance—The case of water from alternative sources. *J. Environ. Manag.* **2010**, *91*, 1288–1293. [CrossRef] [PubMed]
10. Hou, C.; Fu, H.; Liu, X.; Wen, Y. The effect of recycled water information disclosure on public acceptance of recycled water—Evidence from residents of Xi'an, China. *Sust. Cities Soc.* **2020**, *61*, 102351. [CrossRef] [PubMed]
11. Taher, M.N.; Awayes, J.; Cavkas, S.; Beler-Baykal, B. Public attitude for acceptance of grey water reuse in Istanbul and the impact of informing potential consumers. Desalin. *Water Treat.* **2019**, *172*, 316–322. [CrossRef]

12. Glick, D.M.; Goldfarb, J.L.; Heiger-Bernays, W.; Kriner, D.L. Public knowledge, contaminant concerns, and support for recycled water in the United States. *Resour. Conserv. Recycl.* **2019**, *150*, 104419. [CrossRef]
13. Gu, Q.X.; Chen, Y.; Pody, R.; Cheng, R.; Zheng, X.; Zhang, Z.X. Public perception and acceptability toward reclaimed water in Tianjin. *Resour. Conserv. Recycl.* **2015**, *104*, 291–299. [CrossRef]
14. Zhu, Z.F.; Wang, H.R.; Li, A.H. On the factors influencing public knowledge and acceptance of reclaimed water from a survey of three cities in northern China. *J. Water Reuse Desalin.* **2019**, *9*, 193–202. [CrossRef]
15. Mu'azu, N.D.; Abubakar, I.R.; Blaisi, N.I. Public acceptability of treated wastewater reuse in Saudi Arabia: Implications for water management policy. *Sci. Total Environ.* **2020**, *721*, 137659. [CrossRef] [PubMed]
16. Ross, V.L.; Fielding, K.S.; Louis, W.R. Social trust, risk perceptions and public acceptance of recycled water: Testing a social-psychological model. *J. Environ. Manag.* **2014**, *137*, 61–68. [CrossRef] [PubMed]
17. Hou, C.; Wen, Y.; Liu, X.; Dong, M. Impacts of regional water shortage information disclosure on public acceptance of recycled water—Evidences from China's urban residents. *J. Clean. Prod.* **2021**, *278*, 123965. [CrossRef]
18. Liu, L. Simulation Study of Factors Influencing Recycled Water Reuse Behaviour of Urban Residents and Intervention Strategies. Master's Thesis, Xi'an University of Architecture and Technology, Xi'an, China, 2020. [CrossRef]
19. Ding, Y.Z.; Liu, X.J.; Fu, H.L. The effect of recycled water information providing on public acceptance of recycled water:An Eye-Tracking Experiment. *Resour. Conserv. Recycl.* **2022**, *185*, 106464. [CrossRef]
20. Kuzma, S.; Bierkens, M.F.P.; Lakshman, S.; Luo, T.; Saccoccia, L.; Sutanudjaja, E.H.; Beek, R.V. Aqueduct 4.0: Updated decision-relevant global water risk indicators. *World Resour. Inst.* **2023**. [CrossRef]
21. Rogers, E.M. *Diffusion of Innovations*, 5th ed.; Free Press: New York, USA, 2003; ISBN 978-07-4322-209-9.
22. Zhang, H.F.; Vorobeychikl, Y. Empirically grounded agent-based models of innovation diffusion: A critical review. *Artif. Intell. Rev.* **2019**, *52*, 707–741. [CrossRef]
23. Wang, W.D.; Jin, S.L.; Zhang, C.J. Social capital and rural residential rooftop solar energy diffusion—Evidence from Jiangsu Province, China. *Energy Res. Soc. Sci.* **2023**, *98*, 103011. [CrossRef]
24. Hossain, M. Frugal innovation: Conception, development, diffusion, and outcome. *J. Clean. Prod.* **2020**, *262*, 121456. [CrossRef]
25. Ozyilmaz, A.; Erdogan, B.; Karaeminogullari, A. Trust in organization as a moderator of the relationship between self-efficacy and workplace outcomes:a social cognitive theory-based examination. *J. Occup. Organ. Psychol.* **2018**, *91*, 181–204. [CrossRef]
26. Schunk, D.H.; Dibenedetto, M.K. Motivation and social cognitive theory. *Contemp. Educ. Psychol.* **2020**, *60*, 101832. [CrossRef]
27. Bandura, A. Social cognitive theory: An agentic perspective. *Asian J. Soc. Psychol.* **1999**, *2*, 21–41. [CrossRef]
28. Board, S.; Lu, J. Competitive information disclosure in search markets. *J. Polit. Econ.* **2018**, *126*, 1965–2010. [CrossRef]
29. Goldstein, I.; Yang, L. Information disclosure in financial markets. *Annu. Rev. Financ. Econ.* **2017**, *9*, 101–125. [CrossRef]
30. Kolotilin, A. Optimal information disclosure: A linear programming approach. *Theor. Econ.* **2018**, *13*, 607–635. [CrossRef]
31. Zhou, Q.; Tang, S.K. Media use and Chinese public's pro-environmental behavior:analyzing the multiple mediation effects of environmental knowledge and environmental risk perception. *J. China Univ. Geosci.* **2017**, *17*, 80–94. [CrossRef]
32. Guasch, J.L.; Hahn, R.W. The costs and benefits of regulation: Implications for developing countries. *World Bank Res. Observ.* **1999**, *14*, 137–158. [CrossRef]
33. Jeffrey, P.; Jefferson, B. Public receptivity regarding "in-house" water recycling: Results from a UK survey. *Water Sci. Technol. Water Supply* **2003**, *3*, 109–116. [CrossRef]
34. Tsagarakis, K.; Georgantzis, N. The role of information on farmers' willingness to use recycled water for irrigation. *Water Sci. Technol. Water Supply* **2003**, *3*, 105–113. [CrossRef]
35. Li, L.Y.; Fan, F.M.; Liu, X.D. Determinants of rural household clean energy adoption intention: Evidence from 72 typical villages in ecologically fragile regions of western China. *J. Clean. Prod.* **2022**, *347*, 131296. [CrossRef]
36. Shi, X.; Song, Z. The Silent Majority: Local residents' environmental behavior and its influencing factors in coal mine area. *J. Clean. Prod.* **2019**, *240*, 118275. [CrossRef]
37. Zhang, C.Y.; Yu, B.; Wang, J.W.; Wei, Y.M. Impact factors of household energysaving behavior: An empirical study of Shandong Province in China. *J. Clean. Prod.* **2018**, *185*, 285–298. [CrossRef]
38. Siegrist, M.; Cvetkovich, G.; Roth, C. Salient value similarity, social trust, and risk/benefit perception. *Risk Anal.* **2000**, *20*, 353–362. [CrossRef] [PubMed]
39. Hurlimann, A.; McKay, J. Attitudes to reclaimed water for domestic use: Part 2. *Trust. Water* **2004**, *31*, 40–45.
40. Marks, J.; Jadoroznyj, M. Managing sustainable urban water reuse: Structural context and cultures of trust. *Soc. Nat. Resour.* **2005**, *18*, 557–572. [CrossRef]
41. Lopez-Ruiz, S.; Moya-Fernandez, P.J.; Garcia-Rubio, M.A.; Gonzalez-Gomez, F. Acceptance of direct potable water reuse for domestic purposes: Evidence from southern Spain. *Int. J. Water Resour. Dev.* **2021**, *37*, 772–792. [CrossRef]
42. Wang, J.M. The influence of resource conservation consciousness on resource conservation behavior. *Manag. World* **2013**, *8*, 77–100. [CrossRef]
43. Nemeroff, C.; Rozin, P.; Haddad, B.; Slovic, P. Psychological barriers to urban recycled water acceptance: A review of relevant principles in decision psychology. *Int. J. Water Resour. Dev.* **2020**, *36*, 956–971. [CrossRef]
44. Lahlou, F.Z.; Mackey, H.R.; McKay, G.; Al-Ansari, T. Reuse of treated industrial waste water and bio-solids from oil and gas industries: Exploring new factors of public acceptance. *Water Resour. Ind.* **2021**, *26*, 12. [CrossRef]

45. Fu, H.L.; Niu, J.C.; Liu, L. An empirical study on the effect of urban residents' reclaimed water reuse behavior in guiding policies. *J. Arid. Land. Resour. Environ.* **2021**, *35*, 53–58. [CrossRef]
46. *Managing the Environment: The Role of Economic Instruments OECD*; OECD Publications and Information Center: Washington, DC, USA, 1994; ISBN 92-64-14136-7.
47. Peng, D. Research on the Formation Mechanism of Rural Residents' Domestic Waste Sorting Behavior: Moderating Effects Based on Implementation Costs and Policy Instruments. Master's Thesis, Jiangxi Agricultural University, Nanchang, China, 2023.
48. Mi, L.Y. Study on the Low-Carbon Energy Consumption Behaviour of Urban Residents and Policy Guidance. Ph.D. Thesis, China University of Mining and Technology, Xuzhou, China, 2011.
49. Bernstein, I.H. Likert Scale Analysis. *Encycl. Soc. Meas.* **2005**, *2*, 497–504. [CrossRef]
50. Akhtar, R.; Sultana, S.; Masud, M.M.; Jafrin, N.; Al-Mamun, A. Consumers' environmental ethics, willingness, and green consumerism between lower and higher income groups. *Resour. Conserv. Recycl.* **2021**, *168*, 105274. [CrossRef]
51. Kaplan, S.; Manca, F.; Nielsen, T.A.S.; Prato, C.G. Intentions to use bike-sharing forholiday cycling: An application of the theory of planned behavior. *Tour. Manag.* **2015**, *47*, 34–46. [CrossRef]
52. Song, Y.; Zhao, C.; Zhang, M. Does haze pollution promote the consumption of energy-saving appliances in China? An empirical study based on norm activation model. *Resour. Conserv. Recycl.* **2019**, *145*, 220–229. [CrossRef]
53. Zhang, Y.; Yang, R.; Peng, X.; Zhang, W.; Gao, Z. Principles and models of validated factor analysis and their application to assessing the structural validity of scales. *Chin. J. Health Manag.* **2022**, *16*, 428–432. [CrossRef]
54. IBM Corp. *IBM SPSS Statistics*; Version 26, Windows; IBM Corp: Armonk, NY, USA, 2019.
55. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis: A Global Perspective*, 7th ed.; Person Prentice Hall: Upper Saddle River, NJ, USA, 2010; ISBN 978-013-813-263-7.
56. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Market. Res.* **1981**, *18*, 39–50. [CrossRef]
57. Chin, W.W.; Gopal, A.; Salisbury, W.D. Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation. *Inf. Syst. Res.* **1997**, *8*, 342–367. [CrossRef]
58. Hair, J.F.; Hult, G.T.M.; Ringle, C.M.; Sarstedt, M.; Danks, N.P.; Ray, S. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*; Springer: New York, NY, USA, 2021; ISBN 978-3-030-80518-0.
59. Arbuckle, J.L. *IBM SPSS Amos*; Version 24, Windows; SPSS: Chicago, IL, USA, 2006.
60. Xiaohua, W.; Zhenmin, F. Rural household energy consumption with the economic development in China: Stages and characteristic indices. *Energy Pol.* **2001**, *29*, 1391–1397. [CrossRef]
61. Toothaker, L.E. Multiple Regression: Testing and Interpreting Interactions. *J. Oper. Res. Soc.* **1994**, *45*, 119–120. [CrossRef]
62. Chen, M.F. Extending the theory of planned behavior model to explain people's energy savings and carbon reduction behavioral intentions to mitigate climate change in Taiwan–moral obligation matters. *J. Clean. Prod.* **2016**, *112*, 1746–1753. [CrossRef]
63. Li, D.; Du, J.; Sun, M.; Han, D. How conformity psychology and benefits affect individuals' green behaviours from the perspective of a complex network. *J. Clean. Prod.* **2020**, *248*, 119215. [CrossRef]
64. Gong, Y.; Cai, B.f.; Sun, Y. Perceived fiscal subsidy predicts rural residential acceptance of clean heating: Evidence from an indoor-survey in a pilot city in China. *Energy Pol.* **2020**, *144*, 111687. [CrossRef]
65. Cheng, X.; Long, R.; Chen, H. A policy utility dislocation model based on prospect theory: A case study of promoting policies with low-carbon lifestyle. *Energy Pol.* **2020**, *137*, 111134. [CrossRef]
66. Moya-Fernández, P.J.; López-Ruiz, S.; Guardiola, J.; González-Gómez, F. Determinants of the acceptance of domestic use of recycled water by use type. *Sustain. Prod. Consump.* **2021**, *27*, 575–586. [CrossRef]