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| **Table S1**  General descriptive statistics about the sample structure |
| Demographic characters | N | Percentage (%) | City population structure (%)**\*** |
|
| Gender | Male | 319 | 35.8  | 49.7 |
| Female | 572 | 63.2 | 50.3 |
| Age(year) | 18-29 | 134 | 15.0 | 12.6 |
| 30-39 | 164 | 18.4 | 71.2(30-59 years old) |
| 40-49 | 232 | 26.1 |
| 50-59 | 228 | 25.6 |
| >60 | 131 | 14.9 | 16.2 |
| Education(year) | Primary school and below | 59 | 6.6 | 30.5 |
| High school | 415  | 46.6 | 37.5 |
| University and above | 417 | 46.8 | 32.0 |
| Marital status | Married | 771 | 86.5 | NA |
| Unmarried | 120 | 13.5 | NA |
| Occupation | Official & company employee | 468 | 63.7 | 70.4 |
| Self-employee | 91 | 10.2 | 10.1 |
| Farmer | 21 | 2.5 | 5.5 |
| The retired, housewife & jobless | 187 | 21.0 | 12.6 |
| Others | 23 | 2.6 | 1.4 |
| Monthly income(RMB) | <2000 | 212 | 23.8 | NA |
| 2000-4000 | 326 | 36.6 | NA |
| 4000-8000 | 242 | 27.2 | NA |
| >8000 | 111 | 12.5 | NA |
| \* City population data was obtained from 2010 China population census |

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| **Table S2.** Question design and definition of risk characteristics |
| Questions | Perception factor | Value |
| 1. In your opinion, to what degree is the risk associated with cold weather known to you?
 | Knowledge | 1-5a |
| 1. In your opinion, are the risks associated with cold weather immediate or long term?
 | Instance | 1-5 b |
| 1. In your opinion, is cold weather a problem?
 | Severity | 1-5 c |
| 1. In your opinion, is the health risk associated with cold weather serious?
 | Severity | 1-5d |
| 1. In your opinion, how much does cold weather benefit you?
 | Benefit | 1-5e |
| 1. In your opinion, to what degree can the risk associated with cold weather be avoided by the exposed population?
 | Controllability | 1-5f |
| 1. In your opinion, to what degree can you accept the risk caused by cold weather?
 | Acceptance | 1-5g |
| a Scale ranges from 1=“No knowledge at all” to 5=“High level of knowledge”.b Scale ranges from 1=“Occurs after a long time” to 5=“Occurs immediately”.c Scale ranges from 1=“Very Low” to 5=“Very high”.d Scale ranges from 1=“Very Low” to 5=“Very high”.e Scale ranges from 1=“Not helpful at all” to 5=“Fully helpful”.f Scale ranges from 1=“Not avoidable” to 5=“Fully avoidable”.g Scale ranges from 1=“Not acceptable at all” to 5=“Fully acceptable”. |

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| **Table S3**  Perceived acceptance level of different groups  |
| Demographic characters | Chi-squarea(Sig.) | percentage of 1-5 score  |
| 1 | 2 | 3 | 4 | 5 |
| Gender | Male | 1.814(0.770) | 0.13 | 0.34 | 0.23 | 0.29 | 0.01 |
| Female | 0.11 | 0.33 | 0.21 | 0.33 | 0.01 |
| Age(year) | 18-29 | 30.280(**0.004**) | 0.07 | 0.46 | 0.22 | 0.23 | 0.01 |
| 30-39 | 0.11 | 0.38 | 0.24 | 0.25 | 0.01 |
| 40-49 | 0.11 | 0.38 | 0.24 | 0.25 | 0.01 |
| 50-59 | 0.13 | 0.24 | 0.24 | 0.38 | 0.01 |
| >60 | 0.11 | 0.34 | 0.18 | 0.37 | 0.01 |
| Education(year) | Primary school and below | 7.884(0.445) | 0.14 | 0.36 | 0.19 | 0.29 | 0.03 |
| High school | 0.13 | 0.32 | 0.24 | 0.31 | 0.01 |
| University and above | 0.10 | 0.35 | 0.20 | 0.33 | 0.01 |
| Marital status | Married | 2.857(0.582) | 0.12 | 0.33 | 0.22 | 0.32 | 0.01 |
| Unmarried | 0.08 | 0.37 | 0.23 | 0.32 | 0.02 |
| Occupation | Official & company employee | 0.12 | 0.33 | 0.22 | 0.32 | 0.01 |
| Self-employee | 3.432(0.992) | 0.15 | 0.34 | 0.21 | 0.29 | 0.01 |
| Farmer | 0.10 | 0.33 | 0.24 | 0.33 | 0.00 |
| The retired, housewife & jobless | 0.09 | 0.35 | 0.30 | 0.26 | 0.00 |
| Others | 0.12 | 0.33 | 0.22 | 0.32 | 0.01 |
| Monthly income(RMB) | <2000 | 17.895(0.119) | 0.15 | 0.32 | 0.25 | 0.27 | 0.00 |
| 2000-4000 | 0.11 | 0.33 | 0.22 | 0.33 | 0.01 |
| 4000-8000 | 0.10 | 0.34 | 0.18 | 0.36 | 0.03 |
| >8000 | 0.12 | 0.35 | 0.25 | 0.28 | 0.00 |

**The background information in questionnaire**

 “Extreme cold weather refers to a sudden and significant decrease in daily mean temperature. It is a natural disaster may influence agriculture, transportation and even human health. In recent years, more extreme cold weather occurs in Harbin.

Depending on your real feeling of the recent weather, please answer the following questions and choose the right score to express what you think.”