International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2019): 7.583

The Role of Personal Worries and Trust in Authorities in Explaining Risk Perception among Students from the University

Zeyu Cao

College of Liberal Arts and Social Sciences, City University of Hong Kong

Abstract: ***This article aims to analyze the role of personal worries and trust in authorities in risk perception among young people in Hong Kong by quantitative data. According to the frequency analysis, all variables in the present study have shown a standard normal distribution curve. Factor analysis was applied to test the internal consistency, detect the reliability, and establish the structural validation of the measures. Based on correlation analysis, linear regression analysis and logistic regression analysis, five hypotheses are correct: (1) the more personal worries students have, the higher level of risk perception they perceive; (2)the amount of student' personal worries negatively associate with their trust in authorities; (3)student who distrust in authorities tends to have higher level of risk perception; (4)student' distrust in authorities will mediate the effects of their personal worries on their risk; (5) there is a positive and reciprocal effect between students' fear and risk perception. And three hypotheses are wrong: (1) the amount of student's personal words positively correlated with their distrust in authorities; (2) student who trust in authorities tens to have lower level of risk perception perceived governmental controllability, the lower amount of risk will be perceived by students; (3)the higher level of students' perceived governmental controllability, the lower amount of risk will be perceived by students. The present study may serve as a pilot study, and the findings may potentially provide some insights for policymakers and government staffs in order to better understand the mechanism of risk perception and create an atmosphere of safety.***

Keywords: personal worries; risk perception; trust in authorities

1. Introduction

The keen sense to perceive upcoming risk is certainly a necessity for avoiding potential harm, which is essential for the survival of individual and the continuation of all species (Slovic, 2000). Risk perception is a mental mechanism and sociological experiences that remind human to be aware their surrounding and to make quicker response to the dangers (Renn, 1990). This particular survival instinct lowers risk as well as producing some anxieties (Turner, 2006). Excessive perceived risk could result in public panic (Yang, 2019), so how to regulate and control the risk perception have been a focus interested by government and policymakers in the past few decades. Approaches in psychology, economy, sociology and inter-discipline have proposed different theories and latent factors to balance the fine line between precise estimation regards to potential dangerousness and overwhelming panic toward unknown risk.

The prime goal of the present study places in the further understand how perceived personal worries and trust in authorities lead to the difference among risk perception. It has been long argued that the personal worries and the faith on government could affect the sense of security or risk perception of its people (Brosschot, 2006; Huang, 2010). Whereas, is the case really true? There are already substantial existing literatures and studies focus on the external factors of risk perception like risk predictability, risk severity and nature of risk, but the internal factors include psychological states, personal worries, trust in authorities and perceived governmental controllability that contribute to risk perception have relatively rarer to be discussed (Reyna, 2004).

2. Literature Review

Risk perception

According to Cantor and Rayner (1987), the risk reflects the probability anticipation regarding to impact on negative and undesired outcomes. Risk perception also refers to series of mental activities and psychological cognitions that could generate influence to people's work and daily life, which is an important indicator of the psychological well-being and panic of the public in the society (Sjöberg, 1987). Perceived risk has been considered as the main factor that inhibits certain behaviors of an individual (Fischhoff, 1978). For example, reducing level of risk perception is effective to either promote or decline consuming behavior. Moreover, perceived risk has a long history of been the concerns of government and political party. For government, risk perception has been used as a significant point for better understand the changes of environment and technology (Sjöberg, 1998).

The research topic of risk perception is complex to study, because there are numerous factors directly or indirectly affect it. For exploration, the factors predicting risk perception could be roughly spited into two categories. The first is external factor, which is featured by the nature and the detectability of risk; the second is internal factor, which contains personal characteristics, individual knowledge, community background, governmental controllability, trust in authorities and so on (Timothy, 1995).

As stated previously, the present article mainly focuses on

how the internal factors related with personal worries and individual attitudes toward governmental agencies, influence the amount of risk perceived by the students.

Fear

Fear is a sort of negative emotion that everyone has, which always caused by predicted risk and it can further enhance the level of risk assessment. In traditional view, the degree of fear is an indicator of risk perception. Following with the accumulation of negative emotion, more and more risk would be perceived by people (Fischhoff, 1978).

According to the recent studies, fear is predicted by the amount of perceived risk. As the perception of risk and danger arises, the body of human would be automatically alerted by fear, and take different behavior based on the contexts of situation (Loewenstein, 2001). The uncontrolled fear related with anticipated risk may result in serious damages to individual's daily life, and huge burden to the society (Fehm, 2005). Instead of a predictor, fear may be a consequence of risk perception.

Serving as both outcome and leading indicator of fear, perceived risk is a really significant research topic for government to study in order to keep the social order and maintain the social functioning. In the study, the reciprocal effect between fear and perceived risk was assumed.

Personal worries

Similar to fear, worry is a sort of natural emotion to perceived future stressors and uncertainty (Brosschot, 2005). According to Liebert and Morris, worry belongs to the cognitive aspect of anxiety. The common reaction to an anticipated problem is to worry about it (Liebert & Morris, 1967).

Although, there are plenty of debates about the relations of personal emotion and risk perception, the correlation between worries and perceived risk seems certain. Some studies show people who suffered with anxiety and worry are more likely to overestimate the risks (Johnson, 1983; Lerner, 2001); some shows, there are reciprocal effect between people's emotion and their pattern of dealing with risks (Loewenstein, 2001).

Additionally, Alaszewski and Coxon (2009) investigated how perceived risk negatively influence the worry emotion and the trust among people. As the connection between worry and trust was build, but there are still very few researches have investigated the effect of trust in worry and risk perception. The present study assumes the connection between personal worries and risk perception is mediated by distrust in governmental agencies.

Perceived governmental controllability

As revealed by existing literature, the perceived governmental risk controllability is tightly associate with the essence of risk perception (Huang, 2010). The risk controllability of government is affected by a number of factors. The governmental capability as one of the clearest factors that predict the degree of public risk perception. As the capability of a government increase, the security sense of the public would increase, which reduces the individual risk perception. The critical point here is, the capability of government is always ambiguous, because the public cannot fully aware all the efforts done by government and have no omniscient knowledge on the governmental control. Consequently, Chung and Lee (2010) suggested the perceived governmental controllability could be represented by the public attitude regarding to governmental capability.

Although, it is commonly believed that the controllability of government is an important factor of risk perception, but the relationship between these two variables remain unclear. The research outputs are conflicting. For example, Huang (2010) concluded the higher governmental risk controllability level predicts the higher level of public risk acceptance and lead to less perceived risk by the public, whereas Sjoberg (2004) pointed out the controllability of government may have positive relationship with the amount of risk perceived by people who do not trust the efficiency of the policies. Due to contradicted previous findings and the few investigations toward other internal factor, the present study aims to further test the relationship between governmental controllability and public risk perception, and build a new model to investigate the effect with the authority.

Trust in authorities

The natural science appeals to no fallacy in authority, while the society has to put trust in authorities to some extents. Trust is a concept that has been recognized as an important point to understand the effects between the policy attitudes and perceived risk by the general public (Sjöberg, 2001). As the results of Sjöberg's study revealed, trust in government and other social institutions is associated with risk communication, which may lead to the decline of received risk by the public. Among risk communication, the force of trust enhances the efficiency of conveying necessary information and improve the overall stability of the society.

People, who are in the emotion of worry and anxiety, are likely to experience a hard time in developing trust relationship with the others (Walle, 2013). The connection between personal worry and trust in government is well-supported by previous study (Walle, 2010; MacKnight, 2004). As a result, distrust in authorities could be a valuable potential mediator to analyze the ambiguous relationship between personal worries and risk perception. Degree of trust in authorities may be a consequence of personal worries and a cause of risk perception.

There are many previous studies has investigated the correlation between trust in authorities and risk perception. Contrast to conspiracists, people have more confidence and faith on the government have lower level of perceived risk and less anxiety. Inspired by the previous study, the present paper objective to investigate the deeper effect between attitudes toward authorities and risk perception. In specific, the current risk perception researches rarely examine the

effects of trust and distrust in authority over personal worries and risk perception.

Hypothesis

On the basis of previous studies, the following hypothesis and theoretical framework could be constructed:

H1: The more personal worries students have, the higher level of risk perception they perceive.

H2: The amount of student' personal worries positively correlate with their distrust in authorities.

H3: The amount of student' personal worries negatively associate with their trust in authorities.

H4: Student who distrust in authorities tends to have higher level of risk perception.

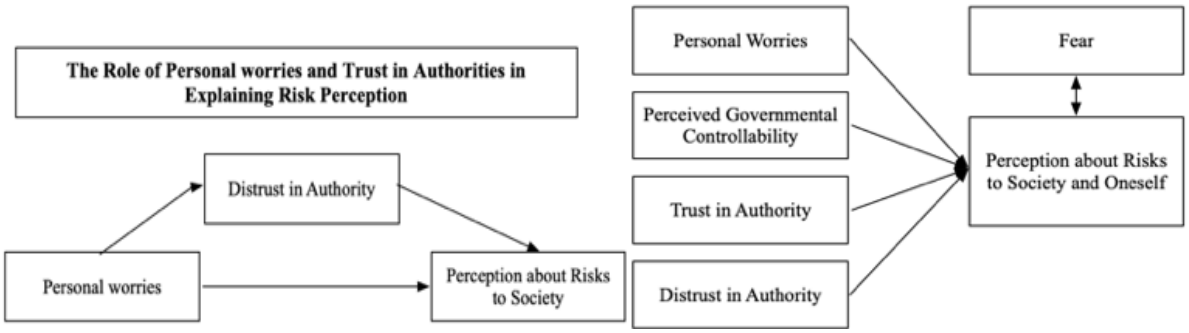
H5: Student who trust in authorities tends to have lower level of risk perception.

H6: Student' distrust in authorities will mediate the effects of their personal worries on their risk perception.

H7: There is a positive and reciprocal effect between students' fear and risk perception.

H8: The higher level of students' perceived governmental controllability, the lower amount of risk will be perceived by students.

3. Theoretical framework



4. Methodology and Measurement

For the present study, a survey was conducted to students in City University of Hong Kong. Due to the concerns of proximity and accessibility, the sampling strategy of the study is convenience sampling. A total number of 620 students were recruited from the Department of Social and Behavioral Sciences (n = 620). The sample share high homogeneity, because they are bachelor, postgraduate, and doctoral students from similar majors in the same school.

The questionnaire employed in the study was designed by the investigator. The instrument consisted with 90 items to explore how different factors affect the risk perception of students from City University of Hong Kong. The questionnaires were sent to participants via email with high responding rate. This article mainly focuses on the measures of risk perception, fear (a10, a20, a30), trust in authorities, perceived governmental controllability (a9, a19, a29), distrust in governmental agencies and personal worries. In exploring the role of personal worries (a39 to a44) and trust in authorities (trust: a53, a55, a56; distrust: a52, a54, a57) in predicting risk perception (perceived risk to oneself a18, a 28, a38; perceived risk to society a17, a27, a37) of the students, corresponding items has been selected.

5. Statistical Analysis

The collected data were inputted into and analyzed by the statistical software, SPSS 26. Before the formal statistical analysis, ninety percent of sample were randomly selected from the original sample pool with the new selecting seed of 55572263. There are six specific analysis were conducted as below:

1) Frequency analysis is conducted to show an overall summery of all variables interested by the present article.
2) Factor analysis would be employed and the cronbach's alpha is used to determine the internal consistency and the validity of the scales.
3) Correlation analysis would be conducted to examine the correlative relationship among all variables focused in the study.
4) Univariate linear regression analysis is helpful to determine the predictors for risk perception from a pool of variables.
5) Two-stage least squares analysis is conducted to distinguish the significant predictors of dependent variable and to investigate the reciprocal effect among variables.
6) Logistic regression is applied to find out predicting variables for higher level of risk perception.
7) Combining with the univariate linear regression analysis, the hierarchical regression analysis is used to detect the mediating effect of 'trust in authorities' on 'personal worries' and 'risk perception'.

Frequency analysis

The frequency analysis is used to present an overall description of all variables that designed to be tested in the current study. As shown in the *Table 1*, trust in authorities, distrust in authorities, governmental controllability, perceived risks by individual, perceived risk by society, individual worries, and fear of risks were involved in the frequency analysis. The sample size is large, and the valid sample for all variables is no less than 554. Based on the table two, the variables have a decent level of skewness and kurtosis (skewness < 3; kurtosis < 10), which suggest all independent variables and dependent variables in the study have retained a standard normal distribution curve.

Table 1: Statistics

		risk	risk.soc	control	fear	trust	distrust	worry
N	Valid	557	557	557	557	554	554	557
	Missing	1	1	1	1	4	4	1
Skewness		-0.229	-0.353	1.794	-0.135	-0.437	-0.02	-0.048
Kurtosis		-0.061	-0.219	20.48	0.14	0.528	0.492	-0.308

Factor analysis

After the frequency analysis, factor analysis was conducted to find the latent independent variables and test the internal consistency of the scale. The score of cronbach's alpha provides an understanding of the reliability of the measures. As the *Table 2* conveyed, the correlation between the items for 'perceived risks to society' (a = .662 > .6), 'trust in authorities' (a = .704 > .6), 'distrust in authorities' (a = .768 > .6), and 'individual worries' (a = .829 > .6) are statistically reliable since their obtained Cronbach's alpha values are above .6. The reliability of the measure, 'personal worries', could be further improved by discarding the item, a44 (a = .854).

According to the *Table 2* below, the associations among the three items in 'perceived risks to oneself' (a = .505 < .6), 'fear of risks' (a = .531 < .6), and 'governmental controllability' (a = .428 < .6) are relatively weak. As the significant correlation level of cronbach's alpha is above .6, the measures for these variables are not reliable. Simply removing items could not enhance the internal consistency of the measures, so these variables would be either excluded or specified for further analysis.

By using the method of varimax rotation, the structural validation was further developed to confirm the convergent validity. Four factors were generated from 14 items. From the *Table 3*, factor one represents the worries of individual, factor two represents the distrust in authorities, factor three represents the perceived risks for society, and factor four represents trust in authorities.

Table 2: Reliability statistics

	Cronbach's Alpha	Items	Cronbach's Alpha if Item Deleted
Perceived Risk to Society	0.662	a17	0.606
		a27	0.482
		a37	0.615
Perceived Risk to oneself	0.505	a18	0.502
		a28	0.299
		a38	0.394
Fear of Risks	0.531	a10	0.503
		a20	0.366
		a30	0.412
Perceived Governmental Controllability	0.428	a09	0.324
		a19	0.384
		a29	0.304
Trust in Authorities	0.704	a53	0.597
		a55	0.618
		a56	0.623
Distrust in Authorities	0.768	a52	0.666
		a54	0.606
		a57	0.781
Personal Worries	0.829	a39	0.813
		a40	0.791
		a41	0.776
		a42	0.788
		a43	0.79
		a44	0.854

Table 3: Rotated factor matrix

	Factor			
	1	2	3	4
a39	0.629			
a40	0.774			
a41	0.806			
a42	0.762			
a43	0.655			
a17			0.601	
a27			0.73	
a37			0.572	
a52		0.744		
a54		0.84		
a57		0.581		
a53				0.653
a55				0.623
a56				0.667

Correlation analysis

As revealed by the factor analysis, the measures for 'perceived risk to oneself', 'fear of risks', and 'governmental controllability' are not well supported by the items, so they were further extracted and specified as 'the risk of terrorist attack to individual', 'the dread of terrorist attack', and 'the controllability of terrorist attack by government' for the rest of analysis.

The *Table 4* shows the correlations between the interested variables. In details, 'the perceived risks to society' is positively correlated with 'personal worries' (p< .05), 'trust in society' (p< .05), 'the controllability of terrorist attack by government' (p< .05), 'the dread of terrorist attack' (p< .05), and 'the risk of terrorist attack to individual' (p< .05) with p values less than .05.

At the statistical significance level of .05, 'personal worries' has positive correlation with 'the perceived risks to society' (p< .05), 'trust in society' (p< .05), 'the controllability of terrorist attack by government' (p< .05), 'the dread of terrorist attack' (p< .05), and 'the risk of terrorist attack to individual'(p = .05).

'The controllability of terrorist attack by government', 'the dread (fear) of terrorist attack', and 'the risk of terrorist attack to individual' are significantly correlated with most of the variables (p<.05), except 'distrust in authorities' (p> .5).

'Trust in authorities' has significant correlation with all the variables. Besides positive correlations, 'trust in authorities' has significant negative association with 'distrust in authorities', and it is the only significant correlation that

'distrust in authorities' obtained.

Focusing on the scores of the Pearson correlation coefficient, 'the perceived risks to society' is strongly correlate with 'the risk of terrorist attack to individual'(r = .547, p< .05); 'the dread (fear) of terrorist attack' shows strong correlation with 'perceived risk to society' (r = .502, p< .05), and 'the risk of terrorist attack to individual' (r = .55, p< .05).

Table 4: Correlations

		Perceived risk to society	Personal worries	Distrust	Trust	Controllability of terrorist attack by government	Dread (fear) of terrorist attack	Risk of terrorist attack to individual
Perceived risk to society	Pearson Correlation	1	0.277	0.063	0.15	0.242	0.502	0.547
	Sig. (2-tailed)		0	0.14	0	0	0	0
Personal worry	Pearson Correlation	0.277	1	0.076	0.133	0.116	0.263	0.293
	Sig. (2-tailed)	0		0.076	0.002	0.006	0	0
distrust	Pearson Correlation	0.063	0.076	1	-0.297	-0.069	-0.021	0.06
	Sig. (2-tailed)	0.14	0.076		0	0.103	0.622	0.159
trust	Pearson Correlation	0.15	0.133	-0.297	1	0.181	0.229	0.169
	Sig. (2-tailed)	0	0.002	0		0	0	0
Controllability of terrorist attack by government	Pearson Correlation	0.242	0.116	-0.069	0.181	1	0.234	0.186
	Sig. (2-tailed)	0	0.006	0.103	0		0	0
Dread (fear) of terrorist attack	Pearson Correlation	0.502	0.263	-0.021	0.229	0.234	1	0.55
	Sig. (2-tailed)	0	0	0.622	0	0		0
Risk of terrorist attack to individual	Pearson Correlation	0.547	0.293	0.06	0.169	0.186	0.55	1
	Sig. (2-tailed)	0	0	0.159	0	0	0	

Univariate linear regression analysis

I: The perceived risks to society

In exploring the significant predictors of the dependent variable, the univariate linear regression analysis was employed. Shown as the *Table 5*, 'the controllability of terrorist attack by government', 'the dread (fear) of terrorist attack', 'distrust in authorities', and 'personal worries' are significant predictor of 'perceived risk to society' (p< .05). All these predictors suggest positive effects on the outcome variable. Based on the beta value, 'the dread (fear) of terrorist attack' has the strongest effects with 'the perceived risks to society' (β = .43). The null hypothesis could be rejected by the high F score (F = 46.899). By contrast, 'trust in authorities' is not a significant predictor (p> .05) for 'the perceived risks to society.

Table 5

		Beta	Sig.	R square	F
Model 1	a30	0.43	0	0.3	46.899
	a29	0.123	0.001		
	trust	0.037	0.338		
	distrust	0.078	0.04		
	worry	0.154	0		

a Dependent variable: risk.soc

II: The risk of terrorist attack to individual

The *Table 6* indicates that 'the dread (fear) of terrorist attack', 'distrust in authorities', and 'the individual worries' are significant predictor of the dependent variable, 'the risk of terrorist attack to individual'. The p values for all these variables are below .05. 'The dread (fear) of terrorist attack' has exhibited the strongest effect (β = .492). The null hypothesis could be rejected by the high F value (F = 55.277). On the contrary, 'the controllability of terrorist attack by government' and 'trust in authorities' are not significant predictor of 'the risk of terrorist attack to individual' (p> .05).

Table 6

		Beta	Sig.	R square	F
Model 1	a30	0.492	0	0.335	55.277
	a29	0.05	0.165		
	trust	0.055	0.145		
	distrust	0.077	0.036		
	worry	0.146	0		

a Dependent variable: a38

III: Students' personal worries in predicting their distrust in authorities

The *Table 7* indicates that 'personal worries' is a significant predictor of the dependent variable, 'distrust in authorities'. The p values for all these variables are below .05. 'Personal worries' has exhibited a positive effect on the dependent variable (β = .0.89). The null hypothesis could be rejected by the decent F value (F = 4.38).

Table 7

		Beta	Sig.	R Square	F
Model 1	worry	0.08	0.037	0.008	4.38

a Dependent variable: distrust

Two-stage Least Squares Analysis

I: Personal worries and perceived risks to society

Personal worries and risk of terrorist attack to individual

In exploring the reciprocal effects, two-stage least square analysis was conducted in the present study. 'Individual

worries' is the expected predictor in equation 1 for both 'perceived risks to society' and 'risk of terrorist attack to individual'.

As the equation 1 in *Table 8* revealed, 'personal worries' is a predicator with statistical significance to assess the dependent variables, 'perceived risks to society' and 'risk of terrorist attack to individual' ($p< .05$).

In equation 2, 'perceived risks to society' is the predictor, and the statistic result indicates it is a significant predictor to determine 'individual worries' ($p< .05$). In equation 2, 'risk of terrorist attack to individual' is the predictor, and the statistic result indicates it is a significant predictor to determine 'individual worries' ($p< .05$).

As the result suggests, 'individual worries' and 'perceived risks to society' are cause and outcome reciprocally. Meanwhile, the *Table 9* indicates, there is also a reciprocal effect between 'personal worries' and 'risk of terrorist attack to individual'.

Table 8

		Type of variable	Beta	Sig.
Equation 1	risk.soc	dependent	1.279	0.005
	worry	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	worry	dependent	0.382	0.029
	risk.soc	predictor		
	level	instrumental		
	major	instrumental		

Table 9

		Type of variable	Beta	Sig.
Equation 1	a38	dependent	1.209	0.007
	worry	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	worry	dependent	2.556	0.011
	a38	predictor		
	level	instrumental		
	major	instrumental		

II: Trust in authorities and perceived risks to society

Trust in authorities and risk of terrorist attack to individual
'Trust in authorities' is the expected predictor in equation 1 for both 'perceived risks to society' and 'risk of terrorist attack to individual'.

As the equation 1 in both *Table 10* and *Table 11* revealed, 'trust in authorities' is a predicator with statistical significance to assess the dependent variables, 'perceived risks to society' and 'risk of terrorist attack to individual' ($p< .05$).

According toequation 2 from both *Table 10* and *Table 11*, 'perceived risks to society' and 'risk of terrorist attack to individual' are the predictors, and the regression suggests they are significant predictors to determine 'trust in authorities' ($p< .05$).

As the result indicates, 'trust in authorities' and 'perceived risks to society' are cause and outcome reciprocally. At the same time, there is a reciprocal effect between 'individual worries' and 'risk of terrorist attack to individual'.

Table 10

		Type of variable	Beta	Sig.
Equation 1	risk.soc	dependent	0.797	0.001
	trust	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	trust	dependent	0.679	0.001
	risk.soc	predictor		
	level	instrumental		
	major	instrumental		

Table 11

		Type of variable	Beta	Sig.
Equation 1	a38	dependent	0.429	0.031
	trust	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	trust	dependent	0.628	0.015
	a38	predictor		
	level	instrumental		
	major	instrumental		

III: Distrust in authorities and perceived risks to society

Distrust in authorities and risk of terrorist attack to individual
'Distrust in authorities' is the predictor for 'perceived risks to society' and 'risk of terrorist attack to individual' in Equation 1, and both *Table 12 and Table 13* indicate that they are not significant predictor to assess the dependent variable ($p> .05$). 'Perceived risk to society' and 'risk of terrorist attack to individual' are the predictor in Equation 2, but they are not significant predictor of 'distrust in authorities' since the p value is over .05 in *Table 12 and Table 13* ($p>.05$).

In synthesis, there is no reciprocal effect was detected. The results revealed poor correlation relationship among 'perceived risk to society', 'risk of terrorist attack to individual', and 'distrust in authorities'.

Table 12

		Type of variable	Beta	Sig.
Equation 1	risk.soc	dependent	-0.392	0.051
	distrust	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	distrust	dependent	-0.376	0.054
	risk.soc	predictor		
	level	instrumental		
	major	instrumental		

Table 13

		Type of variable	Beta	Sig.
Equation 1	a38	dependent	-0.088	0.635
	distrust	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	distrust	dependent	-0.145	0.546
	a38	predictor		
	level	instrumental		
	major	instrumental		

IV: The dread (fear) of terrorist attack and perceived risks to society

The dread (fear) of terrorist attack and perceived risks to individual

'The dreads (fear) of terrorist attack' is the expected predictor in equation 1 for both 'perceived risks to society' and 'risk of terrorist attack to individual'. As the *Table 14 and 15* reveals, 'the dread (fear) of terrorist attack' is a predicator with statistical significance to assess the dependent variables, 'perceived risks to society' and 'risk of terrorist attack to individual' (p< .05).

In equation 2 from *Table 14*, 'perceived risks to society' is the predictor, and the statistic result indicates it is a significant predictor to determine 'the dread (fear) of terrorist attack' (p< .05). In equation 2 from *Table 15*, 'risk of terrorist attack to individual' is the predictor, and the statistic result indicates it is a significant predictor to determine 'individual worries' (p< .05).

As the result suggests, 'individual worries' and 'perceived risks to society' are cause and outcome reciprocally. In the meanwhile, there is a reciprocal effect between 'the dread (fear) of terrorist attack' and 'risk of terrorist attack to individual'.

Table 14

		Type of variable	Beta	Sig.
Equation 1	risk.soc	dependent	0.133	0
	a30	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	a30	dependent	0.278	0
	risk.soc	predictor		
	level	instrumental		
	major	instrumental		

Table 15

		Type of variable	Beta	Sig.
Equation 1	risk	dependent	0.846	0
	a30	predictor		
	level	instrumental		
	major	instrumental		
Equation 2	a30	dependent	1.164	0
	risk	predictor		
	level	instrumental		
	major	instrumental		

Logistic regression analysis

I: Personal worries, distrust in authorities, trust in authorities, the controllability of terrorist attack by government, the dread of terrorist attack, and 'higher level of perceived risk to society

Binary logistic regression analysis was employed to determine the independent variable for the higher degree of risk perception to society. According to the *Table 16*, 'individual worries', 'distrust in authorities', 'the controllability of terrorist attack by government', and 'the dread (fear) of terrorist attack' are significant predictors to examine people with relatively higher risk perception to society (p< .05). 'Trust in authorities' is not a significant predictor since its p value is greater than .05. Another important finding was that these significant independent variables, 'individual worries' (b = 1.261), 'distrust in authorities' (b = 1.22), 'the controllability of terrorist attack by government' (b =1.176), and 'the dread of terrorist attack' have positive unstandardized effects with the outcome variable (b = 1.435). The odd ratios for these significant predictors are negligible.

Table 16: Variables in the equation

		B	Sig.	Exp(B)
Step 1a	worry	0.232	0.002	1.261
	distrust	0.199	0.017	1.22
	trust	0.129	0.137	1.138
	a29	0.162	0.007	1.176
	a30	0.362	0	1.435
	Constant	-3.888	0	0.02

a Variable(s) entered on step 1: worry, distrust, trust, a29, a30.

II: Individual worries, distrust in authorities, trust in authorities, the controllability of terrorist attack by government, the dread (fear) of terrorist attack, and 'higher individual perceived risk to terrorist attack'

From the *Table 17*, there are only three independent variables, 'individual worries', 'distrust in authorities', and 'The dread (fear) of terrorist attack' are significant predictors of higher level of students' perceived risks to terrorist attack. Revealed by the value of Exp (B) (b = 1.211; b = 1.181; b = 1.456), these significant variables have positive unstandardized effects with the outcome variable. Moreover, the odd ratios are negligible for these variables.

Table 17: Variables in the equation

		B	Sig.	Exp(B)
Step 1a	worry	0.192	0.001	1.211
	distrust	0.124	0.078	1.131
	trust	0.166	0.009	1.181
	a29	0.018	0.717	1.018
	a30	0.375	0	1.456
	Constant	-4.918	0	0.007

a Variable(s) entered on step 1: worry, trust, distrust, a29, a30

Hierarchical Regression

As the previous univariate linear regression analysis suggested, 'personal worries' has significant positive effect with 'distrust in authorities; 'personal worries' positively predicts both 'perceived risk to society' and 'risk of terrorist attack to individual'; 'distrust in authorities' is a significant predictor for both 'perceived risk to society' and 'risk of terrorist attack to individual'. Hierarchical regression analysis was then employed to investigate how 'personal worries' mediates the effect between distrust in governmental agencies and risk perception.

As shown in the *Table 18*, when putting 'personal worries' and 'distrust in authorities' into the hierarchical regression with the dependent variable of 'perceived risk to society', two significant regression coefficients were generated ($p< .05$). Based on the model one, 'personal worries' has significant positive correlation with 'perceived risk to society' with the beta value of .721 ($p< .05$). Comparing the beta value of 'personal worries' in model one with the value in the model two, it could be concluded that 'distrust in authorities' is a mediator between 'personal worries' and 'perceived risk to society' (.721 > .664).

As shown in the *Table 19*, when computing 'personal worries' and 'distrust in authorities' into the hierarchical regression with the dependent variable of 'risk of terrorist attack to individual', two significant regression coefficients were detected ($p< .05$). According to the model one, 'personal worries' has significant positive correlation with 'risk of terrorist attack to individual' with the beta value of .721 ($p< .05$). Comparing the beta value of 'personal worries' in model one with the value in the model two, it could be concluded that 'distrust in authorities' is a mediator between 'personal worries' and 'risk of terrorist attack to individual' (.721 > .664).

Table 18: Coefficients

		Unstandardized Coefficients. B	Std. error	Standardized coefficients. beta	t	Sig.
Model 1	worry	5.867	0.239	0.721	24.532	0
Model 2	worry	5.399	0.084	0.664	64.604	0
	distrust	5.924	0.093	0.652	63.467	0

a Dependent variable: risk.soc

Table 19: Coefficients

		Unstandardized Coefficients. B	Std. error	Standardized coefficients. beta	t	Sig.
Model 1	worry	5.867	0.239	0.721	24.532	0
Model 2	worry	5.399	0.084	0.664	64.604	0
	distrust	5.924	0.093	0.652	63.467	0

a Dependent variable: a38

6. Discussion and Conclusion

In the first place, according to the frequency analysis, all variables in the present study have shown a standard normal distribution curve. Then, factor analysis was applied to test the internal consistency, detect the reliability, and establish the structural validation of the measures. The variables, 'perceived risk to society', 'trust in authorities', 'distrust in authorities', and 'personal worries' are well-supported by the questionnaire items. For further enhancing the level of reliability, the item a44 was removed from the measure of 'personal worries'. On the contrary, 'fear', 'perceived risk to individual', and 'perceived governmental controllability' are relatively less reliable since their cronbach's alpha values are below .60, and simply discarding items from the measures could not improve the corresponding alpha values. For this reason, these variables were specified to 'the dread (fear) of terrorist attack', 'the risk of terrorist attack to individual', and 'the controllability of terrorist attack by government' respectively.

From the aspect of students' personal worries, it is positively correlate with 'perceived risk to society', 'the risk of terrorist attack to individual', and 'trust in authorities'. Based on linear regression analysis, students' 'personal worries' is a significant predictor of both 'perceived risk to society' and 'the risk of terrorist attack to individual'. Suggested by the logistic regression analysis, the amount of 'personal worries' significantly predicts higher 'risk perception to society' and higher level of 'perceived terrorist attack to individual'. 'Personal worries' has exhibited the strong positive effect on the 'distrust in authorities'; 'personal worries' also positively predict 'trust in authorities' as well. Additionally, 'personal worries' has reciprocal effect with 'perceived risk to society' and 'the risk of terrorist attack to individual'. Thus, the hypothesis 1 and 3 are supported; the hypothesis 2 is rejected.

'Distrust in authorities' is a significant predictor and has positive effect with the outcome variables, 'perceived risk to society' and 'the risk of terrorist attack to individual'. Contrast with 'trust in authorities', 'distrust in authorities' is a significant predicator to higher level of 'perceived risk to society' and 'the risk of terrorist attack to individual'. Moreover, 'distrust in authorities' played a role of mediator between 'personal worries' and 'perceived risk to society', and between 'personal worries' and 'the risk of terrorist attack to individual. As a result, the hypothesis 4 and 6 were backed up with statistical analysis.

Based on the correlation analysis, 'trust in authorities' is positively correlated with 'perceived risk to society', 'the risk of terrorist attack to individual', 'personal worries', 'the controllability of terrorist attack by government', and 'The dread (fear) of terrorist attack'. Besides, 'trust in authorities' and 'perceived risks to society' are cause and outcome reciprocally; 'trust in authorities' and 'risk of terrorist attack to individual' also have reciprocal effect. However, as the linear regression analysis and the logistic regression analysis revealed, 'trust in authorities' is not a significant predictor of the outcome variables, so the hypothesis 5 is rejected.

'Fear of risks' was extracted as 'the dread (fear) of terrorist attack', which has significant positive association with

'perceived risk to society', 'the risk of terrorist attack to individual''personal worries', and 'the controllability of terrorist attack by government', and 'trust in government'. 'the dread (fear) of terrorist attack' is also a significant positive predictor of both 'perceived risk to society' and 'the risk of terrorist attack to individual'. Furthermore, ''the dread (fear) of terrorist attack' serves both as the cause and the outcome of 'perceived risk to society' and 'the risk of terrorist attack to individual'. All in all, the hypothesis 7 is somewhat confirmed.

Last but not least, 'perceived governmental controllability' has been specified to 'the controllability of terrorist attack by government'. The case of terrorist will be used as an example to provide some insight about the correlation between students perceived governmental controllability and level of risk perception. 'The controllability of terrorist attack by government' has significant positive association with 'perceived risk to society', 'the risk of terrorist attack to individual', 'personal worries', 'trust in government' and 'the dread (fear) of terrorist attack'. In addition, the regression analysis suggests that 'the controllability of terrorist attack by government' also has significant positive effect with 'perceived risk to society'. Hence, the high level of student's perceived controllability to the terrorist attack is linked with higher level of risk perception to society and the hypothesis 8 is somewhat disproved.

References

[1] Brosschot, J.F., Pieper, S., &Thayer, J.F. (2005). 'Expanding Stress Theory: Prolonged Activation and Perseverative Cognition'. Psych neuroendocrinology. 30 (10): 1043-9. doi:10.1016/j.psyneuen.2005.04.008

[2] Cho, H., Lee, JS., & Chung S. (2010). *Optimistic bias about online privacy risks: Testing the moderating effects of perceived controllability and prior experience.* Computers in Human Behavior. 26 (2010) 987–995

[3] Fehm, L., &Pélissolo, A. (2005). *Size and burden of social phobia in Europe.* Neuropsychopharmacology. 2005DOI: 10.1016/j.euroneuro.2005.04.002

[4] Fischhoff. (1978). *'How Safe Is Safe Enough? A Psychometric Study of Attitudes Towards Technological Risks and Benefits'*, Policy Sci. 9, 127-152. 127-152

[5] Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk.Journal of personality and social psychology, 45(1), 20

[6] Liebert, R. M., & Morris, L. W. (1967). *Cognitive and emotional components of test anxiety: A distinction and some initial data.* Psychological Reports, 20, 975–978

[7] Loewenstein, G. F., Weber, E. U., Hsee, C. K., and Welch, N. (2001). *Risk as Feelings.*Psychological Bulletin, 127(2), 267-286

[8] McKnight, D.H., Kacmar, C.J. & Choudhury, V. (2004). *'Dispositional trust and distrustdistinctions in predicting high-and low-risk internet expert advice site perceptions'.*EService,vol. 3, no. 2, pp. 35-58

[9] Rayner, S., & Cantor, R. (1987). *How fair is safe enough? The cultural approach to societal technology choice.* Risk Anal, 7, 3-9

[10] Renn O. (1990). *Risk perception and risk management. Part 1: The intuitive mechanisms of risk perceptions.* Risk Abstracts, 1990; 7(1):1–9

[11] Reyna, VF., (2004). *''How People make Decisions that Involve Risk: A Dual-Processes Approach.''* Current Directions in Psychological Science 13: 60–66

[12] Risk Analysis, Vol. 15. No. 5, 1995 Characterizing Perception of Ecological Risk Timothy McDaniels,'J Lawrence J. Axelrod,' and Paul Slovic2

[13] Slovic P., (2000). *Perception of Risk.* Science. Vol. 236, Issue 4799, pp. 280-285

[14] Sjoberg., &Drottz. (1987). *'Psychological Reactions to Cancer Risks After the Chemobyl Accident,'* Med. Oncol. Tumor Pharmacother. 4, 259-271

[15] Sjoberg., &Kvist, P., (1998). *'TheRiseofRisk: Risk Related Bills Submitted to The Swedish Parliament in 1964–65 and 1993–95'.* Journal of Risk Research.1, 191–195

[16] Sjöberg. (2001). *Limits of Knowledge and the Limited Importance of Trust Risk Analysis*, Vol. 21, No. 1, 2001

[17] Turner, MM., Rimal, RN., Morrison, D., & Kim, H. (2006). *The Role of Anxiety in Seeking and Retaining Risk Information: Testing the Risk Perception Attitude Framework in Two Studies.* Human Communication Study. Volume32, Issue2. April 2006Pages 130-156

[18] Walle, S. (2010). *'New Public Management: Restoring the public trust through creating distrust?'.* Ashgate Research Companion to New Public Management., eds. T. Christensen & P. Laegreid, Ashgate, Aldershot, pp. 309-320

[19] Yang, JZ., (2019). Whose Risk? *Why Did the U.S. Public Ignore Information About the Ebola Outbreak.*Risk Analysis