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# Perceived Control, Voluntariness and Emotional Reactions in Relocated Areas of Russia, Ukraine and Belarus

Carol Jeniffer Figueiredo & Britt-Marie Drottz-Sjöberg\*

## Introduction

The Chernobyl accident occurred at a time of considerable social and economic changes in the former Soviet Union. The contamination due to the accident still covers parts of Russia, Ukraine and Belarus. Some areas were considered too contaminated to suit long-term human settlement and a considerable number of people were therefore moved from their homes and resettled in other areas. Resettlement policies often differed between the states. Some variations in state policy included the duration before implementation of the decision to resettle people from certain areas, the swiftness of the transition, and the acceptance of personal initiatives in the process. The policy of considering bonds between people who were to resettle also differed between states, and the social networks were more or less severely strained in the process.

The results of this paper are based on samples of resettled people of Russia, Ukraine and Belarus, who moved either voluntarily or involuntarily from contaminated home areas. At the tenth anniversary of the accident in 1996, it was concluded that psychological and social effects were among the main and most lasting consequences of the accident.<sup>1</sup> This paper uses data from a pilot study to analyze

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<sup>1</sup> See Galina Rumyantseva et al., *The Influence of Social and Psychological Factors in the*

relationships between types of resettlement (voluntary or involuntary) and individuals' everyday feelings, perceptions of risk, health status and control. The data were collected in 1995 within the Joint Study Project 2 (JSP2), a collaborative research project of the European Union (EU) and the Commonwealth of Independent States (CIS) of Russia, Ukraine and Belarus, 1991/92-1995/96. The aim of the study was to investigate reactions to change and new life conditions of people who had been resettled due to the Chernobyl accident. Participants from the respective countries included adult individuals sampled from two age groups: (1) less than 45 years, and (2) 45 years and older. Both groups had approximately the same number of men and women (N=598). The questionnaire presented various topics to which responses were indicated on quantitative response scales and in open ended response formats. The results presented here focus on emotional reactions, perceived risk and self-rated health among resettled people. The effects of the type of resettlement on emotional reactions, perceived risk and control are discussed.

Previous research on perception of control has been presented in terms of primary (behavioral) and secondary (cognitive) control, perceived and actual control, self-efficacy and outcome expectancies. Perception of control has something to do with expectancies about influence over outcomes, expectancies about steps leading to a desired outcome, and expectancies about one's own ability to take these steps.<sup>2</sup> Perceived control can also be understood in terms of assessment of vulnerability and risk. Previous research has used assessment of risk as a measurement of optimistic bias.<sup>3</sup> Unrealistic optimism has been related to life-events as well as health risks. Optimistic bias includes assessing one's own chances of encountering positive events as above average, as well as the risk of encountering

*Management of Contaminated Territories, in The Radiological Consequences of the Chernobyl Accident, Proceedings of the First International Conference, Minsk, Belarus (March 18-22, 1996) (A. Karaoglu et al. eds. 1996).*

<sup>2</sup> See Peter Harris, *Sufficient Grounds for Optimism? The Relationship Between Perceived Controllability and Optimistic Bias*, 15(1) *J. Soc. & Clin. Psych.* 9 (1996); Suzanne C. Thompson & Shirlynn Spacapan, *Perceptions of Control in Vulnerable Populations*, 47(4) *J. Soc. Issues* 1 (1991).

<sup>3</sup> See Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 *J. Person. and Soc. Psych.* 806 (1980); Neil D. Weinstein, *Unrealistic Optimism About Susceptibility to Health Problems*, 5 *J. Behav. Med.* 441 (1982).

negative events as below average. On one hand, unrealistic optimism gives more self-esteem, better mental health and better coping abilities, whereas on the other hand, it involves the illusion of invulnerability.<sup>4</sup> According to Langer, the illusion of being in control when the situation is uncontrollable is motivated by the struggle for mastery.<sup>5</sup> Related to motivation, there is a desire and need for control.<sup>6</sup> The degree of involvement, familiarity and choice are also important factors inducing feelings of control. In addition, there has to be some belief about freedom and consequences of choice to induce the feeling of control.<sup>7</sup>

In this context, it seems reasonable to expect differences between those who were resettled voluntarily and involuntarily, respectively, with regard to feelings and perceptions of control. Thus, the hypotheses were that the voluntary resettlers would feel more in control, express more optimistic bias, and feel less vulnerable, i.e., perceive less risk, as well as give a more favorable personal estimation of health status. It was also assumed that lower perceived risk would be related to a larger illusion of invulnerability, i.e., the belief that one can become immune to radioactivity. Furthermore, it was expected that involuntarily resettled people would display less trust in medical expertise and experience a higher level of harm and danger to their own health, apart from displaying higher levels of distress and other negative emotions.

## Method

### *Design, Respondents and Questionnaire*

Questionnaire data were collected by personal encounters with the respondents to study the social and psychological effects of voluntary

<sup>4</sup> See Thompson & Spacapan, *supra* note 2.

<sup>5</sup> See Ellen J. Langer, *The Illusion of Control*, 32 *J. Person. & Soc. Psych.* 311 (1975); Ellen J. Langer, *The Psychology of Chance*, 2 *J. Theory of Soc. Behav.* 185 (1977).

<sup>6</sup> See Jerry M. Burger, *Desire for Control and the Illusion of Control: The Effects of Familiarity and Sequence Outcomes*, 20(1) *J. Res. in Person.* 66 (1986); Jerry M. Burger, J. McWard, & D. LaTorre, *Boundaries of Self-Control: Relinquishing Control over Aversive Events*, 8 *J. Soc. & Clin. Psych.* 209 (1989).

<sup>7</sup> See Susan E. Bailey et al., *Choice for Others and the Perception of Control*, 2 *Motivation and Emotion* 191 (1978); Richard A. Monty et al., *The Freedom to Choose is Not Always So Choice*, 5 *Human Learning & Memory* 170 (1979); Lawrence C. Perlmutter & Richard A. Monty, *The Importance of Perceived Control: Fact or Fantasy?* 65 *Amer. Sci.* 759 (1977).

and involuntary resettlement within the Joint Study Project 2 (JSP2) project.<sup>8</sup> The study was conducted in August 1995 simultaneously in selected parts of the three Commonwealth of Independent States (CIS) countries. The selected areas were: in Russia, the towns of Nykolskaya Sloboda and Krasny Rog in the districts of Zhukovsky and Pochensk; in Ukraine, the towns Yagotin and Borodyanka with suburbs in the Kiev region; and in Belarus, the towns of Streshin and Verhnedvinsk with suburbs in the Gomel and Vitebsky regions.

Respondents were selected according to resettled persons in an age and sex stratified sampling design. There was approximately an equal number of men and women chosen in each state, and approximately as many subjects below as above the age of 45 years in each group. There were 598 respondents in all; 180 from Russia, 214 from Ukraine and 204 from Belarus. The mean age in Russia was 44 years; in Ukraine, 43 years; and in Belarus, 42 years. Sixty-three percent of the sampled group in Russia, 34% of the sampled group in Ukraine and 52% of the sampled group in Belarus moved voluntarily.

The questionnaire provided foremost a predesigned response format. Instructions were given on the front page, along with an introduction of the study. The respondents were asked to state their personal opinion about various life conditions, personal reactions and feelings. The demographic variables utilized were age and sex. The subjects were asked to indicate if they had moved voluntarily or involuntarily ("choice"). The assessment of personal health ("health") was measured on a five-point scale ranging from "it is much better" to "it is much worse." The ratings of perceived risk due to the Chernobyl accident ("risk1"), risk due to the resettlement ("risk2") and psychological distress ("distress") due to the Chernobyl accident were rated on Likert-type five-point scales ranging from "not at all" to "very much." The same type of response scales were used to measure influence over personal and family life situation ("influence") and trust in experts investigating health effects of the Chernobyl accident ("trust"). The belief that one can become immune to radiation and radioactive contamination ("immune") was rated on a four-point scale,

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<sup>8</sup> Data were collected by groups of researchers and colleagues in the three states. We are obliged to all research teams led by Professors Rumyantseva and Arkhangelskaya in Russia, Professor Nyagu in Ukraine and Professor Ageeva in Belarus. Data were provided by Professor Drottz-Sjöberg.

using the extremes “yes, definitely” to “no, definitely not.” This scale was also used to measure the ratings of perceived justification of the resettlement (“just”). In addition, the subjects were asked to mark five out of twenty-eight given emotional states which best described their everyday or usual feelings.

### *Data Analysis*

The presentation of the most common general emotional states here is based on the most frequently indicated feelings. The respondents marked up to five feelings in the list of twenty-eight items. Frequencies of all indications were computed. The top three items resulting from this list were collapsed and a mean percentage was calculated. The result of this procedure can be seen in Table 1, presented for the total sample, for the sample divided into groups of voluntary and involuntary resettlement, and for each country divided into voluntary and involuntary groups. Pearson’s correlations were used for measurements of relationships between variables, and regression analyses were performed using the stepwise method, replacing missing data by mean scores. Differences between groups of voluntary and involuntary resettlement were measured by two-tailed t-tests. All analyses were performed utilizing the statistical package of SPSS 8.0 for Windows.

### **Results**

It was of interest to study the overall emotional state of the respondents. The questionnaire contained twenty-eight items listing positive (fourteen) and negative (fourteen) emotions. The subjects were asked to mark the five emotional states which best described their usual feelings. The results, based on the most frequently indicated feelings (percentages), are presented in Table 1.

As can be seen in the table, the negative feelings dominated (eight of twelve items). The feeling of being “tired” was overall the most prominent emotional state, and it had slightly higher scores among those who had been resettled involuntarily. In the total sample, the feelings of being “busy,” “helpless” and “under strain” were frequently indicated by the respondents. Note, however, that “busy” was among the most frequently mentioned emotional states only in the voluntarily

resettled subgroups in Belarus. Feeling "in pain" was found in the involuntarily resettled groups in Russia and Belarus, but in the voluntarily resettled group in Ukraine. The feeling of being "helpless" was often mentioned by most groups. Feeling "sick" was most often indicated in Ukraine and Belarus.

Table 1  
General Emotional States Based on the Most Frequently Indicated Items in a List of 28 Items, for the Total Sample, by Groups Moved Voluntarily and Involuntarily, and by State and Type of Resettlement

<i>Usual Emotional State</i>	<i>Total Sample</i> n:570-582	<i>All Moved</i>		<i>Russia</i>		<i>Ukraine</i>		<i>Belarus</i>	
		<i>V.</i> n:284-289	<i>I.</i> n:284-291	<i>V.</i> n:113	<i>I.</i> n:66	<i>V.</i> n:66-69	<i>I.</i> n:128	<i>V.</i> n:105-107	<i>I.</i> n:90-97
Tired	8.6	8.2	9.0	8.8	9.4	7.6	8.0	8.2	10.1
Busy	5.9	5.8						6.0	
Helpless	5.0	5.1	5.0	4.0		6.7	6.1	5.4	4.4
Under strain	4.9	5.7		5.0		6.7	5.1	5.8	
In pain	4.2		4.8		5.1	6.5			4.4
Depressed		4.1	3.8				5.0		3.7
Sick			4.5			9.1	6.2	5.7	4.2
Loved				4.4					
Angry				3.7	4.0				
Active					4.0				
Weak					4.0				
Optimistic					4.6				

*V.*= Voluntarily *I.*= Involuntarily \*

T-tests showed that those who had been resettled involuntarily perceived less influence ( $t(592) = -4.10, p < 0.005$ ), felt more distressed ( $t(594) = -3.36, p < 0.001$ ), gave lower estimates of personal health ( $t(593) = -5.27, p < 0.005$ ), more often believed one could become immune to radioactivity ( $t(591) = 3.67, p < 0.005$ ), and less often perceived relocation to be justified ( $t(592) = -3.96, p < 0.005$ ) as compared to the voluntarily resettled group.

Correlation analyses showed positive relationships between feeling distressed and the perception of being at risk due to the accident ( $r = 0.33$ ) and due to the resettlement ( $r = 0.30$ ). There was a negative relationship between perceiving influence over the personal life and distress ( $r = -0.24$ ). Self-rated health was negatively related to perceived risk and positively related to experienced influence over the personal and family life. Trust in the competence of health experts investigating

effects of the accident had no strong relationships to perceived risk or distress in the total sample. There was a weak positive relationship between trust and rated justification of the resettlement. Note, however, the rather strong negative relationship between perceived risk due to resettlement and perceived justification of being resettled. There was a weak relationship between believing that one could become immune to radiation and radioactive contamination and low perceived risk due to the accident ( $r = -0.20$ ) in the total sample.

Table 2  
Mean Values and Pearson's Correlation Coefficients Between Items Measuring Distress, Perceived Risk, Personal Influence, Immunity, Personal Health and Trust in Experts for the Total Sample

	<i>Mean</i>	<i>Risk 1</i>	<i>Risk 2</i>	<i>Influence #</i>	<i>Immune #</i>	<i>Health #</i>	<i>Trust #</i>	<i>Just #</i>
Distress	3.6	.33**	.30**	-.24**	-.03	-.22**	-.08	-.20**
Risk 1	3.6		.34	-.08	-.20**	-.11**	-.08	-.01
Risk 2	3.2			-.12**	.01	-.16**	-.13**	-.29**
Influence #	2.1				-.04	.15**	.03	.23**
Immune #	1.9					-.02	.04	-.11*
Health #	2.7						.09*	.20**
Trust	2.6							.12**
Just #	2.7							

# The scale used in these questions was reversed in the table to facilitate the interpretation, i.e., the value 1 indicates "no, not all" or "definitely not," and the highest value of the scale "very much" or "yes, definitely." \* $p < 0.05$  \*\* $p < 0.01$

Results based on splitting the sample into groups of voluntary and involuntary resettlement are shown in Table 3. Note that the perceived risk from the accident generally correlated stronger with distress than perceived risk due to the resettlement in the voluntarily resettled groups, whereas the results related to those moved involuntarily were less clear. Perceived influence was significantly related to a low degree of distress only in the groups moved involuntarily in Russia and voluntarily in Belarus. The strongest negative relationships between self-rated health and distress were found in Ukraine. The correlation is stronger in the involuntary group than in the voluntary group. Correlations between trust and health were found only in the voluntary groups of Russia and Ukraine. A negative relationship between trust and distress was found in the involuntarily resettled group in Russia.



Table 3

Mean Values and Pearson's Correlation Coefficients Between Items Measuring Distress, Perceived Risk, Personal Influence, Immunity, Personal Health, Trust in Authorities and Resettlement Justification by Country and Resettlement Type

Group	Item	Mean	Risk 1	Risk 2	Influence #	Immune #	Health #	Trust #	Just #
Russia: Voluntary (n:113)	Distress	3.3	.46**	.31**	-.18	-.11	.04	-.01	-.14
	Risk 1	3.4		.34**	-.18	-.09	.14	-.11	.11
	Risk 2	3.1			-.34**	-.22*	-.03	-.11	-.18
	Influence #	2.3				.07	.05	.21*	.13
	Immune #	2.0					-.16	.03	-.19*
	Health #	3.1						.28**	.08
	Trust #	2.5							-.14
	Just #	2.7							
Russia: Involuntary (n:67)	Distress	3.7	-.10	.08	-.37**	-.04	-.23	-.36**	-.35**
	Risk 1	3.4		-.13	-.13	-.32**	-.02	-.04	-.07
	Risk 2	2.9			.30*	.08	.02	-.05	-.54**
	Influence #	2.0				.31**	.21	-.12	.11
	Immune #	2.3					.21	-.28*	.16
	Health #	2.8						.19	.12
	Trust #	2.7							.11
	Just #	3.0							
Ukraine: Voluntary (n:73)	Distress	3.8	.40**	.31**	-.18	-.11	-.26**	-.03	-.18
	Risk 1	4.0		.22	-.05	-.20	-.09	-.01	.00
	Risk 2	3.3			.10	.00	-.32**	-.32**	-.15
	Influence #	2.5				-.46**	.05	.16	.03*
	Immune #	1.7					-.04	-.10	-.36**
	Health #	2.3						.04**	.23
	Trust #	2.6							.37**
	Just #	3.2							
Ukraine: Involuntary (n:137-139)	Distress	3.8	.42**	.37**	-.16	.00	-.41**	-.04	-.22*
	Risk 1	3.6		.58**	-.08	-.11	-.27**	-.05	-.25**
	Risk 2	3.3			-.14	.00	-.19*	.06	-.17
	Influence #	1.8				-.04	.22*	-.02	.13
	Immune #	1.9					.01	.23**	-.05
	Health #	2.0						-.09	.08
	Trust #	2.7							.20*
	Just #	2.4							
Belarus: Voluntary (n:106-107)	Distress	3.4	.35**	.30**	-.38**	-.08	-.17	-.18	-.18
	Risk 1	3.5		.30**	-.19	-.29**	.00	-.11	.14
	Risk 2	3.0			-.43**	-.09	-.19*	-.26**	-.43**
	Influence #	2.0				.06	.31**	.11	.31**
	Immune #	1.7					.07	.12	-.01
	Health #	2.0						.16	.34**
	Trust #	2.6							.38**
	Just #	2.9							
Belarus: Involuntary (n:96-97)	Distress	3.9	.21*	.36**	-.13	-.17	-.16	-.03	-.17
	Risk 1	3.6		.58**	.06	-.19	-.11	-.15	-.07
	Risk 2	3.2			-.06	-.13	-.07	-.20	-.25*
	Influence #	2.0				-.14	-.07	-.10	.22*
	Immune #	2.1					-.19	-.02	-.13
	Health #	2.8						-.01	.39**
	Trust #	2.7							-.02
	Just #	2.5							

# The scale used in these questions was reversed in the table to facilitate the interpretation, i.e., the value 1 indicates "no, not all" or "definitely not," and the highest value of the scale "very much" or "yes, definitely." \*p<0.05 \*\*p<0.01

Attempts to explain the variance of perceived health by the selected variables were rather unsuccessful. Table 4 presents the results from stepwise regression analyses for the total sample and by countries. The adjusted R<sup>2</sup> was in the former case only 0.10, but somewhat higher in Belarus and Ukraine. Note that the pattern of independent variables differ in the equations related to the three states. Perceived justification of being resettled was the only predictor that entered the equation in Belarus, whereas experience of distress, type of resettlement and sex were relatively important predictors of self-rated health in Ukraine. The “trust” predictor was found only in the Russian data.

Table 4  
Results of Stepwise Regression Analyses, for the Total Sample and by Country

<i>Dependent Variable</i>	<i>Independent Variable</i>	<i>Standardized <math>\beta</math>-coefficient</i>	<i>T-value</i>	<i>P-value</i>	<i>Cumulative Adjusted R<sup>2</sup></i>
All: Health	Distress	.22	5.51	.00	.05
	Choice	.19	4.66	.00	.08
	Just	.14	3.50	.00	.10
Russia: Health	Trust	.23	3.11	.01	.05
	Choice	.18	2.46	.02	.07
Ukraine: Health	Distress	.34	5.28	.00	.11
	Choice	.17	2.69	.01	.14
	Sex	.15	2.40	.02	.16
Belarus: Health	Just	.38	5.75	.00	.14

### Discussion

The results showed that negative feelings dominated everyday life, although there were also experiences of energy and optimism among the resettled people. The feelings of helplessness and being sick appeared rather generally, whereas being tired and in pain were more often found in the involuntarily resettled groups. The latter also perceived less influence over their personal life circumstances and felt more distressed. The emerging picture thus supports the initially stated expectations of results from this study.

It was of interest to note that distress revealed a somewhat stronger relationship with perception of risk due to the accident as compared to perception of risk due to the resettlement, but the two risk estimates were significantly related. There was an overall negative, although weak,

relationship between distress and the experience of influence. Those believing that they were unjustly resettled also tended to indicate a higher risk due to the resettlement, which was expected. The variables chosen for the presentation were not sufficient to explain the ratings of personal health status.

With respect to the hypotheses of this study, the overall comparison showed that voluntarily resettled people did experience more influence (i.e., control over their life situations) and felt less distressed (i.e., less vulnerable). Distress was of marginal importance, however, in predicting self-rated health, revealing the strongest relationship with personal health estimates in Ukraine.

According to Weinstein, those who perceive more control are expected to have lower risk perceptions.<sup>9</sup> The results of this study show a tendency among people giving low risk ratings to also agree more often to the notion of the possibility of becoming immune to radioactivity and radioactive contamination. This tendency seems, in fact, to support suggestion of an illusion of invulnerability.<sup>10</sup>



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<sup>9</sup> See Weinstein, *supra* note 3.

<sup>10</sup> See Linda S. Perloff, *Perceptions of Vulnerability to Victimization*, 39(2) J. Soc. Issues 41 (1983).