Public satisfaction as a measure of health system performance: A study of nine countries in the former Soviet Union☆☆

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ABSTRACT

Measurement of health system performance increasingly includes the views of health-care users, yet little research has focussed on general population satisfaction with health systems. This study is the first to examine public satisfaction with health systems in the former Soviet Union (fSU). Data were derived from two related studies conducted in 2001 and 2010 in nine fSU countries, using nationally representative cross-sectional surveys. The prevalence of health system satisfaction in each country was compared for 2001 and 2010. Patterns of satisfaction were further examined by comparing satisfaction with the health system and other parts of the public sector, and the views of health care users and non-users. Potential determinants of population satisfaction were explored using logistic regression. For all countries combined, the level of satisfaction with health systems increased from 19.4% in 2001 to 40.6% in 2010, but varied considerably by country. Changes in satisfaction with the health system were similar to changes with the public sector, and non-users of healthcare were slightly more likely to report satisfaction than users. Characteristics associated with higher satisfaction include younger age, lower education, higher economic status, rural residency, better health status, and higher levels of political trust. Our results suggest that satisfaction can provide useful insight into public opinion on health system performance, particularly when used in conjunction with other subjective measures of satisfaction with government performance.

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1. Introduction

This study examines general population satisfaction with health systems in nine countries of the former Soviet Union (fSU), a region of the world that has undergone major transition since the Soviet Union's collapse two decades ago.

The fSU provides a rich context in which to explore the sources of health system satisfaction, as both expectations and real health system performance have varied so dramatically over the past two decades. Prior to the Soviet Union's collapse in 1991, there was a fairly uniform health system based on what was known as the Semashko model. In

this model, services were centrally planned from Moscow, funded from government revenue and delivered by state-employees in state-owned facilities [1]. The system was characterised by chronic underfunding and inefficiency, but it did offer universal access to a basic package of care which was free at the point of use [2]. Post-transition, populations in the region therefore inherited the expectation of universal care. Public opinion may have been further affected by Gorbachev's policies of openness in the late 1980s, which legitimised public criticism [3], and sudden contact with the West, which raised expectations at a time when resources were too stretched to provide even a basic level of care [4].

Following the Soviet Union's collapse, the inefficiencies of the Semashko system reached critical levels and an increasing gap developed between government commitments to free health care and the resources available to meet these commitments [2]. Populations were no longer sure of what they could expect from their health systems and still there is often little understanding by patients of their entitlements due to poorly institutionalised legislation on patient rights, frequently changing benefit packages and implicit erosion of coverage [2]. While the first post-Soviet decade can be characterised by state-building, catastrophic financial problems and fiscal constraints, the following decade has seen more substantive health system reform and great divergence between countries [5]. The numerous reforms to the health systems of these countries are well-documented [1,2,4,6–10], but little is known of how these reform processes have influenced population satisfaction with health systems. Despite a number of limitations in measures of health system satisfaction (discussed further below), greater understanding of population satisfaction has a number of uses. Public involvement was an element of successful health reforms in Central Asia [10] and eliciting opinions can act as a first step towards public inclusion in the decision-making process [11]. Though attribution of satisfaction to specific reforms is rarely possible, a change in satisfaction may be an indirect indicator of the acceptability of reform [12] and its measurement may facilitate understanding of how reforms filter through to be experienced at population level [13]. In addition, health is a people-oriented service that is ultimately paid for by the general population, so eliciting the views of citizens is essential for public accountability [14]. Furthermore, population satisfaction can pick up issues that patient satisfaction does not, as health systems have functions beyond the provision of quality services; understanding people's perceptions of functions such as financial protection requires gathering information on satisfaction from non-users as well as users of services [15]. This is particularly true in the fSU, where health systems are frequently characterised by financial barriers to accessing care [5], and users alone may not be a good representation of the general population. Finally, as patient satisfaction with health services is known to promote adherence and improve clinical outcomes [16], population satisfaction may affect how people utilise services and whether they trust the health messages the system promotes.

Despite these uses, evidence on satisfaction of the general population with their health system is limited and concentrated mainly in countries of Western Europe and North America [11,12,14,17–23]. The overall aim of this study is to examine patterns of public satisfaction with health systems in nine countries of the fSU. The specific objectives are to: (i) describe changes in levels in health system satisfaction between 2001 and 2010; (ii) assess how health system satisfaction differs from satisfaction with other areas of the public sector; (iii) explore the influence of use of health services on health system satisfaction; and (iv) explore the potential determinants of health system satisfaction.

2. Materials and methods

The data for this study were derived from household surveys in Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine in 2001 for the Living Conditions, Lifestyles and Health (LLH) study (http://www.llh.at), and in the follow-up Health in Times of Transition (HITT) study (http://www.hitt-cis.net) in 2010, with the addition of Azerbaijan. These studies collected data on a range of health, demographic and socio-economic indicators (further details of the study design have been described elsewhere [5]). In summary, the studies used nationally representative cross-sectional survey design with multi-stage sampling. Primary sampling units (based on local administrative units) were selected from a sampling frame of a complete list of local administrative units using probability proportional to size technique. Households were then randomly selected using the random walk method, and one person (aged 18+) then randomly chosen (based on nearest birthday) to be interviewed. Response rates varied from 71% to 88% in the 2001 study and from 47% to 83% in the 2010 study. Face-to-face interviews were conducted by trained fieldworkers in the respondents' homes using a standardised questionnaire, administered in Russian in Belarus and Russia, and in Russian or a local language, as chosen by the respondent, in all other countries. All interviews were confidential and all respondents gave informed consent. In the LLH survey, 2000 interviews were completed in each country, apart from Russia (4000) and Ukraine (2400), due to their larger and more diverse populations. In the HITT survey the sample size for each country was 1800, apart from Russia (3000) and Ukraine (2000) (for the reasons noted above), and in Georgia (2200) where a booster of 400 respondents was conducted to ensure a more representative sample. The research was approved by the ethics committee of the London School of Hygiene and Tropical Medicine.

The measure of population satisfaction was derived from a wider question that asked 'how satisfied are you with the following', and listed democracy, the economy, the educational system, the social security system, national government, local authorities and the health system. Response options were: definitely satisfied, quite satisfied, quite dissatisfied, definitely dissatisfied, or do not know. The wording of the satisfaction question was identical in the 2001 and 2010 surveys and in all countries.

A descriptive analysis identified the prevalence of population satisfaction across the nine countries in 2001 and 2010. The characteristics of satisfaction were further

examined through the comparison of satisfaction with the health system and other parts of the public sector, and the comparison of satisfaction between health care users and non-users. The difference in health system satisfaction between those who had used or not used health services in the previous four weeks was examined with a Pearson chi-squared test, by country. The determinants of population satisfaction in 2010 were then explored using logistic regression, with the 'quite' and 'definitely' responses grouped to provide a binary outcome measure. For comparability with the existing literature on population satisfaction, the regression analysis explored determinants of satisfaction, rather than dissatisfaction. A univariate analysis was first conducted on potential explanatory variables which were selected based on the literature and plausibility.

The explanatory variables included individual characteristics of country of residence, gender, age, education, self-rated household economic situation and urban/rural settlement type; health variables of registered disability status, self-rated general health status (using the single item measure with a 5 point range from very good to very bad), and general mental health (using a 12 item instrument described elsewhere [24–26]); and trust in political institutions. Political trust was included to explore the extent to which health system satisfaction may be associated with trust in political institutions more broadly, with respondents asked to indicate on a ten point scale the extent to which s/he personally trusts the following institutions: president, government, parliament, courts, army, police and political parties. A summary measure was then developed with the scores for all institutions added together and then split into quartiles so that respondents were in four categories; very trusting, quite trusting, quite distrusting and very distrusting. Multivariate analysis was then conducted to adjust for the influence of all explanatory variables, with all country data combined to ensure greater statistical power. Variables such as utilisation of health services, payment made for services, and the type of service used were not significant ($p < 0.05$) in the univariate analysis, and therefore not included in the multivariate analysis. However, we recognise that the lack of significance may, in part, be due to insufficient numbers as these questions were addressed only to those who had used health services in the past four weeks. The model was run for each country individually to check for differences in the determinants of satisfaction between countries (results presented as an Online Supplementary Data). Data were adjusted for the sampling design effect.

3. Results

The total sample size was 18,428 in 2001 and 18,000 in 2010. A greater proportion of respondents were female than male in both years ($\approx 57\%$ female, 43% male). Further details on the study sample are provided elsewhere [27]. The data reveal fairly low levels of satisfaction in 2010 (Table 1); only in Azerbaijan (56%), Armenia (54%), Belarus (52%) and Kazakhstan (51%) were a slight majority quite or definitely satisfied. In Kyrgyzstan (47%) and Georgia (44%), a slight majority were quite or definitely dissatisfied,

and in Moldova (32%), Russia (24%) and Ukraine (17%) the vast majority were quite or definitely dissatisfied with the health system. Though the share of respondents satisfied was low in 2010, it had generally increased significantly since 2001; across the region as a whole just 19.4% of respondents were quite or definitely satisfied in 2001, compared to 40.6% in 2010. However, there is much variation between countries (Table 1); the proportion of respondents reporting satisfaction actually declined slightly in Belarus, Kyrgyzstan and Russia, while in Georgia the rise in reported satisfaction was quite dramatic.

When comparing health system satisfaction and satisfaction with elements of the public sector (Table 2) in 2001, satisfaction was highest with the educational system and health system in every country, and a much smaller share of respondents reported satisfaction with national government and local authorities. In 2010, the pattern was very different, with satisfaction levels more even across the public sector. In most countries, the change in satisfaction with the health system between 2001 and 2010 paralleled the change in satisfaction with the public sector in general, with dramatic increases in satisfaction in Georgia, substantial increases in Armenia and Kazakhstan, and slight increases in Ukraine. These changes in satisfaction were all significant, with distinct confidence intervals. However, there were some discrepancies; for example in Moldova health system satisfaction increased 14% between 2001 and 2010 while satisfaction with the national government remained constant. In Kyrgyzstan and Russia, health system satisfaction declined by 2.8% and 5.4% respectively, while government satisfaction increased by 3.5% and 4% respectively, though the confidence intervals for the two time periods overlapped in Kyrgyzstan. In Belarus, the divergence in performance was much greater, with an insignificant decline (2.9%) in satisfaction with the health system, but a 26% increase in satisfaction with national government.

Across the region as a whole, a greater proportion of respondents who had not used health care within the past four weeks reported satisfaction (41.2%) compared to those who had (37.4%), (x^2 $p < 0.01$). Non-users were more likely to be satisfied than users in each country except Russia, where there was greater satisfaction among health care users (26%) than non-users (23%), and Kyrgyzstan, where there were identical levels of satisfaction in users and non-users (47%). However, in individual countries the differences were only significant in Azerbaijan, where 57% of non-users were satisfied compared to 46% of users, and Georgia, where 45% of non-users were satisfied compared to 40% of users. The differences between users and non-users were not significant in Armenia (49.5% users, 54.4% non-users), Belarus (50%, 52.5%), Kazakhstan (50.2%, 50.9%), Moldova (28.9%, 32.5%) and Ukraine (16.9%, 17.5%).

Characteristics associated with population satisfaction with the health care system in 2010 are found in Table 3. In the multivariate analysis, characteristics associated with population satisfaction included younger age, lower education levels, higher economic status, living in a rural area, and better health and mental health status. In the univariate analysis, having a disability was associated with lower health system satisfaction, but the reverse was true in the

Table 1
Health system satisfaction in 2001 and 2010, by country.

	Definitely satisfied		Quite satisfied		Quite dissatisfied		Definitely dissatisfied	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
2001								
All countries	2.6	[2.4;2.9]	16.8	[16.2;17.3]	40.7	[40.0;41.5]	39.9	[39.1;40.6]
Armenia	10.2	[8.0;12.4]	19.3	[16.5;22.2]	38.1	[34.6;41.6]	32.4	[29.0;35.7]
Azerbaijan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Belarus	12.3	[10.1;14.6]	42.5	[39.1;45.9]	26.7	[23.6;29.8]	18.5	[15.8;21.1]
Georgia	0.7	[0.1;1.2]	7.3	[5.6;9.0]	21.7	[19.0;24.4]	70.4	[67.4;73.4]
Kazakhstan	4.1	[2.7;5.4]	28.2	[25.1;31.2]	42.1	[38.7;45.4]	25.7	[22.7;28.6]
Kyrgyzstan	12.5	[10.3;14.7]	37.4	[34.1;40.6]	30.7	[27.6;33.8]	19.5	[16.9;22.1]
Moldova	2.2	[1.2;3.2]	15.0	[12.6;17.4]	41.3	[38.0;44.6]	41.4	[38.1;44.8]
Russia	4.2	[3.2;5.2]	25.0	[22.9;27.0]	35.9	[33.6;38.2]	34.9	[32.6;37.2]
Ukraine	0.5	[0.3;0.6]	11.8	[11.2;12.4]	44.9	[44.0;45.9]	42.8	[41.9;43.7]
2010								
All countries	9.4	[8.95;9.81]	31.2	[30.5;31.9]	35.1	[34.4;35.8]	24.3	[23.7;24.9]
Armenia	12.9	[11.4;14.5]	40.9	[38.6;43.2]	34.8	[32.6;37.0]	11.4	[9.9;12.9]
Azerbaijan	24.7	[22.6;26.8]	31.7	[29.5;33.9]	24.9	[22.9;27.0]	18.7	[16.8;20.5]
Belarus	9.2	[7.8;10.5]	42.8	[40.5;45.1]	35.0	[32.7;37.2]	13.0	[11.5;14.6]
Georgia	6.8	[5.7;7.9]	37.3	[35.2;39.4]	32.8	[30.7;34.8]	23.2	[21.4;25.0]
Kazakhstan	16.7	[15.0;18.5]	34.1	[31.9;36.3]	33.8	[31.6;36.0]	15.4	[13.7;17.1]
Kyrgyzstan	8.7	[7.4;10.0]	38.3	[36.1;41.0]	33.0	[30.8;35.1]	20.0	[18.2;21.9]
Moldova	2.7	[1.9;3.5]	28.9	[26.8;31.1]	41.6	[39.2;43.9]	26.8	[24.7;28.9]
Russia	4.0	[3.2;4.7]	19.9	[18.4;21.3]	38.7	[36.9;40.5]	37.5	[35.7;39.3]
Ukraine	3.5	[2.6;4.3]	14.0	[12.4;15.5]	39.4	[37.2;41.6]	43.2	[41.0;45.4]

CI: confidence intervals.

multivariate analysis; those respondents with a registered disability were 22% more likely to report satisfaction, which may be a result of increased benefits for these individuals. The association with economic situation is strong, with the lowest income group 72% less likely to report satisfaction with the health system than the highest income group. The association between political attitudes and population satisfaction is also particularly strong, with respondents least trusting of political institutions 86% less likely to report satisfaction than the most trusting.

In the multivariate analysis, respondents residing in every country except Ukraine were two to three times more likely to report satisfaction with the health system than respondents residing in Russia, which corresponds with the earlier descriptive analysis. The association between satisfaction and country of residence was attenuated when adjusted for the other variables, but remained significant. When the multivariate regression was run for each country individually (results in Online Supplementary Data), the direction of the association between the variables and

Table 2
Satisfaction with the health system and the public sector by country, 2001–2010.

2001	Respondents quite or definitely satisfied % (95% CI)				
	Health system	National government	Local authorities	Education	Social security
Armenia	29.5 (26.2; 32.8)	10.3 (8.1; 12.5)	21.6 (18.6; 24.5)	40.9 (37.3; 44.4)	12.2 (9.8; 14.5)
Azerbaijan	n/a	n/a	n/a	n/a	n/a
Belarus	54.9 (51.4; 58.3)	30.2 (26.9; 33.5)	29.6 (26.2; 33.0)	65.5 (62.0; 68.9)	48.6 (45.1; 52.2)
Georgia	8.0 (6.2; 9.8)	2.0 (1.1; 2.9)	11.5 (9.4; 13.6)	8.0 (6.2; 9.8)	2.7 (1.6; 3.7)
Kazakhstan	32.3 (29.1; 35.4)	23.8 (20.9; 26.8)	29.1 (25.9; 32.2)	40.4 (37.1; 43.8)	18.1 (15.5; 20.8)
Kyrgyzstan	49.8 (46.5; 53.2)	27.8 (24.8; 30.9)	29.1 (26.1; 32.2)	56.6 (53.3; 59.9)	35.7 (32.5; 38.9)
Moldova	17.2 (14.7; 19.8)	14.9 (12.4; 17.4)	19.8 (17.0; 22.6)	22.3 (19.4; 25.2)	12.6 (10.4; 14.8)
Russia	29.2 (27.0; 31.4)	27.2 (25.0; 29.3)	30.2 (27.9; 32.5)	33.0 (30.7; 35.4)	23.4 (21.4; 25.5)
Ukraine	12.2 (11.6; 12.9)	5.7 (5.3; 6.2)	11.5 (10.9; 12.1)	18.2 (17.4; 18.9)	10.7 (10.1; 11.3)
2010	Respondents quite or definitely satisfied % (95% CI)				
	Health system	National government	Local authorities	Education	Social security
Armenia	53.8 (51.5; 56.1)	47.0 (44.7; 49.4)	46.2 (43.9; 48.5)	53.0 (50.7; 55.3)	45.2 (42.9; 47.6)
Azerbaijan	56.4 (54.0; 58.7)	69.1 (66.9; 71.4)	55.3 (52.8; 57.7)	58.0 (55.7; 60.4)	48.3 (45.9; 50.8)
Belarus	52.0 (49.7; 54.3)	56.1 (53.7; 58.5)	48.3 (45.9; 50.7)	66.0 (63.8; 68.3)	56.8 (54.5; 59.2)
Georgia	44.1 (41.9; 46.2)	46.2 (44.0; 48.4)	40.7 (38.4; 42.9)	50.4 (48.2; 52.6)	41.5 (39.4; 43.7)
Kazakhstan	50.8 (48.5; 53.1)	53.8 (51.4; 56.1)	48.4 (46.0; 50.8)	63.7 (61.5; 66.0)	51.2 (48.9; 53.5)
Kyrgyzstan	47.0 (44.7; 49.3)	31.3 (29.2; 33.5)	33.6 (31.4; 35.8)	47.1 (44.8; 49.4)	35.3 (33.1; 37.6)
Moldova	31.6 (29.4; 33.8)	14.9 (13.1; 16.6)	23.2 (21.1; 25.2)	39.6 (37.2; 41.9)	27.0 (24.8; 29.1)
Russia	23.8 (22.2; 25.4)	31.6 (29.9; 33.4)	26.0 (24.4; 27.7)	30.9 (29.2; 32.7)	27.2 (25.5; 28.8)
Ukraine	17.4 (15.7; 19.1)	22.0 (20.1; 23.9)	22.9 (21.0; 24.8)	29.2 (27.1; 31.3)	19.6 (17.8; 21.4)

CI: confidence intervals.

Table 3
Characteristics associated with health system satisfaction in 2010.

	N(%)	Univariate Analysis			Multivariate Analysis		
		OR	95% CI	p-Value	OR	95% CI	p-Value
Country							
Russia	669 (23.8)	1.00			1.00		
Armenia	958 (53.8)	**3.73**	**[3.05;4.56]**	**<0.01**	**3.03**	**[2.45;3.75]**	**<0.01**
Azerbaijan	954 (56.4)	**4.14**	**[3.21;5.34]**	**<0.01**	**2.09**	**[1.62;2.70]**	**<0.01**
Belarus	917 (52.0)	**3.47**	**[2.75;4.37]**	**<0.01**	**3.23**	**[2.54;4.09]**	**<0.01**
Georgia	908 (44.1)	**2.52**	**[2.05;3.10]**	**<0.01**	**2.65**	**[2.11;3.32]**	**<0.01**
Kazakhstan	905 (50.8)	**3.30**	**[2.70;4.05]**	**<0.01**	**2.00**	**[1.60;2.51]**	**<0.01**
Kyrgyzstan	844 (47.0)	**2.84**	**[2.33;3.45]**	**<0.01**	**3.25**	**[2.58;4.08]**	**<0.01**
Moldova	548 (31.6)	**1.48**	**[1.18;1.87]**	**<0.01**	**2.12**	**[1.65;2.74]**	**<0.01**
Ukraine	338 (17.4)	**0.68**	**[0.55;0.83]**	**<0.01**	0.93	[0.74;1.16]	0.51
Gender							
Female	3888 (39.7)	1.00			1.00		
Male	3153 (41.7)	**1.09**	**[1.02;1.16]**	**<0.01**	1.00	[0.92;1.09]	0.98
Age							
18–29	2247 (46.3)	1.00			1.00		
30–39	1385 (41.8)	**0.83**	**[0.76;0.91]**	**<0.01**	0.91	[0.82;1.01]	0.09
40–49	1330 (40.5)	**0.79**	**[0.72;0.86]**	**<0.01**	**0.89**	**[0.79;1.00]**	**0.04**
50–59	998 (37.4)	**0.69**	**[0.63;0.76]**	**<0.01**	**0.83**	**[0.73;0.94]**	**<0.01**
60+	1081 (33.4)	**0.58**	**[0.53;0.64]**	**<0.01**	**0.77**	**[0.67;0.88]**	**<0.01**
Education							
Incomplete secondary	933 (42.1)	1.00			1.00		
Complete secondary	4666 (41.8)	0.99	[0.88;1.11]	0.84	0.88	[0.77;1.02]	0.09
Complete higher education	1429 (36.3)	**0.78**	**[0.68;0.90]**	**<0.01**	**0.71**	**[0.61;0.83]**	**<0.01**
Household economic situation							
Very good	175 (63.2)	1.00			1.00		
Good	1879 (52.0)	**0.63**	**[0.48;0.83]**	**<0.01**	0.78	[0.56;1.07]	0.13
Average	3950 (40.1)	**0.39**	**[0.30;0.51]**	**<0.01**	**0.58**	**[0.42;0.79]**	**<0.01**
Bad	883 (30.1)	**0.25**	**[0.19;0.33]**	**<0.01**	**0.41**	**[0.29;0.57]**	**<0.01**
Very bad	118 (22.7)	**0.17**	**[0.12;0.24]**	**<0.01**	**0.28**	**[0.18;0.43]**	**<0.01**
Settlement type							
Rural	3117 (45.4)	1.00			1.00		
Urban	3924 (37.4)	**0.72**	**[0.63;0.81]**	**<0.01**	**0.76**	**[0.67;0.86]**	**<0.01**
Disability status							
No disability	6615 (41.0)	1.00			1.00		
Disability	421 (35.7)	**0.80**	**[0.71;0.91]**	**<0.01**	**1.22**	**[1.02;1.46]**	**0.03**
Health status							
Very good	622 (54.8)	1.00			1.00		
Good	2722 (45.9)	**0.70**	**[0.60;0.81]**	**<0.01**	0.90	[0.77;1.05]	0.19
Average	2689 (37.9)	**0.50**	**[0.44;0.58]**	**<0.01**	**0.85**	**[0.72;1.00]**	**0.05**
Bad	848 (32.7)	**0.40**	**[0.34;0.47]**	**<0.01**	**0.72**	**[0.59;0.88]**	**<0.01**
Very bad	145 (26.9)	**0.30**	**[0.24;0.39]**	**<0.01**	**0.66**	**[0.47;0.92]**	**0.01**
Psychological distress							
0–2 symptoms	3607 (45.7)	1.00			1.00		
3–6 symptoms	2272 (39.0)	**0.76**	**[0.70;0.83]**	**<0.01**	**0.83**	**[0.75;0.91]**	**<0.01**
7–9 symptoms	608 (34.4)	**0.62**	**[0.55;0.71]**	**<0.01**	**0.83**	**[0.71;0.97]**	**0.02**
10–12 symptoms	203 (27.3)	**0.45**	**[0.37;0.53]**	**<0.01**	**0.72**	**[0.57;0.91]**	**0.01**
Trust in political institutions							
Very trusting	1795 (67.0)	1.00			1.00		
Quite trusting	2471 (48.0)	**0.45**	**[0.40;0.52]**	**<0.01**	**0.45**	**[0.39;0.52]**	**<0.01**
Quite distrusting	1300 (30.6)	**0.22**	**[0.19;0.25]**	**<0.01**	**0.24**	**[0.20;0.28]**	**<0.01**
Very distrusting	571 (20.4)	**0.13**	**[0.11;0.15]**	**<0.01**	**0.14**	**[0.12;0.17]**	**<0.01**

Notes: OR: odds ratio. CI: confidence interval. Results in bold are statistically significant at $p < 0.05$.

health system satisfaction was the same for most individual countries as for the region, though the relationships varied in strength. The only anomalous results were in Armenia and Kyrgyzstan, where females were significantly more likely to be satisfied than males, unlike the rest of the region.

4. Discussion

To the best of our knowledge, this is the first study to examine patterns of satisfaction in health care systems across the fSU. This includes direct comparisons between countries and over time, as well as with other parts of the public sector and trust in government more broadly. The study has a number of limitations. The most notable relates to known weaknesses associated with the use of population satisfaction as a measure of health system performance: there are factors external to the health system, such as media and political discussion, which might impact satisfaction but have little value in determining performance levels [28], and population satisfaction produces levels of ambiguity which may make policy

recommendations and changes more difficult [29]. Satisfaction is also dependent on expectations, so if countries with lower performing health systems foster lower expectations, satisfaction may appear higher in countries with worse performing systems [20,30]. Results may have been distorted if people are less critical of government activities in countries with limited freedom of speech such as Azerbaijan, with a Freedom House score of 5.5 out of a lowest possible 7, or Belarus, which scores an even lower 6.5 (www.freedomhouse.org), but satisfaction may also be higher in these countries because populations value the stability that dictatorships can provide [31] An additional limitation is that respondents were grouped into users or non-users based on whether they had used health services in the past four weeks and this excluded experiences previous to the four week cut off point. Finally, given the cross-sectional survey designs, causality cannot be attributed.

The study findings generally show little agreement between population satisfaction and more commonly used performance indicators. The 2001 LLH survey results bear little relation to the 2000 World Health Report [32], which ranked Russia as more responsive than Armenia, Belarus, Kazakhstan and Kyrgyzstan – all countries whose respondents reported higher levels of health system satisfaction. Russia, Ukraine and Moldova have the lowest levels of satisfaction, yet they are by no means the worst performers in terms of level of health expenditure, priority attached to health as a percentage of public spending and prevalence of out of pocket payments [2]. Higher levels of satisfaction were reported in Georgia and Armenia than in Russia and Moldova despite evidence suggesting lower levels of access to health services in Georgia and Armenia [5]. Our results are supported to some extent by evidence of higher health service satisfaction in low-income than middle-income countries in the fSU [33], and evidence of high satisfaction with poor quality primary care in Armenia [30]. The inconsistencies between health system satisfaction and alternative performance indicators may relate to differing cultures, expectations and external factors such as political context [20,28], but might also reveal weaknesses in existing performance indicators.

Changes in satisfaction between 2001 and 2010 are more consistent with alternative measures of performance. Declines in satisfaction in Belarus and Russia may reflect increases in informal payments and worsening access, while in Georgia, Kazakhstan and Moldova, improvements in access and declines in informal payments are fairly consistent with the scale of the increases in satisfaction in these countries [33]. Unlike cross-country comparisons, temporal comparisons allow for the relative nature of satisfaction; greater satisfaction in Georgia and Armenia than in countries with higher-performing systems may reflect the general improvements in living conditions in these countries: people are simply more satisfied relative to their past experiences. Most countries experienced an increase in health system satisfaction between 2001 and 2010; people now have greater understanding of how their reorganised health systems work [5], there has been more time for expectations to adjust from the

Soviet era, and as generations have grown up, a higher proportion of respondents would have never experienced the Soviet Union. This is reflected in recorded declines in nostalgia for the Soviet era between 2001 and 2010 [34].

The slight decline in population satisfaction in Kyrgyzstan, from 52.4% reporting satisfaction in 2001 to 47% in 2010, is surprising, considering the reported success of the past decade's reform [35]. This result may reflect the civil disorder that occurred in Kyrgyzstan immediately prior to the HITT survey; although the momentum of health sector reform was not disrupted [35], such external factors can affect public confidence [28]. Alternatively, the reforms may not have met public expectations, as indicated by political pressure to further extend the benefit package [2]. Low satisfaction may also relate to poor dissemination of policies to the general population, who have insufficient knowledge of their patient rights in Kyrgyzstan despite public awareness campaigns [36]. Reduction of hospital capacity, the transition to primary care, reduction of the benefit package and formalisation of payments have been common reforms across much of the fSU that may improve efficiency and transparency, but may also result in discontent if the purpose of such reforms is not adequately explained. Improved communication and provision of information are needed to translate the potential benefits of reform to the general population.

A central critique of the concept of population satisfaction has been that people cannot distinguish between government and health system performance [29]. This argument is supported to some extent by the data; in 2010 satisfaction with health systems and government were at similar levels, and general political trust was the most significant determinant of health system satisfaction. However, there was a substantial gap between government and health system satisfaction in most countries in 2001, and although the gap has narrowed since, there were divergent trends in Belarus, Kyrgyzstan, Moldova and Russia. These findings support the argument that citizens can assess health systems as a unique entity [13], and the gap between government and health system satisfaction can be revealing. Between 2001 and 2010, satisfaction with the health system declined slightly in Belarus in the context of considerable increases in national government satisfaction, which may be of concern to policy-makers. By contrast, health system satisfaction rose 14% in Moldova while satisfaction with national government remained consistently low; this may reflect a more deep-rooted dissatisfaction with the Moldovan government, but also provides an opportunity to learn lessons from the relative successes of health system reform. As a measure, population satisfaction with the health system can therefore prove useful when anchored to similar subjective data.

The results of this study differ from the results of similar research in other regions of the world. Research from other regions has often revealed lower population satisfaction among non healthcare users than users, which has been attributed to the role of negative media coverage [28,37]. Though this same trend is visible in Russia, in the other study countries satisfaction is lower among users. The difference between the two groups is small, and insignificant

in most countries individually, but the finding may reflect the poor quality of health services, the unrealistically low perception of informal payments among non-users [33], or indeed the poor quality of the media. The determinants of population satisfaction in the fSU also differed from those in other regions. In the fSU, satisfaction was lowest among older and low-income groups, while studies from other regions [14,17,21,22,38,39] have found satisfaction to be higher among low-income groups, which is thought to be due to lower expectations. This may not be the case in the fSU because the expectation of universal coverage was fostered during the Soviet era for all income-groups, and belief in the legitimacy of this expectation is likely more deep-rooted among the older population. However the finding might simply reflect the poorer performance of the health system for older and low income groups. Satisfaction was higher among rural residents, which might be explained by low expectations, since access and quality have been consistently poorer in rural areas since long before the Soviet Union's collapse [2], but might also have been influenced by specific building renovation programmes which have tried to bridge the gap between the quality of urban and rural health care in Belarus, Moldova and Russia.

Considering the central role of expectations in determining satisfaction, clearer communication of what citizens can expect from the system may be beneficial for both patients and providers; in Georgia, even providers are unclear about what is paid for by the state [40]. Resource constraints in some countries have forced decisions to be made on the scope, depth, and in some cases breadth, of coverage, but these decisions have often been made implicitly. Changes to the benefit package and cost-sharing should be explicit to ensure citizens are aware of their rights and entitlements to health care and to prevent informal payments from filling gaps in funding. Though citizens have expectations beyond those endorsed by the state, clearer communication on entitlements may help to mediate expectations and their effects on satisfaction. Further research is required to understand how policy can be better communicated in this region, with a particular emphasis on public perceptions of health policy. Additionally, citizens should be provided with the means to hold the system accountable for these entitlements, with mechanisms to report substandard care and unofficial payments.

Finally, trust in political institutions was the strongest determinant of health system satisfaction. Countries in transition are thought to have inherited a "trust deficit" [41]; but theories suggest political trust is based on institutional performance [42], and can therefore be earned through prompt response to public priorities, prevention of corruption, encouraged citizen involvement, and provision of accurate information on government activity [42,43]. Building trust in institutions is challenging, but has been pursued actively in some fSU countries. The Georgian government has undertaken radical reform to combat corruption, which has significantly declined over the past decade and is now lower than any other country of the fSU [40]. This is reflected by the dramatic increase in satisfaction with both government and the health system since 2001.

5. Conclusions

Satisfaction with the health care system is generally low across the fSU, and though there have been drastic improvements in some countries in the past decade, the situation has deteriorated in others. Despite its limitations, population satisfaction measures can provide a mechanism to improve health system accountability and offer insight into perceived performance, particularly when it is anchored to other subjective measures, such as government satisfaction, or when temporal comparisons are made. Such population satisfaction measures may prove a useful indicator (among others) of the relative success of health reforms in the region. The study findings also suggest the need for improved communication, clearer entitlements and public accountability mechanisms for health system reforms in the fSU.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.healthpol.2013.03.004.

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