

# DEVELOPMENT OF A QUESTIONNAIRE ON PATIENT SATISFACTION WITH EMERGENCY MEDICAL INTERVENTIONS

## IZDELAVA VPRAŠALNIKA ZA MERJENJE ZADOVOLJSTVA BOLNIKOV S SLUŽBO NUJNE MEDICINSKE POMOČI NA TERENU

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### Abstract

**Aims:** In the last decade, we have been faced with important changes in the organisation of out-of-hours health services. In Slovenia, prehospital units were set up to intervene on the site of an accident or emergency. Since patient satisfaction with prehospital emergency medical services (EMS) seems to be a neglected area of research, we developed and tested a postal questionnaire asking patients about their satisfaction with EMS. We expected that patient satisfaction with EMS would be high, and that some areas that would need improvement would be identified.

**Methods:** We studied a random sample of 377 patients provided EMS in the Kranj health region, Slovenia, in 1998. The questionnaire consisted of patient data and questions on patient satisfaction with the EMS received.

**Results:** The questionnaire was completed by 239 subjects (response rate 70.9%). There were 131 (54.8%) men and 108 (45.5%) women, aged 18 to 91 years, mean age 52.4 years (sd 17.8 years). The reason for emergency medical intervention was a disease in 109 (45.0%) cases, traffic accident in 73 (30.5%) and some other accident in 39 (16.3%) cases; other reasons were stated in 18 (7.5%) cases. In 75 (31.4%) cases, the intervention took place during the night, and in 147 (61.5%) during the day. The reliability (Cronbach Alpha) of the scale measuring patient satisfaction with EMS intervention was 0.8243. The satisfaction scores ranged from 38 to 100 points (out of max. 100 possible); the mean score was 88.7 (sd = 11.3).

**Conclusions:** The results showed an acceptable level of reliability of the questionnaire and a relatively high rate of patient satisfaction with EMS.

**Key words:** emergency medical services, emergency treatment, ambulances, patient satisfaction, questionnaires

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### Izvelek

**Namen:** V zadnjem času smo pričali pomembnih sprememb pri organizaciji zdravstvene oskrbe izven delovnega časa. V Sloveniji je bila vzpostavljena mreža prehospitalnih enot za ukrepanje na terenu. Raziskovanje zadovoljstva bolnikov z delom nujne medicinske službe še ni posebno zaživel, zato smo izdelali vprašalnik za merjenje zadovoljstva bolnikov s službo nujne medicinske pomoči in ga preverili v praksi. Pričakovali smo visoko zadovoljstvo bolnikov s službo nujne medicinske pomoči in pomanjkljivosti na nekaterih področjih, kjer bodo potrebne spremembe.

**Metode:** Izbrali smo naključni vzorec 377 bolnikov, ki so bili oskrbljeni v prehospitalni enoti ZD Kranj leta 1998. Vprašalnik je vseboval podatke o bolnikih in bolnikove ocene oskrbe med nujno intervencijo.

**Rezultati:** Bolniki so vrnili 239 (70,9%) poslanih vprašalnikov. 131 (54,8%) je bilo moških in 108 (45,5%) žensk. Bolniki so bili stari od 18 do 91 let, v povprečju 52,4 leta (SD = 17,8 let). Kot vzrok nujne intervencije so navedli bolezen v 109 (45,0%), prometno nezgodo v 73 (30,5%), druge nezgode v 39 (16,3%) in druge razloge v 18 (7,5%) primerih. V 147 (61,5%) je bila nujna intervencija preko dneva in v 75 (31,4%) preko noči. Zanesljivost lestvice za merje je zadovoljstva bolnikov je bila visoka (Kronbachov alfa = 0,8243). Povprečna ocena zadovoljstva je bila od 38 do 100 odstotnih točk, v povprečju 88,7 točk (SD = 11,3 točke).

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**Sklepi:** *Vprašalnika za merjenje zadovoljstva bolnikov je zanesljiv za uporabo. Bolniki so bili s slu,bo nujne medicinske pomoči v ZD Kranj zadovoljni.*

**Ključne besede:** nujna medicinska služba, nujna medicinska pomoč, reševalno vozilo, zadovoljstvo bolnikov, ankete

## 1 Introduction

In the past decade, we have been faced with important changes in the organisation of out-of-hours services (1-3). Emergency medical care services (EMS) deploying rescue teams outside the hospitals have proved very efficient in saving patients' lives and improving their outcomes. The development of EMS had an impact on the workload and organisation of primary care services. Type PHE, 1B, 1B plus and 1A prehospital units were established to provide services on the site of an accident or an emergency event, or in a primary care setting. A law passed in Slovenia in 1996 set up a network of EMS that are readily accessible in 60 primary health care centres throughout the country (4).

Different criteria are used to evaluate the quality of emergency services provided. So response time is usually used to measure the efficacy of the system organisation, and figures on performance of resuscitations and other emergency treatments are employed to evaluate performance of the rescue team. Patient satisfaction with emergency care, however, has emerged as an increasingly important issue because of the dramatic situations encountered in emergencies. While many surveys on patient satisfaction with regular primary care services, out-of-hours services and emergency room care (3, 5, 6, 7, 8, 9, 10) have been conducted to date, patient satisfaction related to the provision of prehospital emergency medical services remains a neglected area of research. This study was undertaken to develop and test a postal questionnaire asking about patient satisfaction with EMS. We expected that patient satisfaction with EMS would be high, and that the areas needing improvement will be identified.

## 2 Methods and participants

The survey was conducted in the Kranj health region. There EMS are provided to a population of 73,000 on an area of 453 square kilometres with a population density of 161 inhabitants per square kilometre and with the densest concentration of people in the city of Kranj. The most distant inhabited place is 45 minutes of normal driving time away. An emergency team comprised of a GP specially trained in emergency medicine and two paramedics is available in the Kranj Health Centre round the clock to

respond to emergency calls. In 1998, the mean response time was seven minutes.

We studied a random sample of patients aged 18 years or older who in 1998 received EMS outside the primary care institution and were conscious during the intervention according to the EMS records. The national resident register was consulted to exclude patients who had died in the meantime, thus leaving 337 patients eligible for the study. In March 1999, the patients studied were mailed a questionnaire based on the findings of the survey of patient satisfaction with outpatient care and prepared by an EMS group and quality experts. (5, 7, 10, 11, 12). The letter enclosed with the questionnaire explained the purpose of the survey and assured its anonymity.

The questionnaire consisted of patient data and questions about the patient satisfaction with emergency services. The respondents were asked to provide demographic data and to evaluate some specific aspects of EMS on a three-point Likert scale (1 = disagree, 2 = neutral, 3 = agree):

1. I got through to the dispatcher easily.
2. I was happy with the style of the communication on the phone
3. The dispatcher asked me enough questions.
4. The rescue team arrived quickly .
5. I was pleased with the attitude of the rescue team.
6. The team performed their professional activities well.
7. I was happy with the way the doctor examined me.
8. The rescue team was well-equipped.
9. The performance of the rescue team during the transport was good.
10. The rescue team gave me a clear explanation of the procedures they performed.
11. I was happy with the way the rescue team talked with me.
12. I would be comfortable with this team helping my friend.
13. I think that the rescue team performed their functions efficiently.
14. I think that emergency calls to this EMS are well organised.

The data were analysed using the SPSS for Windows. We used the t-test and the chi-square test and factor analysis to test the questionnaire. The patient satisfaction score was calculated using the equation proposed by Hearnshaw and Baker (11).

### 3 Results

The questionnaire was completed by 239 respondents (response rate 70.9%) There were 131 (54.8%) men and 108 (45.5%) women, ranging in age from 18 to 91 years, mean age 52.4 years (sd 17.8 years). Sixty-seven (28.0%) patients had primary education, 143 (59.8%) had secondary education and 27 (11.3%) university education.

The reason for making emergency call was a disease in 109 (45.0%) cases, traffic accident in 73 (30.5%)

cases, other accident in 39 (16.3%) cases and some other emergency event in 18 (7.5%) cases. EMS was activated by the patient's relatives in 110 (46.0%) cases, by bystanders in 81 (33.9%) cases, by other persons in 31 (13.0%) cases and by the patients themselves in 8 (3.3%) cases. Nine (3.8%) patients did not know who called EMS. In 75 (31.4%) cases the intervention took place during the night and in 147 (61.5%) cases during the day. Surprisingly, for nearly one half of the patients the intervention studied was not the first contact with EMS (108; 45.2%).

Table 1. *Patient satisfaction with specific EMS items.*

Tabela 1. *Zadovoljstvo pacientov s posameznimi elementi nujne medicinske pomoči*

Item / Mnenje	1	%	2	%	3	%	missing/ ni odg.	%
1. I got through to the dispatcher easily./ Brez težav sem dobil(a) telefonsko zvezo z nujno medicinsko pomočjo.	0	0	26	10.9	140	58.6	73	30.5
2. I was happy with the style of the communication on the phone / S pogovorom po telefonu sem bil(a) zadovoljen(a).	3	1.3	69	28.9	69	28.9	98	59.0
3. The dispatcher asked me enough questions/ Zastavili so mi dovolj vprašanj.	3	1.3	6	2.5	103	43.1	127	53.1
4. The rescue team arrived quickly/ Reševalci so prispeli hitro.	11	4.6	67	28.0	145	60.7	16	6.7
5. I was pleased with the attitude of the rescue team / Z odnosom reševalcev sem bil(a) zadovoljen(a).	0	0	65	27.2	153	64.0	21	8.8
6. The team performed their professional activities well/ Reševalci so svoje strokovno delo dobro opravili.	1	4	63	26.4	159	66.5	16	6.7
7. I was happy with the way the doctor examined me/ Z zdravniškim pregledom sem bil(a) zadovoljen(a).	7	2.9	83	34.7	125	52.3	24	10.0
8. The rescue team was well-equipped./ Reševalna ekipa je bila dobro opremljena.	1	.4	79	33.1	128	53.6	31	13.0
9. The performance of the rescue team during the transport was good/ Ravnanje reševalcev med prevozom je bilo ustrezno.	0	0	62	25.9	151	63.2	26	10.9
10. The rescue team gave me a clear explanation of the procedures they performed / Reševalci so mi natančno pojasnili svoje postopke.	116	48.5	44	18.4	79	33.1	0	0
11. I was happy with the way the rescue team talked with me/ Zadovoljen(a) sem bil(a) z načinom komunikacije z reševalci.	10	4.2	100	41.8	100	41.8	29	1.1
12. I would be comfortable with this team helping my friend/ Zadovoljen (a) bi bil(a) če bi ta ekipa pomagala mojemu prijatelju.	5	2.1	21	8.8	213	89.1	0	0
13. I think that the rescue team performed their functions efficiently/ Mislim, da je reševalna ekipa svoje delo dobro opravila.	38	15.9	0	0	192	80.3	9	3.8
14. I think that emergency calls to this EMS are well organised./ Mislim, da je sistem klicanja nujne medicinske pomoči dobro organiziran.	42	17.6	0	0	159	66.5	38	15.9

The reliability of the scale measuring patient satisfaction with EMS intervention is shown in Table 2.

Table 2. *Reliability of the scale measuring patient satisfaction with ESM.*

Tabela 2. *Zanesljivost lestvice za oceno zadovoljstva pacienta s službo nujne medicinske pomoči*

Item/Mnenje	Scale Mean if Item Deleted/	Scale Variance if Item Deleted/	Corrected Item- Total Correlation/	Alpha if Item* Deleted/
1. I got through to the dispatcher easily/ Brez težav sem dobil(a) telefonsko zvezo z nujno medicinsko pomočjo.	22.3012	13.4569	.3476	.8201
2. I was happy with the style of the communication on the phone / S pogovorom po telefonu sem bil(a) zadovoljen(a).	22.6386	12.1361	.5321	.8072
3. The dispatcher asked me enough questions. Zastavili so mi dovolj vprašanj.	22.2771	13.2515	.4283	.8164
4. The rescue team arrived quickly/ Reševalci so prispeli hitro.	22.5181	11.7161	.6293	.7993
5. I was pleased with the attitude of the rescue team / Z odnosom reševalcev sem bil(a) zadovoljen(a).	22.4578	12.4220	.5538	.8069
6. The team performed their professional activities well/ Reševalci so svoje strokovno delo dobro opravili.	22.3976	12.9010	.4412	.8144
7. I was happy with the way the doctor examined me/ Z zdravniškim pregledom sem bil(a) zadovoljen(a),	22.5422	11.6659	.6675	.7965
8. The rescue team was well-equipped . Reševalna ekipa je bila dobro opremljena.	22.5181	12.3747	.5295	.8080
9. The performance of the rescue team during the transport was good./ Ravnanje reševalcev med prevozom je bilo ustrezno.	22.4096	12.3667	.6221	.8034
10. The rescue team gave me a clear explanation of the procedures they performed / Reševalci so mi podrobno pojasnili svoje postopke.	23.0000	12.0244	.2652	.8469
11. I was happy with the way the rescue team talked with me/ Zadovoljen(a) sem bil(a) z načinom komunikacije z reševalci.	22.5663	12.3706	.4512	.8135
12. I would be comfortable with this team helping my friend/ Zadovoljen(a) bi bil(a) če bi ta reševalna ekipa pomagala mojemu prijatelju.	22.2289	13.4713	.6137	.8154
13. I think that the rescue team performed their functions well/ Mislim, da je reševalna ekipa dobro opravila svoje delo.	22.2892	12.8422	.4289	.8149
14. I think that emergency calls to this EMS are well organised./ Mislim, da je sistem klicanja nujne medicinske pomoči dobro organiziran.	22.3614	12.5995	.3629	.8207

\*Alpha = ,8243

The mean satisfaction score was 88.7 points, sd 11.3 points. Three factors using the Quartimax rotation method with Kaiser Normalization (efficacy, performance and communication) explain 57.3% of the variance. The first factor (efficacy: *"I got through to the dispatcher easily"*, *"I was happy with the style of the communication on the phone"*, *"The rescue team arrived quickly"*, *"I was pleased with the attitude of the rescue team"*, *"The team performed their professional activities well"*, *"I was happy with the way the doctor examined me"*, *"The rescue team was well-equipped"*, *"The performance of the rescue team during the transport was good"*) explains 30.1% of the variance. The second factor (performance: *"The dispatcher asked me enough questions"*, *"I would be comfortable with this team helping my friend"*, *"I think that the rescue team performed their functions efficiently"*, *"I think that emergency calls to this EMS are well organised"*) explains 17.1% of the variance and the third factor (communication: *"The rescue team gave me a clear explanation of the procedures they performed"*, *"I was happy with the way the rescue team talked with me"*) 10.0% of the variance.

#### 4 Discussion and conclusions

This survey has some drawbacks, the first one being the selection bias. Obviously, people who had died before the administration of the questionnaire were excluded from the survey. Since EMS collects demographic data of the emergency and accident patients served, we used patient records of one of the emergency centres. The incidents documented are usually very severe and the mortality rate is very high. In order not to trouble the relatives of patients who passed away in the meantime, we had to exclude the deceased from the sample. As a result only a part of the original group of patients was eligible for our survey and patients who could have had different opinion about EMS were left out.

The second problem was the recall bias. During the intervention many patients were unconscious and thus unable to evaluate the care received. Presumably they contributed to the drop outs. We were not in the position to identify patients who answered the questionnaire although they were unconscious part of the time or all the time during the intervention. Consequently, some ratings might be biased or have been given by the patient's relatives. Emergencies and accidents outside health care facilities happen all over the country, which renders the tracking of these patients even more difficult. Bearing these limitations in mind, we still feel

that the results of the study provided valuable information about patient satisfaction with EMS.

The survey also has some strong points. To our knowledge it represents the first attempt to evaluate prehospital emergency services and primary care centre based prehospital services. The response rate obtained was high (70.9%) for a postal questionnaire, and allowed us to make sound conclusions (13). Direct handing out of the questionnaire, used by many researchers to enhance the response rate, was not possible in our study as the majority of patients were admitted to the hospital in a very poor condition. The feasibility of the instrument was confirmed by a high percentage of responses to individual items, except to items related to the first contact with EMS on the telephone.

The questionnaire items form a highly reliable scale for calculation of a total satisfaction score.

In conclusion, the satisfaction score obtained was surprisingly high (88.7 points) and is comparable to the level of patient satisfaction with primary care in this country (86.4 points) (14).

Individual items of the questionnaire were rated highly by the majority of respondents, the highest scores being assigned to the item *"Would you be comfortable with this team helping your friend"*. The reverse was observed with the items *"How did the rescue team explain to you the procedures performed"* and *"How did the rescue team communicate with you"*. These findings stress the importance of communication skills even in situations where technical expertise is of utmost importance and time constraints do not allow adequate patient involvement.

There is a need for training programmes in interpersonal skills for rescue teams which would improve interaction between physicians and patients and contribute to higher scores of patient satisfaction.

The question about the first telephone contact with EMS posed considerable problems. The explanation of why nearly 60 per cent of the patients were not able to communicate their experience with this element of EMS is that in the majority of emergency cases EMS was contacted by other persons. Since the first contact with EMS is very important for the emergency intervention, future research should seek to answer the question of how to incorporate the views of relatives and bystanders in quality assessment and how to deal with the missing data from surveys of patient satisfaction with EMS.

The questionnaire is a valid and feasible instrument for surveying patient satisfaction with EMS and should be validated in a multicentre research.

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