Community willingness to perform cardiopulmonary resuscitation: the Crimean survey

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Background and Purpose of the Study: So far, almost nothing is known about the readiness of lay people to perform cardiopulmonary resuscitation (CPR) in the former USSR countries. This study was aimed *to evaluate willingness to attempt CPR and elucidate barriers to perform CPR in the selected population of the post-Soviet area.*

Materials and methods: A personal interview survey of adult lay public of the Crimean peninsula was conducted in November 2017-January 2018. The sample size needed to reflect the target population was calculated as 384 using the Cochran formula ($\pm 5\%$ margin of error; 95% confidence level). Willingness to attempt CPR in real life was evaluated using a 5-point numeric rating scale (from 1 – definitely will not do CPR to 5 – definitely will do CPR), and potential barriers to perform CPR on a stranger or a friend/relative were inquired with multiple-choice questions. Respondents' characteristics were compared with regard to willingness to perform CPR by chi-square test or Fisher's exact test, and variables with confirmed association ($p < 0.05$) were included in a binomial logistic regression analysis.

Table. Distribution of responses to the multiple-choice questions querying potential barriers to attempt CPR in real life.

Potential barriers to perform CPR	CPR on a stranger, n (%)	CPR on a relative/friend, n (%)
Lack of CPR knowledge and skills	257 (27.0)	169 (44.1)
Fear to cause harm to a victim	240 (25.2)	137 (35.8)
Unpleasant external appearance of a victim	122 (12.8)	5 (1.3)
Fear of legal implication	98 (10.3)	18 (4.7)
Fear of catch an infection on a contact with a victim	92 (9.7)	8 (2.1)
Personal physical limitations	71 (7.5)	28 (7.3)
Reluctance to be in the focus of attention	33 (3.5)	6 (1.6)
Personal problems requiring urgent solution	23 (2.4)	3 (0.8)
Opposite sex of a victim	8 (0.8)	2 (0.5)
Other	8 (0.8)	7 (1.8)
Total	952 (100.0)	383 (100.0)

Figure. Percentage distribution of respondents according to their willingness to do CPR in real life.

Results: The majority of respondents expressed at least some willingness to perform CPR on a stranger (304 of 384, 79%) or a friend/relative (348 of 384, 91%) (Figure). About 35% and 72% participants stated they will definitely do CPR on a stranger or a loved one, respectively.

Willingness to perform CPR was positively associated with previous CPR training ($p \leq 0.012$) and self-perceived level of CPR knowledge ($p < 0.001$), but independent from the number of attended courses, timing of last training, experience of cardiac arrest in real life, self-perceived health state, sex, place of residence (urban/rural), marital status, educational level, occupation, medical education or monthly income ($p > 0.05$).

Whereas younger respondents were more willing to attempt CPR on a stranger ($p = 0.038$), the willingness to provide CPR on a loved one was independent from age ($p > 0.05$).

In binomial logistic regression, willingness to attempt CPR on a stranger was found to be predicted by willingness to learn CPR (OR: 2.0; 95% CI: 1.1-3.4), at least poor self-perceived knowledge of CPR (OR: 6.9; 95% CI: 3.8-12.7) and serious health problems in friends/relatives (OR: 2.8; 95% CI: 1.4-5.3). The willingness to perform CPR on a loved one significantly correlated with at least poor self-perceived knowledge of CPR (OR: 5.4; 95% CI: 2.6-11.3) and the true knowledge of hand position for chest compressions (OR: 3.5; 95% CI: 1.4-8.8).

The potential barriers to attempt CPR were much more commonly reported when hypothesizing cardiac arrest in a stranger than in a loved one (952 vs. 383, respectively) (Table). The fear to cause harm to a victim and lack of CPR knowledge and skills were the commonest barriers to perform CPR. Further, when several barriers were reported, fear to cause harm or lack of CPR knowledge/skills were most frequently perceived as the strongest barrier to attempt resuscitation (32% and 34%, respectively, for CPR on a stranger, 20% and 29% for CPR on a friend/relative). Overall, 10% and 46% respondents reported no barriers when supposing CPR attempt on a stranger or on a loved one, respectively.

Conclusions: The results show high rates of readiness to attempt CPR in the Crimean population with higher willingness to perform CPR on a loved one, than on a stranger. Considering previously trained are declaring higher willingness to attempt CPR, and the lack of resuscitation knowledge and fear to cause harm constitute the main barriers to perform CPR, there is a potential to increase the willingness by means of enhancing public education in resuscitation.