(in Polish)STROBE Statement—checklist of items that should be included in reports of observational studies

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|  | Item No. | Recommendation | Page  No. | Relevant text from manuscript |
| **Title and abstract** | 1 | (*a*) Indicate the study’s design with a commonly used term in the title or the abstract | 3 | Paramedics’ Educational Needs Regarding Cultural Competences |
| (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found | 3 | Paramedics from the Subcarpathian province (M = 3.56; SD = 0.67) reported greater educational needs in terms of cultural competences than their colleagues from the West Pomeranian province (M = 2.84; SD = 0.82, p <0.001). In the Subcarpathian province, 80.4% of paramedics declared willingness to improve the knowledge of foreign languages, while in the West Pomeranian province this number amounted to 45.9%. In both provinces, paramedics with MSc in another field of study and BSc in emergency medical services reported greater educational needs compared to paramedics with lower education. In the Subcarpathian province, the preferred form of education was a conference (60.8% of respondents), while in the West Pomeranian province the respondents opted for workshops with experts representing various ethnic and religious groups (39.4%). The percentage of paramedics interested in on-line courses on multicultural emergency medicine was 41.74%. |
| Introduction | | | |  |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 4 | The number of foreigners permanently residing in Poland amounts to approximately 743.7 thousand. Every year 180.2 million foreigners cross Polish border. The growing number of foreigners residing permanently and temporarily in Poland means that paramedics more and more often provide help to people with cultural values different from those most commonly encountered in Poland and different expectations towards medical staff. Insufficient cultural competences on the part of paramedics may cause in patients of different cultural background fears of violation of their values, lack of trust and avoidance of contacts with the health care service, aggression and claims. On the part of the staff, however, they cause difficulties in providing adequate assistance, stress and violation of the patient's rights |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 3 | The aim of the study was to obtain information whether professionally active paramedics require training in the field of cultural competences and what forms of education on multiculturalism they consider most useful. |
| Methods | | | |  |
| Study design | 4 | Present key elements of study design early in the paper | 5 | The research group consisted of all paramedics working in the State Emergency Medical System in the Subcarpathian and West Pomeranian provinces. |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | 5 | The study was conducted from January 2018 to August 2018. The study population included 2,229 paramedics. They were employed in the EMS units. |
| Participants | 6 | (*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants | 5 | The invitation to participate in the study was sent to all EMS units in both provinces. 563 fully completed questionnaires were obtained. The respondents constitute 25% of the surveyed population being a representative group |
| (*b*)*Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed  *Case-control study*—For matched studies, give matching criteria and the number of controls per case |  |  |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable |  | Not applicable |
| Data sources/ measurement | 8\* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | 6 | The study group consisted of all paramedics working in the EMS in the Subcarpathian and West Pomeranian provinces. https://ap.adminproject.eu/. |
| Bias | 9 | Describe any efforts to address potential sources of bias |  | Paramedics working with foreigners on everyday basis took part in the study. A large part of the paramedics did not declare any religion. |
| Study size | 10 | Explain how the study size was arrived at | 5 | The size of the representative sample for the study population was estimated using a sample selection calculator. It amounts to 334 people. Obtaining a representative sample required the participation of over 15% of those invited to the study. |

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| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 6 | Quantitative variables were described by means of the mean, standard deviation, median, lower quartile, upper quartile as well as minimum and maximum values.  In order to determine the correlation between quantitative variables, the Pearson product-moment correlation coefficient was used, which is used to study the linear relationship between two features, provided that the distribution of the studied features has a normal distribution. To determine the relationship between the variables measured on the qualitative scale, Test of significance for Spearman's rank-order correlation coefficient was used. It allows to verify the hypothesis that there is no monotonic dependence between the studied characteristics of the population (already measured on an ordinal scale).  The obtained results of the analysis were considered statistically significant at p <0.05. The results are presented to the nearest thousandths. |
| Statistical methods | 12 | (*a*) Describe all statistical methods, including those used to control for confounding | 6 | Appropriate statistical procedures were used to verify the hypotheses. Two groups were compared with the Mann-Whitney U test, also known as the Wilcoxon Mann-Whitney test. It is used to verify the hypothesis that the differences between the medians of the studied variable in two populations are irrelevant (assuming that the distributions of the variable are similar to each other). Kruskal-Wallis rank ANOVA was used to compare more than two independent groups. Kruskal-Wallis one-way analysis of variance by ranks is an extension of the U-Mann-Whitney test and is used to verify the hypothesis that the differences between the medians of the studied variable are not significant in several populations (assuming that the distributions of the variable are close to each other). |
| (*b*) Describe any methods used to examine subgroups and interactions |  |  |
| (*c*) Explain how missing data were addressed |  |  |
| (*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed  *Case-control study*—If applicable, explain how matching of cases and controls was addressed  *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy |  |  |
| (*e*) Describe any sensitivity analyses |  |  |
| Results | | | | |
| Participants | 13\* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 6 | The questionnaire was completed by a total of 563 male and female paramedics. In the Subcarpathian province it was completely filled by 347 paramedics. In the West Pomeranian province, 216 paramedics completed all the questions contained in the survey |
| (b) Give reasons for non-participation at each stage |  |  |
| (c) Consider use of a flow diagram |  |  |
| Descriptive data | 14\* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 6 | The mean age of the respondents was 36.66 years (SD = 9.50) and the average work seniority was 11.28 years (SD = 7.71). Men accounted for 86.7% of the respondents. 49.9% of the respondents had a Secondary School Diploma of a paramedic. The rest of them completed a BSc in Emergency Medical Services.. |
| (b) Indicate number of participants with missing data for each variable of interest |  |  |
| (c) *Cohort study*—Summarise follow-up time (eg, average and total amount) |  |  |
| Outcome data | 15\* | *Cohort study*—Report numbers of outcome events or summary measures over time | 6 | The questionnaire was completed by a total of 563 male and female paramedics. In the Subcarpathian province it was completely filled by 347 paramedics. In the West Pomeranian province, 216 paramedics completed all the questions contained in the survey |
| *Case-control study—*Report numbers in each exposure category, or summary measures of exposure |  |  |
| *Cross-sectional study—*Report numbers of outcome events or summary measures |  |  |
| Main results | 16 | (*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 8 | In the entire study group, 305 respondents expressed their interest in broadening their knowledge of multiculturalism (56% of the answers - strongly agree and rather agree). The willingness to improve their practical skills in this field was expressed by 301 people (55%). The preferred forms of training were conferences (52%) and workshops with experts in multiculturalism (55%). The interest in online courses was slightly lower (44%). The need to improve the skills in foreign languages was expressed by 71% of the surveyed paramedics (strongly agree or rather agree). This need was most frequently reported in the study. The socio-cultural characteristics of various ethnic and religious groups enjoyed the least interest (the item 57) with 41% of the respondents willing to improve it. Significant differences between the paramedics from Subcarpathian and West Pomeranian provinces concerned items from 51 to 55 marked (\*) in Table 1. The paramedics from Subcarpathian province were more interested in developing foreign language skills than those from West Pomeranian province (M = 4.08; SD = 0.96 vs M = 3.31; SD = 1.26; p <0.001) and expanding knowledge in the field of multiculturalism (M = 3.73; SD = 1.02 vs M = 3.10; SD = 1.18, p <0.001) . Paramedics from West Pomeranian province demonstrated lower educational needs in all responses compared to paramedics from Subcarpathian province (M = 2.84; SD = 0.82 vs M = 3.56; SD = 0.67, p <0.001) |
| (*b*) Report category boundaries when continuous variables were categorized |  |  |
| (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period |  |  |

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| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses |  | Not applicable |
| Discussion | | | | |
| Key results | 18 | Summarise key results with reference to study objectives | 10 | The analysis of the relationship between educational needs and education, age and place of work showed that in the West Pomeranian province, paramedics with a " MSc in the other field of study and BSc of emergency medical services " had higher educational needs than paramedics with lower education. There was no such correlation was found in the Subcarpathian province. In the Subcarpathian province, the educational needs of paramedics increased with age. This correlation did not exist in the West Pomeranian. Work in the HED and in the EMS was associated with higher educational needs than among paramedics working in the West Pomeranian. The results of the analysis of the correlation of these factors with educational needs are presented in Tab. 4. The remaining analyzed features (including knowledge of foreign languages) did not show statistically significant differences. |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 12 | A weakness of the study is the non-random selection of the respondents. It is also impossible to compare the demographic characteristics of the studied group with the characteristics of the entire population because provincial offices do not have available detailed information on all employed paramedics. This limitation is balanced by the large number of responses obtained |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence |  | The analysis of the relationship between educational needs and education, age and place of work showed that in the West Pomeranian province, paramedics with a " MSc in the other field of study and BSc of emergency medical services " had higher educational needs than paramedics with lower education. There was no such correlation was found in the Subcarpathian province. In the Subcarpathian province, the educational needs of paramedics increased with age. This correlation did not exist in the West Pomeranian. Work in the HED and in the EMS was associated with higher educational needs than among paramedics working in the West Pomeranian.. |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results |  | Paramedics with a MSc in a different field of study and a BSc of Emergency Medical Services have higher educational needs than paramedics with lower education. The educational needs of paramedics increase with age. Working in the HED and ERT is associated with the same great educational needs. |
| Other information | |  | | |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based |  |  |

\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.