

# BMJ Open Prevalence of bullying in the nursing workplace and determinant factors: a nationwide cross-sectional Polish study survey

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## ABSTRACT

**Objectives** In the present study, we aimed to investigate the prevalence of bullying among Polish nurses, and to identify the most common negative acts, as well as individual and work-related risk factors for workplace bullying.

**Methods** Cross-sectional study designed using an online survey. The total study sample was 404 nurses, each having over 6 months of working experience. Data were collected using the Polish version of the Negative Act Questionnaire-Revised. Linear stepwise regression analysis and logistic regression analysis were performed to assess predictors of greater reporting of perceived workplace bullying

**Results** Bullying was experienced by 65.84% of participants. Perceived workplace bullying was associated with sex ( $p=0.043$ ), age ( $p=0.003$ ), seniority ( $p=0.006$ ), number of working hours per week ( $p=0.010$ ) and position ( $p=0.029$ ). Logistic regression analysis with the dependent variable of bullying according to Leymann's rigorous criteria revealed that the model could include four variables: age from 50 to 59, seniority of 11–15 years, >45 working hours per week and a bachelor's degree in nursing.

**Conclusions** An alarming percentage of nurses were victims of bullying. Among all variables included in the regression model, the most significant predictors of perceived workplace bullying were age, seniority, work overtime and bachelor's degree education. Bullying prevention and improvement of well-being at work must be addressed as part of an overall strategy to deal with turnover.

## Strengths and limitations of this study

- Our investigation revealed that higher risk of workplace bullying is associated with young age, fewer years of nursing experience, position, educational level and working overtime.
- Our study showed the need to monitor nursing work environments, especially mid-level management, therefore managers who play crucial roles in bullying issue should be supervised and externally supported.
- This study was quantitative and cross-sectional, and designed to assess negative acts in the nursing workplace within a given time frame and such behaviours may change over time and differ among workplaces, limiting the generalisability of this study's findings to other times and places.

subjected to one or more negative acts weekly over a period of at least 6 months.<sup>7</sup> Einarsen *et al* defined workplace bullying as persistent exposure to interpersonal aggression and mistreatment from colleagues, superiors, or subordinates.<sup>8</sup> The prevalence of bullying in the workplace can be assessed using either a self-labelling approach or survey with defined criteria.<sup>9</sup> Workplace bullying can be psychological and/or physical in nature, with data indicating that it is primarily psychological, based on both perceived and actual psychological harm.<sup>10</sup>

Bullying is strongly correlated with intention to leave the profession,<sup>11–15</sup> and contributes to absenteeism and intention to leave the organisation.<sup>16</sup> Sauer and McCoy demonstrated that bullying decreases quality of life and impedes ability to deliver effective and safe patient care.<sup>17</sup> Therefore, bullying could lead to negative patient outcomes, such as falls and medical errors.<sup>18 19</sup> Furthermore, bullying has detrimental effects on individuals, with potential consequences including depression and anxiety, physical symptoms

## INTRODUCTION

Nurse retention is currently considered a critical issue by the largest nursing organisations worldwide.<sup>1 2</sup> The WHO estimates that the global needs-based shortage of nurses and midwives will be over 9 million by 2030.<sup>3</sup> An unhealthy work environment, including workplace bullying, has been reported as a reason that nurses leave the profession.<sup>3–6</sup> Workplace bullying was first identified in the 1980s by the Swedish researcher Leymann, who defined it as an ongoing conflict in which the victim is



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such as palpitations, headaches and fatigue as well psycho-emotional issues.<sup>20 21</sup> Prolonged exposure to bullying in a work environment can lead to post-traumatic stress disorder symptoms, work dysfunction and substance abuse.<sup>21 22</sup>

Bullying in nursing workplaces has been widely studied, and the results indicate that this phenomenon is influenced by sex,<sup>23</sup> age,<sup>23 24</sup> seniority,<sup>16 23 24</sup> and education/qualification level.<sup>16 25</sup> Studies have also reported that unit specification plays a role.<sup>23 26 27</sup> Nurses indicate that their main bullying sources are their managers/supervisor<sup>6 13 23</sup> or nursing peers.<sup>28</sup> In addition, this phenomenon is influenced by cultural factors and world region,<sup>29 30</sup> which is why to create optimal intervention in bullying, studies must be conducted across countries.<sup>16</sup>

Overall, studies of workplace bullying show that this problem depends on many variables. Furthermore, the phenomenon itself varies over time, and thus must be continuously investigated. In the present study, we aimed to investigate the prevalence of bullying among Polish nurses, and to identify the most common negative acts, as well as individual and work-related risk factors for workplace bullying.

## MATERIALS AND METHODS

### Study design

We performed a cross-sectional study, in which an online survey was used to collect data between September and December 2018. A link to the survey was available on the webpage of the Warsaw District Chamber of Nurses and Midwives, and was shared using social media, including specialised Facebook groups. This recruitment method was intended to avoid employer-biased responses, which might have occurred if nurses were recruited through their employers.

### Ethical consideration

Each participant received a cover letter explaining the study purpose and terms of participation and ensuring confidentiality. The responders' names were not recorded on the questionnaire, thus rendering the data anonymous. Informed consent was indicated by voluntary participation in the survey. Sending the completed questionnaire was synonymous with consent to participate in the study.

### Sample

The population of interest for this study was nurses working in Polish healthcare facilities, who had at least 6 months of working experience. Nurses with less than 6 months of experience were excluded because the bullying questionnaire that was used in the present study asked about past 6 months experience. Based on thumb principle for sample size estimation (30 subjects for each study variable)<sup>31</sup>; 404 participants were included in the final analyses. The link to the questionnaire was opened

1002 times, while 411 of respondents sent completed survey.

### Patient and public involvement

This research was done without patient and public involvement. Patients/participated nurses were not invited to comment on the study design and were not consulted to develop relevant outcomes or interpret the results. They were not invited to contribute to the writing or editing of this document for readability or accuracy.

### Variables and instrument

For this study, we used the Polish version of the standard self-report measure Negative Acts Questionnaire-Revised (NAQ-R). This scale was originally developed by Einarsen *et al* based on their definition of workplace bullying and is widely used to measure workplace bullying in many professions.<sup>32</sup> Participants were asked about their experience at work during the last 6 months. Respondents who experienced one or more negative acts, at least weekly, over a period of 6 months were classified as targets of bullying according to Leymann's criteria for bullying assessment.<sup>7</sup> Einarsen *et al* recommended that bullying be defined by two negative acts committed weekly during the last 6 months, and this assessment is herein referred to as Leyman's rigorous criteria or operational bullying definition.<sup>8</sup>

The NAQ-R includes 22 items related to negative acts that result in bullying. Participants were asked to specify the frequency of occurrence of particular negative acts using a Likert scale, on which 1 indicated 'never', 2 'now and then', 3 'monthly', 4 'weekly' and 5 'daily'. The NAQ-R comprises three subscales associated with person-related bullying (12 items), work-related bullying (seven items) and intimidation-related bullying (three items). Additionally, the last question (question #23) includes a self-labelled definition of bullying. Cronbach's alpha was previously reported to be 0.90 for the original version, and 0.94 for the Polish version.<sup>33</sup> In our present study, Cronbach's alpha was 0.96 for the total scale, and 0.95, 0.89 and 0.68 for person-related, work-related and intimidation-related bullying, respectively.

We also developed a sociodemographic and work-characteristic data sheet specifically for the present study. [Table 1](#) presents all data from this sheet.

### Data analysis

All of the data were analysed using IBM SPSS Statistics V.23. Descriptive statistics were used to assess sample characteristics. Categorical data was summarised using counts and percentages. For continuous variables the following descriptive statistics were used: mean, SD, median, range (min–max), skewness and kurtosis.

The Kolmogorov–Smirnov test and normal plots were used to check the normality of quantitative variable distribution. None of the analysed quantitative variables were found to be normally distributed.

**Table 1** Individual and work-related characteristics of the study participants (n = 404)

| Factor                              | Description               | n   | % of total (n=404) |
|-------------------------------------|---------------------------|-----|--------------------|
| <b>Individual characteristics</b>   |                           |     |                    |
| Sex                                 | Female                    | 389 | 96                 |
|                                     | Male                      | 15  | 4                  |
| Age (years)                         | < 29                      | 75  | 18.6               |
|                                     | 30–39                     | 92  | 22.8               |
|                                     | 40–49                     | 134 | 33.2               |
|                                     | 50–59                     | 95  | 24                 |
|                                     | > 60                      | 8   | 2                  |
| Educational level                   | Nurse                     | 42  | 10.4               |
|                                     | Nurse +BA                 | 123 | 30.4               |
|                                     | Nurse +MA                 | 224 | 55.4               |
|                                     | Nurse +PhD                | 5   | 1.2                |
|                                     | Other                     | 10  | 3                  |
| Postgraduate education              | Yes                       | 336 | 82.2               |
|                                     | No                        | 68  | 16.8               |
| <b>Work-related characteristics</b> |                           |     |                    |
| Years working in nursing            | < 5                       | 75  | 18.6               |
|                                     | 6–10                      | 67  | 16.6               |
|                                     | 11–15                     | 44  | 10.9               |
|                                     | 15–20                     | 35  | 8.7                |
|                                     | > 20                      | 183 | 45.3               |
| Current area of work                | General care ward         | 101 | 25.0               |
|                                     | Surgical ward             | 105 | 26.0               |
|                                     | Long term/palliative care | 17  | 4.2                |
|                                     | ER                        | 13  | 3.2                |
|                                     | ICU                       | 52  | 12.9               |
|                                     | Outpatient clinic         | 60  | 14.9               |
|                                     | Other                     | 53  | 13.1               |
|                                     | Missing                   | 3   | 0.7                |
| Type of facility                    | Public                    | 338 | 83.7               |
|                                     | Private                   | 66  | 16.3               |
| Current position                    | Director                  | 7   | 1.7                |
|                                     | Manager                   | 44  | 10.9               |
|                                     | Nurse coordinator         | 26  | 8.9                |
|                                     | Clinical nurse            | 300 | 74.3               |
|                                     | Epidemiology nurse        | 7   | 1.7                |
|                                     | Scrub nurse               | 1   | 0.2                |
|                                     | Other                     | 9   | 2.2                |
| Working hours per week              | < 30                      | 17  | 4.2                |
|                                     | 30–45                     | 258 | 63.9               |
|                                     | > 45                      | 129 | 31.9               |

BA, bachelor's degree; ER, Emergency; ICU, Intensive care unit; MA, master's degree; PhD, Doctor of Philosophy.

Spearman's rank correlation analysis was used to measure the strength and direction of association between two ranked variables (that is, to assess statistical dependence between the rankings of two not normally distributed quantitative variables). The differences between two groups of quantitative variables were compared using the non-parametric *U* Mann-Whitney test. For comparison between more than two groups Kruskal-Wallis tests were used. The  $\chi^2$  test was used to detect potential relationships between two categorical variables. Fisher's exact test was used when the  $\chi^2$  test assumptions were not fulfilled.

Linear regression analysis was performed using a forward stepwise method to explain linear relationship between a bullying and all NAQ-R subscales and explanatory variables (sex, age, educational level, postgraduate education, years working in nursing, current area of work, type of facility, current position and working hours per week). Stepwise method has been used to include only such predictors in the model that significantly increase the fit of the model. Logistic regression analysis using the forward selection method was performed to explain the assignment of subjects to the category of victims or non-victims. Variables significant in univariate analysis were selected as possible predictors for the regression model (years working in nursing, current area of work, current position and educational level). Variables on a nominal/ordinal scale were recoded using a dummy coding procedure.

The classical threshold of  $p \leq 0.05$  was considered the level of significance.

## RESULTS

### Participants' characteristics

The survey was completed by 411 nurses, of whom 404 fulfilled the inclusion criteria. Therefore, the total study sample was 404 nurses. **Table 1** summarises individual (sex, age, educational level, postgraduate education) and work-related (years working in nursing, current area of work, type of facility, current position and working hours per week) characteristics of the study population.

### Prevalence of workplace bullying

**Table 2** presents the NAQ-R results. The average mean NAQ-R score was 2.14 (0.90). Bullying was experienced by 65.84% of participants (n=266) according to Leymann's criterion, and by 51.73% of participants (n=209) according to Leymann's rigorous criterion. The mean score on questionnaire item #23 ('Have you been bullied at work?') was 1.89 (0.99), with 46.78% of participants (n=189) responding that they had not been bullied at work during the past 6 months, 25.99% (n=105) answering rarely, 19.06% (n=77) answering 'now and then', 8.17% (n=33) answering several times per week and no participants stating that they had been bullied daily.

With regards to the subsections of the NAQ-R, work-related bullying was the most common type of bullying: 2.31 (0.96), followed by person-related bullying: 2.13

**Table 2** Summary of descriptive analysis of bullying characteristics (n = 404). NAQ-R, Polish version.

| Section                       | Statement   | NAQ-R score, M (SD) |
|-------------------------------|---|---------------------|
| Person-related bullying       | Being the subject of excessive teasing and sarcasm  | 2.96 (1.22)         |
|                               | Spreading of gossip and rumours about you   | 2.89 (1.36)         |
|                               | Having your opinions ignored  | 2.49 (1.27)         |
|                               | Being shouted at or being the target of spontaneous anger   | 2.45 (1.24)         |
|                               | Being ignored or excluded   | 2.42 (1.40)         |
|                               | Excessive monitoring of your work   | 2.32 (1.34)         |
|                               | Being ignored or facing a hostile reaction when you approach  | 2.24 (1.30)         |
|                               | Persistent criticism of your errors or mistakes   | 2.18 (1.25)         |
|                               | Being humiliated or ridiculed in connection with your work  | 2.17 (1.26)         |
|                               | Having insulting or offensive remarks made about your person, attitudes, or your private life                             | 2.09 (1.28)         |
|                               | Having allegations made against you   | 2.08 (1.15)         |
|                               | Repeated reminders of your errors or mistakes   | 2.0 (1.13)          |
|                               | Subtotal  | 2.13 (0.99)         |
| Work-related bullying         | Being ordered to do work below your level of competence   | 2.74 (1.40)         |
|                               | Being exposed to an unmanageable workload   | 2.7 (1.50)          |
|                               | Someone withholding information that affects your performance   | 2.38 (1.33)         |
|                               | Having key areas of responsibility removed or replaced with more trivial or unpleasant tasks                              | 2.35 (1.32)         |
|                               | Being given tasks with unreasonable deadlines   | 1.73 (1.07)         |
|                               | Subtotal  | 2.31 (0.96)         |
| Intimidation-related bullying | Pressure not to claim something to which by right you are entitled (eg, sick leave, holiday entitlement, travel expenses) | 2.05 (1.17)         |
|                               | Hints or signals from others that you should quit your job  | 1.71 (1.09)         |
|                               | Intimidating behaviours such as finger-pointing, related invasion of personal space, shoving, or blocking your way        | 1.55 (1)            |
|                               | Practical jokes carried out by people you don't get along with  | 1.44 (0.89)         |
|                               | Threats of violence or physical abuse or actual abuse   | 1.17 (0.61)         |
|                               | Subtotal  | 1.72 (0.77)         |

M, Mean; NAQ-R, Negative Acts Questionnaire-Revised.

(0.99) and then intimidation-related bullying: 1.72 (0.77). The lowest mean score was for the item 'threats of violence or physical abuse or actual abuse': 1.17 (0.61), followed by 'practical jokes carried out by people you don't get along with': 1.44 (1.27) and then by 'intimidating behaviours such as finger-pointing, related invasion of personal space, shoving, blocking your way': 1.55 (1). The highest mean score was for the item 'spreading of gossip and rumours about you': 2.89 (1.36), followed by 'being ordered to do work below your level of competence': 2.74 (1.40) and then by 'being exposed to an unmanageable workload': 2.7 (1.50). The mean results for all items of NAQ-R and subscales are presented in [table 2](#).

#### Relationship between bullying and socio-demographic variables

The mean score for work-related bullying significantly differed ( $p=0.043$ ) between male and female participants.

Compared with men, women were more often affected by 'being humiliated or ridiculed in connection with your work' ( $p=0.040$ ), 'being ordered to do work below your level of competence' ( $p=0.010$ ), and 'having key areas of responsibility removed or replaced with more trivial or unpleasant tasks' ( $p=0.005$ ).

The nurse's age showed a weak negative correlation with work-related bullying ( $r = -0.128$ ,  $p=0.010$ ), person-related bullying ( $r = -0.128$ ,  $p=0.010$ ) and bullying assessed by Leymann's criteria ( $r = -0.145$ ,  $p=0.003$ ). The correlation between age and perception of bullying was confirmed by the  $\chi^2$  test:  $\chi^2(4)=11.05$ ,  $p=0.026$ ,  $V=0.17$ .

Seniority showed weak negative correlations with bullying ( $r = -0.136$ ,  $p=0.006$ ) and with two NAQ-R subscales: work-related bullying ( $r = -0.122$ ,  $p=0.014$ ) and person-related bullying ( $r = -0.116$ ,  $p=0.020$ ). The  $\chi^2$  test also confirmed that there was a higher number of bullying



victims among nurses with less seniority:  $\chi^2(4)=12.72$ ,  $p=0.013$ ,  $V=0.18$ .

The number of working hours per week was correlated with work-related bullying ( $r = 0.132$ ,  $p=0.008$ ), person-related bullying ( $r = 0.121$ ,  $p=0.015$ ), subjective bullying assessment ( $r = 0.111$ ,  $p=0.026$ ), and bullying assessment by Leyman's criteria ( $r = 0.129$ ,  $p=0.010$ ). The  $\chi^2$  test confirmed the correlation between the number of working hours per week and the perception of bullying:  $\chi^2(2)=6.27$ ,  $p=0.043$ ,  $V=0.13$ .

Our analyses revealed that education level, work facility (public or private), and unit characteristics had no significantly significant association with participants' scores on the NAQ-R or on the NAQ-R subscales.

For the next step, we checked whether the level of bullying differed depending on the work position. A series of analyses performed using the Kruskal-Wallis test revealed that position was significantly related to work-related bullying ( $H(6) = 14.02$ ;  $p=0.029$ ) and subjectively assessed bullying ( $H(6) = 16.98$ ;  $p=0.009$ ). A separate post-hoc analysis using the Dunn-Sidak test revealed that nursing managers experienced a significantly lower level of bullying compared with clinical nurses ( $p=0.003$ ), coordinating nurses ( $p=0.029$ ), other nurses ( $p=0.002$ ) and scrub nurse ( $p=0.033$ ). We then analysed these differences relative to the dimension of work-related bullying. The lowest results on the subscales were also recorded from nursing managers, which significantly differed from the subscale scores of coordinating nurses ( $p=0.046$ ), clinical nurses ( $p=0.004$ ) and other nurses ( $p=0.006$ )

### Regression model

The strongest association was revealed in logistic regression analysis, where the dependent variable was classification as a bullying victim according to Leymann's criteria, and independent variables included seniority of 11–15

years, seniority of >20 years, and over 45 working hours per week. Greater seniority was associated with a lower chance of becoming a bullying victim, while more working hours per week was associated with a greater risk of being a bullying victim. The power of explanation of the model was described by a Nagelkerke's  $R^2$  value of 0.071.

We also performed logistic regression analysis in which the dependent variable was classification as a bullying victim by Leymann's rigorous criteria, and four independent variables: age from 50 to 59, seniority of 11–15 years, >45 working hours per week, and a bachelor's degree in nursing. The first two variables (age of 50–59 and seniority of 11–15 years) reduced the risk of bullying, while the other two variables (>45 working hours per week and bachelor's degree in nursing) increased the risk of bullying. The power of explanation of the model was described by a Nagelkerke's  $R^2$  value of 0.085. Table 3 presents the results of the regression analyses in relation to both Leymann's criteria and Leymann's rigorous criteria as dependent variable.

In order to summarise results, it should be stated that bullying among Polish nurses is a serious problem. This study has confirmed hypothesis that sociodemographic variables are related with bullying. Variables most closely correlated with bullying are age, seniority, work overtime and bachelor's degree education.

### DISCUSSION

In our current study, we found a prevalence of bullying among Polish nurses in 2018 that was similar to the results of comparable studies in European countries. Among the presently surveyed nurses, about half were victims of bullying. Interestingly, none reported an experience of daily bullying based on the given definition. Other European studies of workplace bullying among nurses

**Table 3** Regression analysis.

**Values of logistic regression coefficients predicting belonging to a group of bullying victims or a group of non-victims according to Leymann's criteria**

|        |                            | <i>B</i> | <i>SE</i> | Wald  | P value | Exp( <i>B</i> ) |
|--------|----------------------------|----------|-----------|-------|---------|-----------------|
| Step 3 | Seniority of 11–15 years   | 0.98     | 0.35      | 7.63  | 0.006   | 2.66            |
|        | Seniority of >20 years     | 0.80     | 0.24      | 11.73 | 0.001   | 2.23            |
|        | >45 working hours per week | –0.69    | 0.24      | 8.10  | 0.004   | 0.50            |
|        | Constant                   | –0.14    | 0.41      | 0.12  | 0.726   | 0.87            |

**Values of logistic regression coefficients predicting belonging to a group of bullying victims or a group of non-victims according to Leymann's rigorous criteria**

|        |                              | <i>B</i> | <i>SE</i> | Wald  | P value | Exp( <i>B</i> ) |
|--------|------------------------------|----------|-----------|-------|---------|-----------------|
| Step 4 | Age of 50–59 years old       | 0.89     | 0.25      | 12.49 | < 0.001 | 2.42            |
|        | Bachelor's degree in nursing | –0.48    | 0.23      | 4.43  | 0.035   | 0.62            |
|        | Seniority of 11–15 years     | 0.92     | 0.34      | 7.20  | 0.007   | 2.50            |
|        | >45 working hours per week   | –0.58    | 0.23      | 6.60  | 0.01    | 0.56            |
|        | Constant                     | –0.70    | 0.44      | 2.49  | 0.114   | 0.50            |

B- Non-standardized Standardized; FactorExp(B)- odds ratios for the predictors.

have revealed prevalence rates ranging from 9% among Danish nurses in their first year after graduation<sup>34</sup> to over 74%.<sup>35</sup> The rate of bullying reported in our present study was substantially higher than the 18.6% rate reported in another study of Polish nurses using the NAQR.<sup>36</sup> This inconsistency may be due to the differences in research methodology. In our study, data were collected using an online survey. Young nurses feel more comfortable using new technology in daily practice, and the majority of our study participants were younger compared with the mean age of Polish nurses, which is about 51 years.<sup>37</sup> The use of an electronic survey enabling participation in the study in a place and time convenient for the participant was selected due to the subject of the study and possible bias in collecting data resulting from the place associated with the employer. Both correlation and regression analyses showed that age influenced the experience of bullying, with the oldest group of nurses surveyed being the least likely to experience bullying. This relationship may have influenced our results; however, our findings were similar to those previously presented by other authors.<sup>16 23 24</sup>

Compared with female nurses, the male nurses in our study reported experiencing significantly less work-related bullying; however, the number of men in this study was significantly smaller than the number of women. This finding differs from previously reported results. Giorgi *et al* revealed no correlation between these variables.<sup>12</sup> Other prior studies have reported higher exposure to bullying among men than women.<sup>19 23</sup> The discrepancy may be explained by socio-cultural tradition, as well as by the fact that men remain the minority among nursing professionals in Poland,<sup>37</sup> which might result in better and more adequate utilisation of their potential.

One variable that significantly correlated with the occurrence of bullying in this study was seniority, in that the nurses with the least seniority were more likely to experience workplace bullying. Similar results have been presented by other authors.<sup>16 24</sup> Unhealthy work environments, including bullying behaviours, cause stress<sup>21 35</sup> and increase the intention to leave the profession among young nurses.<sup>5 38</sup> Laschinger *et al* highlight that new nurse recruitment and retention has become a high priority for healthcare systems worldwide, within the context of the current nursing shortage and ageing workforce.<sup>38</sup> Current information regarding the mean age of nurses in Poland and the poor substitutability of young employees for retiring nurses<sup>37</sup> supports the importance of focusing on creating healthy work environment for novice nurses.

Our present data also showed that nurses with a bachelor's degree were exposed to bullying more than nurses with other educational levels. Obligatory nursing education at the academic level was introduced in Poland starting in 2000, in accordance with the Bologna Declaration. Therefore, the youngest nurses have at least a bachelor's degree in nursing, and they start their professional career with this title. Studies by Yokoyama *et al* and Karatza *et al* have confirmed that education level influences the risk of negative acts in the workplace.<sup>16 25</sup> Our

qualitative analyses showed that having to work below one's level of competence was the most common form of work-related bullying experienced, and the majority of surveyed nurses presented high qualifications. These findings suggest that managers should consider how to better organise the nursing workplace and to better use professional competences. Such changes could have positive effects on organisational outcomes and patient care, as well as benefits for the nurses, who may experience increased job satisfaction and professional well-being and consequently decreased intent to leave the profession.

Nurses working more hours per week reported higher exposure to workplace bullying, which was in line with the findings of Oh *et al* and Yang *et al*.<sup>27 39</sup> We found that working overtime (>41 hours per week) was a predictor of workplace bullying overall and on the subscales of personal and work-related bullying. Unfortunately, studies of nursing have previously reported unmanageable workloads.<sup>13</sup> Longer working hours often mean work overload, which could increase one's sensitivity to bullying perception, as well as increase the possible exposure to violence. It may be important for nursing managers to increase the transparency of workload division, and to consider workload predictability as much as possible during allocation. Our findings suggest that when attempting to decrease workplace bullying, organisation leaders should consider appropriate staffing levels which has become particularly difficult in the last decade, after 2007–2008, when the economic crisis began. At that time, changes in work environments were observed, such as increased workload, staff shortage, what had negative impact on working conditions and health of people.<sup>40–42</sup> Moreover, studies taking into account the context of the nursing environment indicate the importance of the perceptions of the economic crisis on the development of burnout and engagement.<sup>43</sup> It is worth noting that the relationship between these factors and the occurrence of bullying illustrates the complexity of the problem and the need for careful monitoring in the context of many variables.

The occurrence of bullying also depended on the nurse's professional position. Compared with other surveyed nurses, nursing managers reported a lower level of bullying, particularly in terms of work-related bullying. Notably, earlier analyses show that managers are the main perpetrators of bullying, both in Poland<sup>36</sup> and in other countries.<sup>6 13 23</sup> In daily practice, nurse managers should build up a healthy work environment that demonstrates respect and fairness. There is a need for training nurse managers to develop skills and abilities that favour relationships with their subordinates in order to prevent bullying and turnover intention among nurses.<sup>14</sup> However, until organisations start monitoring the direct supervision and organisation of nurses' work with regards to bullying, it will be difficult to combat this phenomenon. Organisational policies should strongly prohibit negative acts and implement immediate remedial actions. Importantly, previous studies show that bullying affects patients' outcomes and medical errors

and leads to a decreased quality of life for nurses, and reduced ability to deliver effective and safe patient care<sup>17–19</sup>; therefore, actions to prevent bullying are necessary to improve healthcare system functioning. However, for those nurses who are not perpetrators but a victim, it is important to cope with the aggression experienced. Yu *et al* revealed that increased nurse resilience can help nurses reduce the effects of stress, reduce emotional exhaustion and enhance function when facing workplace challenges.<sup>44</sup> As both a personal coping measure for person-related and work-related bullying among nurses and decreasing turnover intention, Kang *et al* recommended the smartphone application-based cognitive rehearsal intervention.<sup>15</sup> Resolving workplace bullying within the nursing profession requires a comprehensive approach that accounts for individual and organisational factors.<sup>45</sup>

The present results support several useful suggestions for taking action to develop a healthier work environment. Directors of healthcare facilities are encouraged to introduce more measures for bullying prevention on the individual, unit and institutional levels.

It is important to recognise the group of employees with the highest risk of exposure to workplace bullying, and then to take actions to reduce the sources of stress. Our recommendation for directors is to attempt to monitor young nurses during their adaptation and to develop mentoring programme. Managers who play crucial roles in this process should be supervised and externally supported. Moreover, workers should be given increased resources to deal with stressors. Nurses at all levels—including nursing students, managers and staff nurses—should be educated to have zero tolerance of bullying and to report bullying anytime.

### Limitations of the study

This study was quantitative and cross-sectional, and designed to assess negative acts in the nursing workplace within a given time frame. However, such behaviours may change over time and differ among workplaces, limiting the generalisability of this study's findings to other times and places. The investigated nurse population was recruited via the Internet, and thus we could not determine the response rate. Although a CBOS (Public Opinion Research Centre) report shows that the majority of Poles use the Internet,<sup>46</sup> it is possible that older nurses may have limited access to new technologies, including the Internet. This might explain why the characteristics of the target research group were slightly different from the average. The surveyed nurses included only one scrub nurse, who presented extremely high scores in the context of the experience of bullying. Therefore, attempts to generalise our study results to operating theatre nurses should be approached with caution. Future studies should include investigation specifically focused on this group of nurses to examine the workplace bullying level within this group of professionals.

### CONCLUSIONS

In conclusion, our present study revealed that an alarmingly high percentage of Polish nurses were victims of bullying. Among the variables included in the regression model, the most significant predictors of perceived workplace bullying were age, seniority, work overtime and bachelor's degree education. These findings suggest that developing and improving nurses' adaptation mentoring programme may help to reduce the prevalence of workplace bullying among nurses. Bullying prevention and improvement of well-being at work must be addressed as part of an overall strategy to deal with turnover. Organisations policies should declare zero tolerance for workplace violence and completely eliminate any 'eating the young' culture.

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