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## Development and psychometric properties of the Polish basic version of the SDM questionnaire for measuring bullying

Katarzyna Durniat \*

Faculty of Historical and Pedagogical Sciences, University of Wrocław, Poland

**Aim.** This article presents the construction, validation and psychometric properties of the Polish basic version of a workplace bullying questionnaire (called the SDM questionnaire). **Method.** The tool was developed in phases, with reference to the international bullying literature and Polish socio-organizational background. The study from 2005/2006 ( $N = 347$ ) established the structure of the scales' reliability, while the questionnaire's convergent validity was tested in 2018 ( $N = 500$ ). Among the main statistical methods used were exploratory factor analyses, estimation of internal consistency with Cronbach's  $\alpha$  and correlations analyses. **Results.** The main version of the SDM questionnaire comprises two consistent, correlating scales: the main behavioural scale (SDM-IDM scale, 43 items; Cronbach's  $\alpha = 0.96$ ) used for diagnosing exposure to bullying behaviours; and an auxiliary emotional-cognitive scale (SDM-ODC scale, 21 items; Cronbach's  $\alpha = 0.97$ ), which completes the psychological picture of bullying interaction. Each of these scales may be divided into three, more specific, subscales. All of the SDM questionnaire scales positively correlate with the negative acts questionnaire – revised and with three self-report measures of job stressors. **Conclusion.** The SDM questionnaire is an accurate and reliable psychometric tool for measuring workplace bullying in Polish conditions.

**Keywords:** workplace bullying/workplace mobbing; measurement methods; negative acts questionnaire – revised; SDM questionnaire; factorial structure; validity; reliability

### 1. Introduction

The issue of employee safety in relation to various types of stressors and psychosocial risks in the workplace has been discussed in the scientific discourse for several decades [1–6]. Among the most often distinguished categories of work-related stressors are the content of the work, working conditions, employment conditions and social relations [3,7,8]. Since 1984, the bullying<sup>1</sup> phenomenon has been included in the category of social stressors in the workplace [9]. Bullying is usually defined as a repetitive and prolonged exposure of employees to a number of negative and unwanted workplace behaviours and interactions which have a damaging effect on the target's psychological health and professional life [10–12]. By the beginning of the 21st century, the bullying phenomenon had already been intensively explored by numerous researchers around the world [13,14]. Despite this fact, some scientists are of the opinion [15,16] that the field of bullying research is dominated by studies of bullying prevalence, antecedents and consequences at the expense of studies of the phenomenon itself and the development of a proper and reliable bullying methodology. The content of this article fills this gap to a degree, as the article is devoted to presenting the results of research related to the construction of the original Polish psychometric tool for measuring bullying, called

the SDM questionnaire.<sup>2</sup> Thus, in the following the theoretical foundations and the most important stages of the tool's development, together with the results of various statistical analyses and validation tests, will be presented and described. As work on the Polish tool was multistage and extended in time, there will be some references to the explorative qualitative research from 2005 and a quantitative study from 2005/2006 ( $N = 346$ ), on the basis of which the factorial content of the tool and its reliability was established. Then, the results of a study from 2018 ( $N = 500$ ) will be presented, as it was dedicated to testing the convergent validity of the Polish instrument through correlating the SDM questionnaire scales results with the results of other external tools measuring the same or similar phenomena. Although the SDM questionnaire has been used many times in several national and international research projects [17–20], it has never been thoroughly described in a single, comprehensive scientific paper. This kind of publication is therefore important and needed. It should be noted that this article concerns the basic version of the SDM questionnaire, in contrast to its abbreviated version, which has a different structure and provides different possibilities of calculating and interpreting test scores. A description of the abbreviated version of the SDM questionnaire is beyond the scope of this article.

\*Email: [katarzyna.durniat@uwr.edu.pl](mailto:katarzyna.durniat@uwr.edu.pl); [katarzyna@durniat.pl](mailto:katarzyna@durniat.pl)

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## 2. Definitional criteria and measurement of bullying

An overview of the most important theoretical approaches [13,21] and definitions of bullying [10–12] allows us to distinguish fundamental, repetitive bullying definitional criteria, which include [14,15]: the regularity, persistency and length of the employee's exposure to a range of negative behaviours; the imbalance between the target and the perpetrator; the inability of the targets to defend themselves; and negative psychological bullying consequences. As bullying is a heterogenic, interactional and complex phenomenon [22,23] and many of the bullying behaviours have a covert, obscured, manipulative or contextual character [24], it is difficult to externally observe and assess [25]. Thus, bullying research and the measurement of bullying is most often based on the targets' accounts and self-reporting surveys and questionnaires [26,27]. The simplest and quickest to apply, although the most biased, are those based on the respondent's overall feeling of being victimized by bullying (either with reference to a given bullying definition [28,29] or without any preceding definition [30,31]). These are referred to as 'self-labelling methods' [15,p.150]. Despite the numerous weaknesses of such a methodology and the ambiguous results that it provides [20,32], this kind of approach was probably one of the most frequently used in bullying research [15,p.151], even in studies sponsored by the European Union, such as the European working conditions survey [33]. Next, there are the 'behavioural experience methods', usually questionnaires which measure the respondents' perception of exposure to a number of given negative behaviours considered to be bullying indicators. Nielsen et al. [15] have presented an overview of as many as 27 different inventories developed worldwide for assessing employees' exposure to various bullying behaviours. Nevertheless, as the authors of that overview noticed, most of these instruments have an unknown theoretical background and questionable and unexplored psychometric properties. Moreover, some of these methods seem to measure other phenomena similar to workplace bullying, some were used only once and have not been tested or developed, and only a few have been tested and employed in numerous bullying studies, [15]: the Leymann inventory of psychological terror (LIPT) [11,34], the negative acts questionnaire (NAQ) and its revised version (NAQ-R), developed by Einarsen et al. [35–37], or the workplace aggression research questionnaire by Harvey and Keashly (WAR-Q) [38]. In some bullying research, the self-labelling and behavioural methods have been combined [37,39–41]. The data completed with the application of behavioural experience methods may be calculated and used in different ways. The most straightforward approach is based on computing the overall sum score of all of the questionnaire items and using this as a measurement of the level of bullying behaviour exposure. Such an approach may be successfully applied and useful in further, e.g., correlation or regression, statistical analysis,

especially when referring the variable of bullying to other (usually psychological or socio-organizational) variables [19,42]. Behavioural experience methods may also be used to distinguish between different groups of respondents, most usually between bullying targets and non-targets [15,41,43]. Following the school bullying research tradition pioneered by Solberg and Olweus [44] and the workplace bullying research tradition initiated by Leymann [11], this distinction was made on the basis of arbitrary set operational criteria. Leymann [11] stated that a person may be deemed a bullying victim when they are exposed to at least one bullying behaviour per week over a period of at least 6 months. This approach was widely used in a range of worldwide bullying research [21,28,45,46], and also by Mikkelsen and Einarsen [40] who at one point suggested that two negative acts per week are necessary to classify a person as a bullying target. Another Scandinavian researcher, Agervold [47] argued that negative acts should appear at least three or four times a week (for a period of at least 6 months) to be called bullying. Some scientists claim [24] that the 'operational criterion' approach is poorly related to the empirical bullying evidence and that it does not reflect the dynamics and complexity of the bullying phenomenon. Bullying is a process [11,17,23] which changes and escalates in time, and thus should not be treated as an either-or phenomenon [15]. Moreover, some of the bullying behaviours may be more aggressive and therefore more harmful to the target than others. Furthermore, the perception of the same bullying behaviour may differ depending on the person, their experience and the socio-organizational background. Finally, a person of higher sensitivity or a person ignorant of proper defensive strategies may become a bullying victim in a period shorter than 6 months [24]. These and similar discussions connected with the arbitrary and rigidly 'operational criterion' approach made some of the researchers revise the methodology they used and prompted them to look for other, more empirically justified solutions. For example, the implementation of the latent class cluster (LCC) approach was suggested by Einarsen et al. [48], as it enables us to distinguish empirically between different groups of respondents on the basis of bullying exposure frequency and the nature of the bullying. Although it was presented as statistically more sophisticated than the operational criterion method, this solution also has its limitations, which have been thoroughly discussed in several papers [15,37]. At one point, Einarsen et al. [15,37] suggested implementation of the receiver operation characteristic (ROC), which allows investigators to calculate the curve that indicates the overlap between the behavioural experience data and the self-labelling data. Nevertheless, recently Notelaers and Einarsen [27] admitted that calculation of the ROC on the basis of the NAQ-R alone may not be sufficient to establish the cut-off bullying criteria. Thus, it was suggested [27] that the application of the NAQ-R and ROC approach

combined with the results of an external tool which allows the measurement of mental health symptoms, anxiety and depression, should be used for setting ‘the gold standard’ for proper cut-off criteria in bullying diagnosis.

### 3. Theoretical and empirical background of the SDM questionnaire

Work on the creation of the original Polish tool for diagnosing workplace bullying began in 2004 [25] and continued for several years [26,49,50]. At that time, the term ‘bullying’ was scarcely known in Poland [18] and it was very rarely described; if so, it was in popular rather than scientific literature. Similarly, there was a lack of Polish bullying research, with a few notable exceptions: pioneering studies conducted by Merecz et al. [51] at the Nofer Institute of Occupational Medicine in Łódź, a study conducted at Pomorski Instytut Demokratyczny (the Pomeranian Democratic Institute) by Kmiecik-Baran and Rybicki [52] and a sociological bullying study by Delikowska [53]. Nonetheless, this research provided very diverse bullying prevalence rates (up to 73.3% in Delikowska’s study [53]) which aroused some discussion and reservations about either the theoretical assumptions or the methodological instruments used in these studies [25,26]. For example, Kmiecik-Baran and Rybicki [52] used a survey that researched not only psychological violence in the workplace but also physical and sexual harassment as well as economic exploitation – areas which are beyond the scope of workplace bullying. Interestingly, Delikowska [53] implemented the Swedish LIPT questionnaire for researching bullying. Nevertheless, the tool was simply translated into the Polish language but not culturally adapted to Polish culture. Thus, the results obtained rather suggested the existence of some cultural differences in the defining and operationalization of bullying than the omnipresence of that kind of workplace harassment in Poland [26]. At this point it was apparent that a prerequisite for researching bullying in Polish conditions was to develop a culturally fit and statistically validated psychometric instrument, a task which was undertaken by the author of this article [49,50], initially in collaboration with Kulczycka, another psychologist [25,26]. The foundations of the Polish tool were rooted in international scientific theories and the literature on stress and bullying. The authors were especially inspired by Leymann’s approach and the LIPT [11,34,45] as well as by the results of their exploratory research: case studies and semi-structured interviews conducted with Polish bullying victims [26,49]. At the base of the construction of the Polish instrument lay the following bullying definition:

Bullying is a psychological abuse taking place between at least two partners of social interaction, systematically and intentionally applied by the oppressor (less often oppressors) against the target (less often targets) in repetitive

verbal and behavioural attacks. Bullying has a mainly subjective character, but its effects are manifested by mental destabilisation of the victim, by a sense of injustice and bewilderment as well as by experiencing strong psychological stress. Bullying is a process: systematically, while victimisation is escalating, the feeling of the target’s self-esteem diminishes, together with work and social competences; all accompanied by a feeling of defencelessness. [26,p.463]

It is noteworthy that the presented psychological definition is in accordance with the Polish legal definition of bullying, which states that bullying is an action or behaviour on the part of an employee or targeted at an employee, consisting of the repetitive and prolonged molesting of or intimidation of an employee, which lowers the target’s professional self-esteem and which results in (or is intended to result in) humiliating or ridiculing the targets as well as in isolating or ultimately eliminating the victim from the team [54,55]. The authors of the Polish bullying questionnaire assumed that the most reliable information on the bullying phenomenon can be obtained from the bullying targets [25,26,49], although this is not a perfect source of information, as their perception of the bullying interaction may be distorted by long-lasting intimidation [17,45]. Still, those directly affected by bullying have the best insight into that complex, manipulative, very often indirect and contextual (thus, very hard to externally observe and assess) process [22,23]. Furthermore, it would be hard to find and rely on hard organizational bullying indicators, which was recommended by some researchers [10], or on accounts from bystanders, which was recommended by others [41,47]. Even more unrealistic seems the postulate of obtaining the perpetrators’ confirmation of bullying [47], as it is not in their interest to admit to behaviours which are perceived as negative and unacceptable [20,23]. It was assumed that bullying does not consist of physical, sexual or economical harassment, and neither should it be confused with workplace discrimination, as they are different kinds of harassments, although they may sometimes overlap or accompany each other [22]. The authors of the tool rejected Leymann’s arbitrary ‘operational criterion’ approach, arguing that it does not correspond well with the complexity and dynamics of bullying interactions [25,26]. Moreover, in the Polish approach, bullying is treated as an indiscrete variable, and thus the whole continuum of scores is taken into account while calculating and interpreting bullying test results [50].

### 4. The preliminary and experimental version of the Polish tool

In the very first steps of constructing the Polish tool, the authors created a list of the 83 most typical bullying behaviours, which was drawn up on the basis of the bullying literature (paying special attention to all of the LIPT’s items [11,34]) as well as with regard to the



empirical material gained through analyses of case studies and interviews conducted with Polish bullying victims [25,26,49]. This empirical experience led the researchers to the conclusion that the bullying phenomenon is not only characterized by experiencing some pattern of negative workplace behaviours but also by experiencing a repetitive pattern of some emotional, psycho-somatic and cognitive reactions, which appear on the side of the bullying targets. That observation resulted in adding to the constructed tool 17 cognitive and emotional bullying indicators, which was (and still remains) a novelty in relation to the bullying operationalization tradition. Thus, the preliminary version of the Polish tool consisted, in total, of 100 testing items (all closed-ended statements) organized into two separate scales: a behavioural scale, called SDM-IDM (83 items); and an emotional and cognitive scale, called SDM-ODC (17 items). The content, theoretical validity of the constructed test was assessed by a panel of five expert judges (three psychologists, one sociologist and one bullying victim, four of them members of the National Anti-Bullying Association). The judges were presented with the bullying definition (as cited earlier) and, with the use of a 5-point response scale (from 1 = *poor* to 5 = *excellent*), rated each item on how well they fit the conceptual bullying definition. On the basis of the scores' distribution, means and standard deviation, the 20 weakest behavioural indicators were rejected. Most of the rejected items (14 items) came from the translated LIPT questionnaire, which reflected some cultural differences in the defining and operationalization of the bullying phenomenon. These items referred to physical aggression (two items), sexual harassment (two items), discrimination (three items), insinuation of mental illnesses (two items) and improper task allocation (three items), and two items were outside the scope of these categories. Interestingly, all of the items constituting the SDM-ODC scale obtained the highest scores from the experts, which supported the authors' new approach to researching bullying. As the SDM-ODC scale was assessed very highly, it was expanded by adding four new items to it. In this way, the second version of the SDM-IDM questionnaire was established, which the authors referred to as the experimental version [26,49,50]. This tool version included in total 84 items (63 behavioural and 21 emotional and cognitive indicators) constituting two separate scales. It was assumed that bullying experience would be diagnosed on the basis of the behavioural scale results, while the emotional and cognitive scale results would enrich the psychological picture of the bullying interaction [23,25,26]. The questionnaire was equipped with an instruction for the respondents (without any direct reference to the bullying phenomenon) and some socio-demographic questions concerning the respondent's gender, age, type of employment, branch of the economy, organization, post and seniority. A 5-point, Likert-type response scale was added to the main

body of the test. This measures the frequency of exposure to bullying behaviours and bullying emotional and cognitive reactions (from 1 = *never* to 5 = *very often*). At the end of the test, there is a question referring to the respondents' self-labelling as either: a bullying victim (1), a bullying witness (2) or neither of the above (3). This also serves as a filtering question: the respondents who choose option (1) or (2) are asked to indicate the perpetrator's gender, age and organizational position and about the victimization of other people in the organization. This version of the questionnaire was tested in a 2005/2006 empirical study conducted in Wrocław and its surroundings area, on a heterogenic sample of the working population whose demographic data are presented in the following.

#### 4.1. Sample description

The sample ( $N = 347$ ) consisted of 184 men (53%) and 163 women (47%), employed in the private (71%) and public (29%) sectors in various branches, such as industry (47%), trade and commerce (27%), public administration (9%), health service (6%), education (4%) and other, unspecified (7%). The majority of the sample (68%) had short ( $\leq 3$  years), 11% middle (3–10) and 21% long ( $\geq 10$  years) work experience. Most participants (69%) were  $\leq 35$  years old, 15% were in the age bracket of 36–45 years and 8% were  $\geq 45$  years old. The participation in the study was voluntary and anonymous, and the participants were researched individually or in small groups, always outside their potentially threatening workplaces.

#### 4.2. Descriptive statistics and the reliability of the experimental version of the tool

On the basis of the data collected in the study, the distribution of scores and descriptive statistics were checked for both scales of the experimental version of the tool. These are presented in Table 1.

The comparison between means and medians ( $M > Mdn$ ) and the positive skewness suggest that the distribution of scores in both scales is different from normal. Both scales are characterized by the right-skew data distribution (the dominance of low scores), which indicates that the measured variables (exposure to bullying behaviours and negative cognitive, emotional and psycho-somatic reactions) are not equally distributed in the tested population. The reliability of the experimental version of the tool was measured with Cronbach's  $\alpha$ . For the IDM-SDM scale, Cronbach's  $\alpha = 0.973$ ; and for the ODC-SDM scale, Cronbach's  $\alpha = 0.970$ . Next, in order to increase test accuracy, the authors conducted a number of quantitative and qualitative analyses based on the division of the sample into three groups: respondents diagnosed by the

Table 1. Descriptive statistics of the experimental version of the SDM questionnaire scales ( $N = 347$ ).

Scale	<i>M</i>	95% CI	<i>Mdn</i>	Min	Max	Q1	Q3	IQR	<i>SD</i>	Sk	Ku
SDM-IDM	90.69	[87.39, 93.99]	79.0	63	269	70	98	28	32.07	2.16	5.45
SDM-ODC	36.70	[34.87, 38.53]	30.0	21	105	24	44	20	17.75	1.54	1.94

Note: CI = confidence interval; IQR = interquartile range; Ku = kurtosis; Max = maximum; Min = minimum; Q1 = first quartile; Q3 = third quartile; SDM-IDM = scale of bullying behaviours; SDM-ODC = scale of emotional-cognitive bullying indicators; Sk = skewness.

Anti-Bullying Association as bullying victims ( $n = 23$ ), self-labelled bullying victims ( $n = 193$ ) and respondents not labelling themselves as bullying victims ( $n = 149$ ). The results of these analyses, which were presented in detail in other research work [49], made the authors of the tool consider the option of substantially trimming the SDM-IDM scale. This solution was chosen by Kulczycka, one of the tool's originators, while the author of this article, on the basis of other statistical analysis (primarily explorative factor analysis (EFA) and further tests), developed her own version of the SDM questionnaire [49,50], which is described here.

## 5. The structure and reliability of the basic version of the SDM questionnaire

To examine the structure of the SDM questionnaire, EFA was carried out based on the data collected in a study from 2005/2006. In accordance with the theoretical assumptions underlying the design of the tool, the analyses were conducted separately for the SDM-IDM scale and the SDM-ODC scale.

### 5.1. The structure, content and reliability of the SDM-IDM scale

The results obtained indicated (Kaiser's criterion of eigenvalues  $> 1$ ) that a number of different factorial solutions (up to 10 factors in the case of the SDM-IDM) would be possible. However, the scree plot suggested (Cattell's criterion) that two or three factorial solutions would be more justified. Various factorial solutions were tested and considered [49] in reference to the theoretical background. Finally, the three-factorial solution was chosen as the most reasonable and adequate for the SDM-IDM scale. Next, the factor loadings were used to interpret the theoretical meaning of the components and to decide on the final content of the scales. The weakest 20 items (loading value  $< 0.50$ ) of the SDM-IDM scale were deleted, which made the tool more concise (Table 2).

Thus, the remaining 43 items of the SDM-IDM scale (Cronbach's  $\alpha = 0.956$ ) constituted three subscales, which were named: the subscale of isolating and intimidating behaviours (SDM-IDM\_N, 19 items; Cronbach's  $\alpha = 0.927$ ), e.g., 'I am avoided and ostracized by others at work', 'My credibility and authority at work is

challenged' and 'Any contact with me, including eye-contact, is avoided'; the subscale of humiliating and ridiculing behaviours (SDM-IDM\_Cz, 17 items; Cronbach's  $\alpha = 0.932$ ), e.g., 'I am accused of having a difficult and quarrelsome personality', 'My every mistake is seized upon and blown out of proportion' and 'I am the object of humiliating gestures and glances'; the subscale of behaviours hindering professional performance (SDM-IDM\_Z, seven items; Cronbach's  $\alpha = 0.803$ ), e.g., 'I receive inconsistent or contradictory orders', 'I am assigned to do silly and pointless tasks at work' and 'Unrealistic time limits for doing tasks are set for me'. The three factors of the SDM-IDM scale were significantly and strongly intercorrelated, which is shown in Table 3.

The strongest correlation exists between factors 1 and 2 ( $\rho = 0.775$ ), then factors 2 and 3 ( $\rho = 0.607$ ) and, finally, between factors 1 and 3 ( $\rho = 0.596$ ). Furthermore, it was checked whether the trimming of the SDM-IDM scale had substantially changed it. It was established that both versions of the IDM-SDM, the longer ('experimental') and the shorter (referred to as 'basic'), were highly correlated ( $\rho = 0.985$ ), and thus the reduction of the number of items had not greatly changed the scale (Table 4). In this way, the tool became more 'economical' and the time needed to answer all of the tests questions was reduced by about 2–3 min.

### 5.2. The structure, content and reliability of the SDM-ODC scale

On the basis of the EFA results conducted on the SDM-ODC scale, various factorial solutions were tested and considered [49]. The number of factors was selected on the basis of Kaiser's criterion and Cattell's scree plot diagram, which suggested the choice of up to a three-factorial solution. The three-factorial solution proved to be theoretically justified (Table 5).

The interpretation of the theoretical meaning of the three factors of the SDM-ODC scale led to them being labelled as follows: the depressive-cognitive subscale (SDM-ODC\_D, nine items; Cronbach's  $\alpha = 0.926$ ), e.g., 'The atmosphere at work makes me feel exhausted' and 'I have the feeling that some people at work want to get rid of me'; the subscale of anxiety (SDM-ODC\_L, eight items; Cronbach's  $\alpha = 0.925$ ), e.g., 'I am so irritated that I can't fulfil even simple tasks at work' and

Table 2. Results of the exploratory factor analysis of the SDM-IDM scale (three-factorial solution) using varimax rotation ( $N = 347$ ).

Item	Factor 1	Factor 2	Factor 3	Decision on the item
1	0.178	0.124	<b>0.563</b>	SDM-IDM_Z
2	0.114	-0.049	<b>0.732</b>	SDM-IDM_Z
3	0.135	0.119	<b>0.761</b>	SDM-IDM_Z
4	0.128	0.122	0.417	Deleted
5	0.183	0.329	0.290	Deleted
6	0.398	0.215	<b>0.504</b>	SDM-IDM_Z
7	0.269	0.246	0.363	Deleted
8	0.108	0.375	0.372	Deleted
9	0.140	0.127	<b>0.644</b>	SDM-IDM_Z
10	<b>0.576</b>	0.237	0.433	SDM-IDM_N
11	<b>0.628</b>	0.108	0.116	SDM-IDM_N
12	<b>0.630</b>	0.158	0.387	SDM-IDM_N
13	0.254	0.291	0.156	Deleted
14	0.180	<b>0.575</b>	0.179	SDM-IDM_Cz
15	-0.152	0.386	<b>0.511</b>	SDM-IDM_Z
16	0.119	0.492	0.382	Deleted
17	0.235	<b>0.541</b>	0.128	SDM-IDM_Cz
18	0.225	0.437	0.137	Deleted
19	0.269	0.219	0.212	Deleted
20	<b>0.625</b>	0.422	0.177	SDM-IDM_N
21	0.140	0.504	<b>0.353</b>	SDM-IDM_CZ
22	<b>0.505</b>	0.352	0.341	SDM-IDM_N
23	-0.037	0.437	0.312	Deleted
24	0.139	<b>0.566</b>	0.452	SDM-IDM_CZ
25	0.226	<b>0.562</b>	0.298	SDM-IDM_CZ
26	0.176	<b>0.732</b>	0.025	SDM-IDM_CZ
27	0.167	<b>0.694</b>	0.117	SDM-IDM_CZ
28	0.326	0.379	0.081	Deleted
29	0.395	<b>0.555</b>	0.227	SDM-IDM_CZ
30	0.441	<b>0.505</b>	0.128	SDM-IDM_CZ
31	<b>0.601</b>	0.332	0.013	SDM-IDM_N
32	0.428	0.065	0.050	Deleted
33	0.461	0.021	0.218	Deleted
34	0.264	0.306	0.327	Deleted
35	<b>0.554</b>	0.277	0.346	SDM-IDM_N
36	0.381	0.383	<b>0.574</b>	SDM-IDM_Z
37	<b>0.665</b>	0.231	0.097	SDM-IDM_N
38	-0.219	0.460	0.140	Deleted
39	<b>0.558</b>	0.392	0.164	SDM-IDM_N
40	0.420	<b>0.590</b>	0.045	SDM-IDM_CZ
41	<b>0.539</b>	0.400	0.284	SDM-IDM_N
42	<b>0.684</b>	0.297	0.130	SDM-IDM_N
43	0.475	0.044	0.162	Deleted
44	0.320	<b>0.548</b>	0.100	SDM-IDM_CZ
45	<b>0.692</b>	0.327	0.098	SDM-IDM_N
46	<b>0.587</b>	0.392	-0.128	SDM-IDM_N
47	<b>0.654</b>	0.183	0.166	SDM-IDM_N
48	0.305	0.087	0.032	Deleted
49	0.483	0.171	0.085	Deleted
50	<b>0.554</b>	0.371	0.247	SDM-IDM_N
51	<b>0.568</b>	0.548	0.031	SDM-IDM_N
52	0.436	0.460	0.137	Deleted
53	<b>0.615</b>	0.535	0.088	SDM-IDM_N
54	0.440	<b>0.548</b>	0.128	SDM-IDM_CZ
55	0.359	0.556	0.312	Deleted
56	0.357	<b>0.638</b>	0.186	SDM-IDM_CZ
57	0.307	<b>0.578</b>	0.101	SDM-IDM_CZ
58	0.379	<b>0.643</b>	0.230	SDM-IDM_CZ
59	0.245	<b>0.551</b>	0.308	SDM-IDM_CZ
60	0.312	<b>0.617</b>	0.159	SDM-IDM_CZ

(Continued).

Table 2. Continued.

Item	Factor 1	Factor 2	Factor 3	Decision on the item
61	0.294	0.330	0.298	Deleted
62	<b>0.786</b>	-0.130	0.098	SDM-IDM_N
63	<b>0.572</b>	0.329	0.133	SDM-IDM_N
Sums of squared loadings	11.056	10.655	5.668	-
% of variation	17.549	16.913	8.996	-

Note: Loadings >0.500 are shown in bold. SDM-IDM = scale of bullying behaviour; SDM-IDM\_Cz = subscale of humiliating and ridiculing behaviours; SDM-IDM\_N = subscale of isolating and intimidating behaviours; SDM-IDM\_Z = subscale of behaviours hindering professional performance.

Table 3. Spearman's rank correlation coefficient between the three factors of the SDM-IDM scale ( $N = 347$ ).

SDM-IDM scale factor	Spearman's $\rho$	$t(N - 2)$
1 and 2	0.775*	22.733*
1 and 3	0.596*	13.770*
2 and 3	0.607*	14.203*

\* $p < 0.01$ .

Note: SDM-IDM = scale of bullying behaviours.

Table 4. Spearman's rank correlation coefficient between the experimental and basic versions of the SDM-IDM scale ( $N = 347$ ).

Variable	SDM-IDM 43	SDM-IDM 63
SDM-IDM 43	1.000*	0.985*
SDM-IDM 63	0.985*	1.000*

\* $p < 0.001$ .

Note: SDM-IDM 43 = experimental version of the SDM-IDM scale of bullying behaviours; SDM-IDM 63 = basic version of the SDM-IDM scale of bullying behaviours.

'The presence of some people paralyses me with fear'; the psycho-somatic subscale (SDM-ODC\_S, four items; Cronbach's  $\alpha = 0.853$ ), e.g., 'I experience sudden aches like headaches, stomach aches, and chest pains at work' and, 'I have difficulty with falling asleep because I am always thinking about work'. Nonetheless, this proposed solution was put to one side for further testing and development in future research. It will be described in a future paper (which is now under preparation) devoted to the SDM questionnaire normalization. Thus, at that point, the one-factorial solution of the SDM-IDM scale (21 items, Cronbach's  $\alpha = 0.962$ ), which was equally justified and consistent, was recommended for implementation in bullying studies (Table 6).

## 6. Construct validity of the basic version of the tool

The convergent construct validity of the tool was examined by analysing the correlations between the SDM

Table 5. Results of the exploratory factor analysis of the SDM-ODC scale (three-factorial solution) using varimax rotation ( $N = 347$ ).

Item	Factor 1	Factor 2	Factor 3
1	0.246	<b>0.817</b>	0.126
2	0.398	<b>0.752</b>	0.182
3	0.443	<b>0.691</b>	0.279
4	<b>0.502</b>	<b>0.520</b>	0.396
5	<b>0.510</b>	<b>0.674</b>	0.375
6	0.210	<b>0.674</b>	0.354
7	0.340	<b>0.778</b>	0.239
8	0.193	<b>0.734</b>	0.386
9	0.321	0.449	<b>0.567</b>
10	0.303	0.330	<b>0.748</b>
11	0.343	0.213	<b>0.806</b>
12	0.314	0.282	<b>0.817</b>
13	0.472	<b>0.501</b>	0.408
14	<b>0.706</b>	0.337	0.324
15	<b>0.749</b>	0.263	0.290
16	<b>0.741</b>	0.245	0.200
17	<b>0.652</b>	0.395	0.333
18	<b>0.761</b>	0.221	0.245
19	<b>0.677</b>	0.318	0.372
20	<b>0.813</b>	0.214	0.156
21	<b>0.742</b>	0.344	0.263
Sums of squared loadings	6.040	5.158	3.750
% of variation	28.762	24.563	17.859

Note: Loadings >0.500 are shown in bold; SDM-ODC = scale of emotional-cognitive bullying indicators.

questionnaire scales and other validated psychometric instruments – the NAQ-R [15,37] and three short self-report measures of job stressors: interpersonal conflict at work scale (ICAWS), quantitative workload inventory (QWI) and organizational constraints scale (OCS), originally developed by Spector and Jex [56]. It was predicted that the SDM questionnaire would show strong positive correlations with the NAQ-R and positive correlations with the three short self-report scales measuring job stressors, especially with the ICAWS and OCS (scales predominantly focused on psychosocial stressors arising from interpersonal interactions), and positive but weaker correlations with the QWI, which focuses more on tasks than people.



Table 6. Results of the exploratory factor analysis (without rotation) of the SDM-ODC scale (one-factorial solution) ( $N = 347$ ).

Item	Factor 1
1	<b>-0.700</b>
2	<b>-0.787</b>
3	<b>-0.829</b>
4	<b>-0.822</b>
5	<b>-0.760</b>
6	<b>-0.704</b>
7	<b>-0.793</b>
8	<b>-0.743</b>
9	<b>-0.746</b>
10	<b>-0.752</b>
11	<b>-0.738</b>
12	<b>-0.765</b>
13	<b>-0.798</b>
14	<b>-0.813</b>
15	<b>-0.781</b>
16	<b>-0.721</b>
17	<b>-0.816</b>
18	<b>-0.742</b>
19	<b>-0.806</b>
20	<b>-0.728</b>
21	<b>-0.811</b>
Sums of squared loadings	12.461
% of variation	59.337

Note: Loadings  $> 0.500$  are shown in bold; SDM-ODC = scale of emotional-cognitive bullying indicators.

## 6.1. Description of the instruments

### 6.1.1. The negative acts questionnaire – revised

The NAQ-R [37] was designed by Einarsen et al. in 2001 as a new, amended version of an original Norwegian instrument for researching workplace bullying simply called the negative acts questionnaire (NAQ) [15,35,36]. The NAQ-R was especially adapted for Anglo-American culture [37], although it has been translated into different languages and applied in various countries, which made it the most common bullying research method worldwide [15,37]. Both versions of the questionnaire are self-reporting, behavioural experience methods, investigating the respondents' exposure to different kinds of unwanted, negative acts which are indicators of bullying if occurring repeatedly over some period of time [12]. The NAQ-R consists of 22 items measuring the frequency of the exposure to negative behaviours within the last 6 months on a 5-point response scale (1 = *never*, 2 = *now and then*, 3 = *monthly*, 4 = *weekly* and 5 = *daily*). The higher the scores, the higher the probability of being exposed to workplace bullying. Einarsen et al. [37] indicated that the 22-item instrument may be treated as a one-dimension scale (with Cronbach's  $\alpha = 0.90$ ) or it may be divided into two or three subscales (the mostly recommended solution) which reflect work-related bullying (seven items), person-related bullying (12 items) and physical intimidation (three items). The tool is also equipped with one

additional item, preceded by a bullying definition, which measures the respondent's overall feeling of being victimized and a declaration of the frequency of bullying experienced (scored from 1 = *no, never* to 5 = *yes, on a daily basis*). The NAQ-R was adapted to Polish culture by Warszevska-Makuch in 2007 [57] under the auspices of the Central Institute for Labour Protection – National Research Institute (CIOP-PIB) in Warsaw. The validation tests were conducted on a sample of Polish teachers ( $N = 1098$ ). The analysis of the structure of the Polish version of NAQ-R revealed a similar scale construction to the original one. However, it was found that one of the items (no. 17) which originally belonged to the subscale of person-related bullying in the Polish version of the tool fits better to the subscale of work-related bullying. Thus, this item was moved there. The internal consistency of the Polish version of NAQ-R was measured with Cronbach's  $\alpha = 0.94$ . It was found (through correlating the NAQ-R scores with health indicators and work satisfaction) that both the English and Polish versions of the NAQ-R have good construct validity [37,57]. The psychometric properties of the Polish version of the NAQ-R proved to be satisfactory, which makes it possible to use the tool for measuring bullying in Polish conditions. The tool is more suitable for group research than individual diagnosis, although it may support both. The authors of the original scale suggested various methods of calculating and interpreting the questionnaire scores [15,37] and they still seem to be in the process of establishing the most reliable cut-off scores, enabling the identification of bullying targets [27]. The author of the Polish adaptation of the NAQ-R recommends the implementation of Leymann's operational criterion approach [11], a solution which was most often applied by Einarsen et al. as well as other users of the NAQ and NAQ-R [12,15,21,28]. Thus, to calculate respondents' weekly exposure to at least one of the negative behaviours, the raw scores of each item are first dichotomized and changed into value 0 (for 1 = *never*, 2 = *less than once a month* and 3 = *once a month*) or 1 (for 4 = *once a week* and 5 = *daily*). When the sum of the dichotomized scores is  $> 0$ , the respondent may be classified as a bullying victim. Warszevska-Makuch [57,p.18] also suggests the implementation of 'more rigorous criteria' allowing the identification of 'more serious bullying cases'. For that, the dichotomized scores' sum should be  $\geq 2$ , and in the additional 23rd item (preceded with the given bullying definition) the scores should reach the value  $\geq 3 = \textit{from time to time}$ .

### 6.1.2. The three short self-report measures of job stressors

The ICAWS (four items), the QWI (five items) and the OCS (11 items) were originally developed in the USA by Spector and Jex [56] to assess different types of general job stressors that occur in the work environment. The ICAWS

measures social interactions, conflicts and arguments with other people at work; the OCS assesses the interpersonal and organization-related constraints on performance at work; and the QWI evaluates the amount and pace of work and the effort required to complete job tasks. The three scales are equipped with an ordinary, 5-point Likert type scale (from 1 = *less than once a month or never* to 5 = *several times a day*). High scores indicate a high level of job stressors. The scales were adapted and validated in Polish socio-organizational conditions by Baka and Bazińska [58]. The structure of the scales was tested and the one-dimensional construction of each of them was confirmed. The reliability of the Polish versions of the scales was assessed with the internal consistency method using Cronbach's  $\alpha$  and test-retest correlation. This proved to be satisfactory, ranging from 0.80 to 0.90 for Cronbach's  $\alpha$  and from 0.72 to 0.86 for the test-retest method. The construct validity tests proved that the Polish version of the scales, similar to the original ones, positively correlated with various job strain measures [56,58]. Therefore, the psychometric properties of the Polish version of the three short self-report measures of job stressors are satisfactory and the scales can be used in Polish socio-organizational conditions.

### 6.2. Data collection and sample description

The data for the study were collected in the first half of 2018 in Wrocław and its surrounding area among working adults from various branches of the economy and types of organization. Participants were selected with the aim of achieving the highest possible level of representativeness of the Polish working population with regard to basic socio-demographic variables such as gender, age, sector, branch, post, work experience, etc. Participation in the study was voluntary and anonymous, the respondents were tested individually by completing paper versions of the set of psychometric tests. The study participants were informed of the scientific purpose of the study. The sample ( $N = 500$ ) consisted of 226 men (45%) and 274 women (55%), employed in the private (54%) and public (46%) sectors in various branches, such as industry (9.6%), trade and commerce (35.4%), public administration (11.2%), health service (12.8%), education (15.3%) and other unspecified branches (15.7%). A quarter of the sample had short ( $\leq 3$  years), 32% middle (3–10) and 43% long ( $\geq 10$  years) work experience. Of the participants, 51% were  $\leq 35$  years old, 28% were in the age bracket of 36–45 years and 21% were  $\geq 45$  years old.

### 6.3. Results

The results obtained show that all of the scales and subscales of the SDM questionnaire are strongly positively correlated with all of the NAQ-R scales and with the three short self-report measures of job stressors ( $p = 0.01$ ).

Analysing the matrix of correlations between the SDM scales and all of the NAQ-R scales, it was found that the highest correlations exist between the SDM scales and the NAQ person-related subscale (from  $r = 0.85$  to  $r = 0.61$ ) and the lowest correlations exist between the SDM scales and the NAQ-R subscale of physical intimidations (from  $r = 0.50$  to  $r = 0.70$ ). Generally, the highest correlations were found between the SDM-IDM total and the NAQ-R total ( $r = 0.85$ ) and between the SDM-IDM subscale of humiliating and ridiculing behaviours and the NAQ-R subscale of person-related bullying ( $r = 0.85$ ), and then the SDM-IDM total and the NAQ-R subscale of person-related bullying ( $r = 0.83$ ). The SDM-IDM subscale of isolating and intimidated behaviours (analogically to the subscale of humiliating and ridiculing behaviours) correlated strongest with the NAQ-R subscale of person-related bullying ( $r = 0.80$ ), while the subscale of behaviours hampering task fulfilment showed the strongest correlation with the NAQ-R subscale of work-related bullying ( $r = 0.74$ ). Likewise, strong correlations exist between the SDM-ODC total and the NAQ-R total ( $r = 0.77$ ); then, this scale correlates strongest with the NAQ-R subscale of work related-bullying ( $r = 0.74$ ). Next, the matrix of correlations shows that the SDM questionnaire correlates significantly and positively with the three short measures of job stressors. The SDM-IDM total correlates strongest with the ICAWS ( $r = 0.63$ ), then with the OCS ( $r = 0.62$ ) and with the QWI scale ( $r = 0.33$ ). The SDM subscale of humiliating and ridiculing behaviours correlates strongest with the ICAWS ( $r = 0.64$ ), whereas the subscale of isolating and intimidating behaviours and the subscale of behaviours hampering task fulfilment correlate strongest with the OCS (respectively,  $r = 0.60$  and  $r = 0.65$ ). The SDM-ODC total shows the strongest correlations with the OCS ( $r = 0.62$ ), then with the ICAWS ( $r = 0.58$ ) and with the QWI ( $r = 0.38$ ). The lowest correlations exist between the SDM questionnaire and the QWI (from  $r = 0.26$  to  $r = 0.44$ ). Summarizing, the results obtained confirm the convergent pattern of correlations between the SDM questionnaire and the NAQ-R and the three short self-report job stressor measures.

### 7. The SDM questionnaire scores' calculation and interpretation

Following the assumptions adopted in the first phase of tool construction, bullying experience is measured on the basis of the overall SDM-IDM scale results, while the auxiliary SDM-ODC scale results complete the psychological picture of the targets' mental suffering [23,59]. The SDM-ODC scale results correlate highly with all of the SDM-IDM subscales, which was tested in some other studies and has already been described in other scientific papers [17,18,59]. In the study conducted in 2018, the correlations between the SDM-ODC scale and the SDM-IDM scale and subscales ranged from  $r = 0.69$  to  $r = 0.81$  (Table 7). As

Table 7. Means, standard deviations and correlation matrix (Pearson's  $r$ ) of the tested scales ( $N = 500$ ).

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. SDM-IDM overall	61.22	22.96	1.00*	–	–	–	–	–	–	–	–	–	–	–
2. SDM-IDM_Cz	22.54	9.09	0.96*	1.00*	–	–	–	–	–	–	–	–	–	–
3. SDM-IDM_N	26.88	10.55	0.98*	0.91*	1.00*	–	–	–	–	–	–	–	–	–
4. SDM-IDM_Z	11.80	4.67	0.85*	0.72*	0.78*	1.00*	–	–	–	–	–	–	–	–
5. SDM-ODC overall	34.55	16.12	0.81*	0.76*	0.80*	0.69*	1.00*	–	–	–	–	–	–	–
6. NAQ-R overall	31.12	12.18	0.85*	0.84*	0.82*	0.70*	0.77*	1.00*	–	–	–	–	–	–
7. NAQ-R_W	12.02	5.31	0.78*	0.73*	0.75*	0.74*	0.74*	0.94*	1.00*	–	–	–	–	–
8. NAQ-R_P	14.31	6.02	0.83*	0.85*	0.80*	0.61*	0.74*	0.96*	0.82*	1.00*	–	–	–	–
9. NAQ-R_Ph	3.53	1.26	0.66*	0.70*	0.61*	0.50*	0.54*	0.76*	0.61*	0.73*	1.00*	–	–	–
10. ICAWS	5.11	1.99	0.63*	0.64*	0.59*	0.51*	0.58*	0.75*	0.67*	0.73*	0.65*	1.00*	–	–
11. OCS	18.45	8.15	0.62*	0.54*	0.60*	0.65*	0.62*	0.67*	0.72*	0.58*	0.43*	0.60*	1.00*	–
12. QWI	15.34	5.36	0.33*	0.26*	0.29*	0.44*	0.38*	0.37*	0.45*	0.29*	0.19*	0.31*	0.48*	1.00*

\* $p < 0.01$ .

Note: ICAWS = scale of interpersonal conflict at work; NAQ-R overall = negative acts questionnaire – revised overall result; NAQ-R\_P = subscale of person-related bullying; NAQ-R\_Ph = subscale of physical intimidation; NAQ-R\_W = subscale of work-related bullying; OCS = scale of organizational constraints; QWI = quantitative workload inventory; SDM-IDM overall = scale of bullying behaviours' overall result; SDM-IDM\_Cz = subscale of humiliating and ridiculing behaviours; SDM-IDM\_N = subscale of isolating and intimidating behaviours; SDM-IDM\_Z = subscale of behaviours hindering professional performance; SDM-ODC = scale of emotional-cognitive bullying indicators.

the descriptive statistics of the SDM questionnaire indicated a right-skewed data distribution, it would not be justified to rely on means and standard deviation while interpreting the scales' results. Thus, it was suggested [49] that the scores' interpretation could be based on the quartiles, which corresponds better with the non-parametric distribution of scores. For example, based on the results from the study conducted in 2007/2008 [19,23,49] it was assumed that the respondents with scores below the lower quartile ( $Q1, <48$ ) would be qualified as 'bullying free', the respondents with average scores ( $\geq 48$  and  $\leq 84$ ) would be referred to as a 'risk group' and the respondents with highest scores, above the upper quartile ( $Q3, >82$ ) would be classified as 'bullying targets'. The same method for distinguishing low, medium and high scores (based on  $Q1$  and  $Q3$ ) can be applied in reference to other studies' results and to the results obtained for all of the questionnaire scales and subscales. The results of the normalization of the SDM questionnaire (conducted on a large sample of Polish employees) will be presented in a separate scientific paper, which is now under preparation.

## 8. Discussion

The aim of this article was to present the basic version of the original Polish psychometric tool for measuring workplace bullying, called the SDM questionnaire. The tool was built on a scientific basis, in reference to the most widely recognized international approach to defining and measuring bullying phenomenon, a road paved by Leymann [11,34,45] and developed by his followers, such as Einarsen et al. [13,14,42,46]. Nevertheless, the international scientific bullying research tradition was confronted with specific Polish socio-organizational circumstances and empirical evidence gained through analyses of

numerous bullying case studies and interviews conducted with Polish bullying victims [25,26,49]. This allowed the creation of a culturally fit tool with elements of originality and novelty in comparison to the international bullying research tradition [12,18]. Specifically, the Polish questionnaire, in addition to the basic SDM-IDM scale, which is a catalogue of typical bullying behaviours, is equipped with an auxiliary SDM-ODC scale, comprising emotional and cognitive bullying indicators. The items of this scale reflect typical cognitive appraisals, feelings and psycho-somatic symptoms of anxiety or depression, which appear on the side of bullying victims [17,23]. The theoretical assessment of the validity of the SDM-ODC scale proved that all of the emotional-cognitive bullying indicators were very highly assessed by the panel of expert judges [26,49]. The SDM-ODC and SDM-IDM scales are highly and positively correlated. The integration of the results from these two scales provides a more complex and psychologically more comprehensive picture of the bullying interaction than the implementation of the behavioural scale alone [50]. Interestingly, this approach to measuring bullying, which was introduced by the authors of the Polish tool in 2006 [25], is in line with the most recent methodological suggestions by Notelaers and Einarsen [27] concerning the search for the 'gold standard' for bullying measurement and diagnosis. Specifically, the researchers suggest combining the behavioural NAQ-R results with the results of other external scales measuring anxiety and depression symptoms, e.g., the Hopkins symptom check list-25 (HSCL-25) [60] or other measurable clinical outcomes [27]. It should be pointed out that even if the Polish bullying questionnaire has more items than the NAQ-R, the implementation of one longer tool providing a more complex and detailed bullying diagnosis is more economical than the implementation and interpretation of a number of tests. It is also

noteworthy that the theoretical assessment of the validity of the experimental version of the behavioural SDM-IDM scale indicated the existence of some cultural differences in the understanding and conceptualization of the bullying phenomenon. A number of tested behavioural items were assessed low on the Likert scale by the panel of experts, which means that they did not fit well to the presented conceptual bullying definition. Interestingly, most of the rejected items came from the LIPT questionnaire and focused on sexual and physical violence, discrimination, insinuation of mental illnesses or improper task allocation [26,49]. Thus, these kind of behaviours were also excluded from the operational bullying definition. It is noteworthy that this conceptual and operational approach to understanding and defining bullying phenomenon is in line with the Polish legal literature [54,55], which distinguishes bullying from sexual harassment and discrimination. However, this does not mean that these pathologies would always appear separately and exclusively. In fact, it often happens that one workplace pathology paves the way for another, thus all these kinds of negative behaviours may be correlated and sometimes may overlap. The SDM questionnaire went through multistage, empirical tests, analyses and developments, which allowed establishing the factorial structure of the test and the psychometric properties of the tool [49]. Therefore, the validated, basic version of the SDM questionnaire consists of two separate scales: a behavioural SDM-IDM scale (43 items) and an emotional and cognitive SDM-ODC scale (21 items). Both have good integral consistency (respectively, Cronbach's  $\alpha = 0.956$  and  $\alpha = 0.962$ ) and their factorial structure has been researched [49]. EFA showed that the SDM-IDM and SDM-ODC may be treated as one factorial, consistent scale, although it is also empirically justified and theoretically possible to distinguish three subscales from these two basic scales. This provides the researcher with multiple options and the possibility of choosing a preferred, more useful solution, depending on specific research aims and the questions which are to be answered. The analysis of the convergent criterion validity of the SDM questionnaire showed that all of the SDM questionnaire scales correlate significantly and strongly with the NAQ-R, an external tool for measuring workplace bullying. Specifically, the overall SDM-IDM results correlate very strongly with the overall NAQ-R results, which confirms that these two independently created tools measure the same phenomenon. The pattern of the obtained correlations fits very well with the theoretical basis on which these two instruments were designed. As expected, all of the behavioural IDM-SDM scales correlate more strongly than the emotional-cognitive SDM-ODC scale with all the NAQ-R scales. Nevertheless, the correlations between the SDM-ODC and behavioural NAQ-R and the SDM-IDM subscales are strong, which confirms that the theoretical assumptions on which the Polish tool was built were correct. As expected, the two

SDM-IDM subscales which focus more on the person than tasks (i.e., the subscale of humiliating and ridiculing behaviours and the subscale of isolating and intimidating behaviours) demonstrate the strongest correlations with the NAQ-R subscale of person-related bullying, while the SDM-IDM subscale of behaviours hindering professional performance shows stronger correlations with the NAQ-R subscale of work-related bullying. These findings confirm the proper operationalization of the measured variable and a proper three-factorial solution for the SDM-IDM scale. The weakest correlations were found between all of the SDM-IDM scales and the NAQ-R subscale of physical intimidation, which also was expected, as the bullying phenomenon is mostly characterized by psychological rather than physical harassment. Moreover, the Polish tool was built on the assumption that physical violence would be excluded from the content range of the bullying phenomenon [22,26,49]. Furthermore, the conducted convergent analysis proved that the SDM questionnaire correlates positively with the three short measures of job stressors. It was found, as expected, that the overall SDM-IDM scale correlates strongest with the ICAWS followed by the OCS, while weaker correlations were found with the QWI. These results fit very well with the theoretical definitions of all discussed variables. Bullying is a specific, very severe kind of psychosocial stressor [9,11,45], arising from interpersonal interactions [23,24]. Thus, those scales which focus on psychosocial stressors arising from interpersonal conflicts (like the ICAWS and OCS) more than tasks (like the QWI) demonstrate stronger convergence with the SDM questionnaire scales. Moreover, it was found that the SDM subscale of humiliating and ridiculing behaviours correlates strongest with the ICAWS whereas the subscale of isolating and intimidating behaviours and the subscale of behaviours hampering task fulfilment correlate strongest with the OCS. These results also fit well the theoretical assumptions and the content of the discussed scales [56,58]. It is noteworthy that in some previous studies [18,19] the SDM questionnaire was correlated with Rosenstiel and Boegel's questionnaire for measuring organizational climate [61]. The results obtained demonstrated the divergent pattern of the correlations (ranging from  $\rho = -0.54$  to  $\rho = -0.68$ ) between the SDM-IDM scale and all of the subscales of organizational climate, which also supports the construct validity of the Polish tool for measuring bullying.

The studies presented have some limitations which may have influenced the obtained results. First of all, the samples on which the tool was tested, despite being heterogeneous with regard to the respondent's age, work experience, branch of employment, type of posts, etc., were not strictly representative of the Polish working population. Thus, the external validity of the results may have been affected by the overrepresentation of women and young employees in the studies. Another limitation pertains to the



fact that the tool as well as all the other scales used for the assessment of the SDM questionnaire construct validity are self-reported methods. Thus, the results may be influenced by the respondents' currently induced emotions and cognitive patterns. Therefore, it would be recommended to test the construct validity of the SDM questionnaire by correlating its scores with other external parameters, e.g., with clinical bullying diagnoses or assessments made by bullying experts, such as members of anti-bullying associations. Furthermore, the reliability of the tool was assessed only by the internal consistency method using Cronbach's  $\alpha$ . It may be worth assessing the test-retest reliability of the SDM questionnaire, despite the fact that bullying is a process which changes and develops in time. Thus, the time interval between the two observations should not be too long, as it could excessively lower the assessment of test-retest reliability. Finally, it should be mentioned that although the tool is considered to be universal and suitable for any workplace and organization, it nevertheless may happen that a behaviour which is considered unacceptable and harmful in most organizational settings and interactions may be quite or entirely accepted in some specific organizations, roles or cultures [20]. Thus, each bullying study should be preceded (or accompanied) by a very cautious analysis of organizational patterns of behaviours and their specific meanings. Nevertheless, most of the researchers and institutions dealing with workplace issues (such as CIOP-PIB) recommend, above all, undertaking systematic and early bullying preventive measures [57,62] rather than interventions and diagnosis – tasks which are always difficult and complex. Therefore, they elaborate instruments which aim to, on the basis of organizational indicators, predict or assess the risk of workplace bullying [62], which allows potential organizational bullying antecedents to be tackled [62].

## 9. Conclusion

The SDM questionnaire fills a gap in the Polish methodological inventory for measuring workplace bullying and provides a good, theoretically elaborated, culturally fit and empirically validated alternative to other, internationally recognizable bullying instruments. This study proved that the questionnaire fulfils all of the requirements of test goodness [63–65], being an objective, standardized, reliable and validated psychometric test. The SDM questionnaire may be used by scholars in scientific research as well as by practitioners (e.g., psychologists, human resource specialists, managers, etc.) in applied studies, in a variety of organizational settings.<sup>3</sup> The tool is equipped with short and clear instructions for the respondents, all of the items are comprehensive and the response sheet is integrated with the main body of the test. The completion of the whole questionnaire (i.e., the 64 test items and all socio-demographic positions) takes about 6–10 min. The SDM questionnaire is suitable for use in group research as

well as for use in diagnosing individual cases of bullying. Nevertheless, these should always be based on thorough case studies and in-depth interviews, taking into account the specific organizational culture and accepted patterns of behaviour. If possible, bullying research and diagnosis conducted with the application of the SDM questionnaire (or any other psychometric tool) should be enriched by the account and perspective of bullying witnesses and the alleged bullying perpetrator. As bullying is a highly delicate and complex issue fraught with extremely hazardous consequences, very cautious analyses and thorough diagnostic procedures must always be followed to avoid misinterpretations. Both the ignorance or underestimation of the bullying interaction as well as false bullying accusations may result in very serious, negative consequences for the health, reputation and career of individual employees and the whole organization.

## Disclosure statement

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## Notes

1. It should be noted that in the Polish scientific and legal literature the term 'mobbing' is used instead of the term 'bullying' which is more popular and recognizable in the Anglo-Saxon discourse. It was only for this reason that the author decided to use the term 'bullying', although 'mobbing' is more suitable for describing a psychological, rather than a physical, form of aggression [11,18,19,20,45].
2. The abbreviations used in the text – SDM (for the bullying questionnaire name), SDM-IDM and SDM-ODC (for the names of the bullying questionnaire scales) – come from the Polish language and should be treated as proper names. Thus, for the sake of consistency, they cannot be changed or translated into English.
3. Readers interested in the implementation of the described tool are asked to contact the author of the article in order to obtain any extra information on the instrument along with the complete, basic version of the SDM questionnaire.

## ORCID

Katarzyna Durniat  <http://orcid.org/0000-0002-4830-5044>

## References

- [1] Cooper CL, Payne R. Causes, coping and consequences of stress at work. Chichester: Wiley; 1988.
- [2] House JS. Work stress and social support. Reading (MA): Addison-Wesley; 1981.

- [3] Karasek RA. Job demands, job decision latitude and mental strain: implications for job redesign. *Adm Sci Q.* 1979;24:285–308. doi:10.2307/2392498
- [4] Work WP. Unemployment and mental health. Oxford: Clarendon Press; 1987.
- [5] Wickens CD. Engineering psychology and human performance. New York (NY): HarperCollins; 1992.
- [6] McLoughlin I, Clark J. Technological change at work. Buckingham: Open University Press; 1994.
- [7] Payne RL. Demands, support, constraints and psychological health. In: Mackay C, Cox T, editors. Response to stress: occupational aspects. London (UK): IPC Business Press; 1979. p. 85–105.
- [8] Theorell T, Karasek RA. Current issues relating to psychosocial job strain and cardiovascular disease research. *J Occup Health Psychol.* 1996;1(1):9–26. doi:10.1037/1076-8998.1.1.9
- [9] Lazarus RS, Folkman S. Stress, appraisal and coping. New York (NY): Springer; 1984.
- [10] Brodsky C. Harassed worker. Lexington (MA): Lexington Books; 1976.
- [11] Leymann H. Mobbing and psychological terror at workplaces. *Violence Vict.* 1990;5:119–126. doi:10.1891/0886-6708.5.2.119
- [12] Einarsen S, Hoel H, Zapf D, et al. The concept of bullying at work. In: Einarsen S, Hoel H, Zapf D, et al. editors. Bullying and emotional abuse in the workplace: international perspectives in research and practice. London: Taylor & Francis; 2003. p. 3–30.
- [13] Einarsen S, Hoel H, Zapf D, et al. Bullying and emotional abuse in the workplace: international perspectives in research and practice. London: Taylor & Francis; 2003.
- [14] Salin D, Cowan RL, Adewumi O, et al. Workplace bullying across the globe: a cross-cultural comparison. *Personnel Rev.* 2019;48(1):204–219. doi:10.1108/PR-03-2017-0092
- [15] Nielsen MB, Notelaers G, Einarsen S. Measuring exposure to workplace bullying. In: Einarsen S, Hoel H, Zapf D, Cooper CL, editors. Bullying and emotional abuse in the workplace: international perspectives in research and practice. 2nd ed. Boca Raton (FL): CRC Press; 2011. p. 149–174.
- [16] Keashly L, Harvey S. Emotional abuse in the workplace. In: Fox S, Spector PE, editors. Counterproductive work behavior: investigations of actors and targets. Washington (DC): APA; 2005. p. 201–235.
- [17] Durniat K. Specyfika i konsekwencje mobbingu jako procesu obniżającego efektywność wykonania pracy zawodowej [Mobbing as a process lowering employees efficacy]. In: Juliszewski T, Ogińska H, Złowodzki M, editors. Obciążenia psychiczne pracą – nowe wyzwania dla ergonomii [Mental workload – new challenges for ergonomics]. Kraków: Komitet ergonomii PAN; 2011. p. 227–246. Polish.
- [18] Durniat K. Mobbing w miejscu pracy: zarys tradycji badawczej, podstawowe założenia, metodologia i wybrane wyniki badań własnych [Mobbing in the workplace: the research tradition, basic assumptions, methodology and selected studies results]. *Prace Psychologiczne LXII, Acta Universitatis Wratislaviensis.* 2013;3546:175–189. Polish.
- [19] Durniat K. Organizational and socio-organizational mobbing antecedents. *Przedsiębiorczość i Zarządzanie.* 2015; 16(3):25–41.
- [20] Durniat K, Miguel Ángel Mañas Rodríguez. The experience and acceptance of mobbing and negative workplace behaviours in Poland and Spain – comparative study results. *Przedsiębiorczość i Zarządzanie.* 2017;18(7):5–23.
- [21] Einarsen S, Hoel H, Zapf D, et al. Bullying and harassment in the workplace: developments in theory, research, and practice. 2nd ed. Boca Raton (FL): CRC Press; 2011.
- [22] Durniat K. Mobbing jako patologia społeczna [Mobbing as a social pathology]. In: Klebaniuk, J. editor. Człowiek wobec masowych zjawisk społecznych [Man in the face of mass social phenomena]. Wrocław: Oficyna Wydawnicza ATUT; 2006. p. 425–437. Polish.
- [23] Durniat K. Mobbing dynamics and consequences. *Przedsiębiorczość i Zarządzanie.* 2015;16(3):269–283.
- [24] Hirigoyen MF. Malise dans le travail: Harcèlement moral, démêler le vrai du faux [Workplace pathologies: moral harassment, revelling the truth]. Paris: Syros; 2001. French.
- [25] Kulczycka A, Durniat K. Metodologiczne problemy badania mobbingu [Methodological problems of researching workplace bullying]. *Prace Naukowe Akademii Ekonomicznej.* 2004;1032:640–650. Polish.
- [26] Durniat K, Kulczycka A. Operacjonalizacja mobbingu w kontekście badań międzykulturowych. *Prace Naukowe Akademii Ekonomicznej [Operationalisation of bullying in view of international research].* *Prace Naukowe Akademii Ekonomicznej.* 2006;1132:458–467. Polish.
- [27] Notelaers G, Einarsen S. The world turns at 33 and 45: defining simple cutoff scores for the negative acts questionnaire-revised in a representative sample. *Eur J Work Organ Psychol.* 2013;22(6):670–682. doi:10.1080/1359432X.2012.690558
- [28] Einarsen S, Skogstad A. Bullying at work: epidemiological findings in public and private organizations. *Eur J Work Organ Psychol.* 1996;5:185–201. doi:10.1080/13594329608414854
- [29] O'Moore M, Lynch J, Nic Daeid, N. The rates and relative risks of workplace bullying in Ireland, a country of high economic growth. *Int J Manag Decision Making.* 2003;4(1):82–95. doi:10.1504/IJMDM.2003.002490
- [30] Lewis D. Workplace bullying – interim findings of a study in further and higher education in Wales. *Int J Manpower.* 1999;20(1/2):106–119. doi:10.1108/01437729910268696
- [31] Rayner C. The incidence of workplace bullying. *J Community Appl Soc Psychol.* 1997;7:199–208. doi:10.1002/(SICI)1099-1298(199706)7:3<199::AID-CASP418>3.0.CO;2-H
- [32] Arenas A, Giorgi G, Montani F, et al. Workplace bullying in a sample of Italian and Spanish employees and its relationship with job satisfaction and psychological well-being. *Front Psychol.* 2015;6:1912. doi:10.3389/fpsyg.2015.01912
- [33] Eurofound. Fifth European working conditions survey. Luxembourg: Publications Office of the European Union; 2012. Available from: [https://www.eurofound.europa.eu/sites/default/files/ef\\_publication/field\\_ef\\_document/ef1182\\_en.pdf](https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1182_en.pdf)
- [34] Leymann H. Handbok för användning av LIPT-formuläret för kartläggning av risker för psykiskt våld [Manual of the LIPT – questionnaire for assessing the risk of psychological workplace violence]. Stockholm: Violen; 1990. Swedish.
- [35] Einarsen S, Raknes B. Mobbing i arbeidslivet [Bullying in working life]. Bergen: Institutt for samfunnspsykologi, Universitetet i Bergen; 1991. Swedish.
- [36] Einarsen S, Raknes B. Harassment in the workplace and the victimization of men. *Violence Vict.* 1997;12:247–263. doi:10.1891/0886-6708.12.3.247
- [37] Einarsen S, Hoel H, Notelaers G. Measuring exposure to bullying and harassment at work: validity, factor structure and psychometric properties of the negative acts questionnaire – revised. *Work Stress.* 2009;23(1):24–44. doi:10.1080/02678370902815673

- [38] Harvey S, Keashly L. Predicting the risk for aggression in the workplace: risk factors, self-esteem and time at work. *Soc Behav Personality*. 2003;31(8):807–814. doi:10.2224/sbp.2003.31.8.807
- [39] Cowie H, Naylor P, Rivers I, et al. Measuring workplace bullying. *Aggress Violent Behav*. 2002;7:33–51. doi:10.1016/S1359-1789(00)00034-3
- [40] Mikkelsen EG, Einarsen S. Bullying in Danish worklife: prevalence and health correlates. *Eur J Work Organ Psychol*. 2001;10:393–413. doi:10.1080/13594320143000816
- [41] Salin D. Prevalence and forms of bullying among business professionals: a comparison of two different strategies for measuring bullying. *Eur J Work Organ Psychol*. 2001;10(4):425–441. doi:10.1080/13594320143000771
- [42] Zapf D, Knorz C, Kulla M. On the relationship between mobbing factors and job content, social work environment and health outcomes. *Eur J Work Organ Psychol*. 1996;5(2):215–237. doi:10.1080/13594329608414856
- [43] Zapf D, Escartin J, Einarsen S, et al. Empirical findings on prevalence and risk groups of bullying in the workplace. In: Einarsen S, Hoel H, Zapf D, et al. editors. *Bullying and emotional abuse in the workplace: international perspectives in research and practice*. 2nd ed. Boca Raton (FL): CRC Press; 2011. p. 75–105.
- [44] Solberg ME, Olweus D. Prevalence estimation of school bullying with the Olweus bully/victim questionnaire. *Aggress Behav*. 2003;29:239–268. doi:10.1002/ab.10047
- [45] Leymann H. The content and development of mobbing at work. *Eur J Work Organ Psychol*. 1996;5:165–184. doi:10.1080/13594329608414853
- [46] Vartia M. The sources of bullying – psychological work environment and organizational climate. *Eur J Work Organ Psychol*. 1996;5(2):203–214. doi:10.1080/13594329608414855
- [47] Agervold M. Bullying at work: a discussion of definitions and prevalence, based on an empirical study. *Scand J Psychol*. 2007;48:161–172. doi:10.1111/j.1467-9450.2007.00585.x
- [48] Notelaers G, Einarsen S, De Witte H, et al. Measuring exposure to bullying at work: the validity and advantages of the latent class cluster approach. *Work Stress*. 2006;20(4):289–302. doi:10.1080/02678370601071594
- [49] Durniat K. Społeczno-organizacyjne uwarunkowania mobbingu [Socio-organizational bullying antecedents] [dissertation]. Wrocław: the University of Wrocław; 2008. Polish.
- [50] Durniat K. Measuring and diagnosing mobbing phenomenon – beyond behavioural indicators. Paper presented at: *Respectful and effective leadership – managing people and organizations in turbulent times*. 17th EAWOP Congress; 2015 May 20–23; Oslo, Norway.
- [51] Merecz D, Mościcka A, Drabek M. Mobbing w środowisku pracy. Charakterystyka zjawiska, jego konsekwencje, aspekty prawne i sposoby przeciwdziałania [Workplace bullying. Characteristics, consequences, legal aspects and methods of counteracting]. Łódź: IMP; 2005. Polish.
- [52] Kmieciak-Baran K, Rybicki J. Mobbing – zagrożenie współczesnego miejsca pracy [Bullying – the threat of contemporary workplace]. Gdańsk: Pomorski Instytut Demokratyczny; 2003. Polish.
- [53] Delikowska K. Raport z badań na temat działań mobbingowych w miejscu pracy [Report on workplace bullying research]. Warszawa: Wspólnota Robocza Związków Organizacji Socjalnych (Wrzos). 2003. (Społecznik; 7). Polish.
- [54] Ustawa z 14 listopada 2003 r. o zmianie ustawy – Kodeks pracy oraz o zmianie niektórych innych ustaw [Journal of Legal Acts, 14th of November, 2003, Labour Code and some other acts]. *Dziennik Ustaw*. 2003;(213):item 2081. Polish.
- [55] Kodeks Pracy, tekst ujednolicony, nowelizacja z 1 maja 2004 r (art. 94<sup>3</sup>, § 2), wydanie uzupełnione tekstem ustawy na 14 listopada 2003 roku, Dz.U., nr 213, poz. 2081 ze zm. [Labour Code, amendment of the 1st of May 2004 (art. 94<sup>3</sup>, § 2), edition supplemented with the text of the Act of 14th of November, 2003, as cited in: *Journal of Legal Acts*, 2003;(213):item 2081]. Polish.
- [56] Spector PE, Jex SM. Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *J Occup Health Psychol*. 1998;3:356–367. doi:10.1037/1076-8998.3.4.356
- [57] Warszewska-Makuch M. Polska adaptacja kwestionariusza NAQ do pomiaru mobbingu [Polish adaptation of the NAQ for measuring workplace bullying]. *Bezp Pracy – Nauka i Praktyka*. 2007;(12):16–19. Polish.
- [58] Baka Ł, Bazińska R. Polish adaptation of three self-report measures of job stressors: the Interpersonal Conflict at Work Scale, the Quantitative Workload Inventory and the Organizational Constraints Scale. *Int J Occup Saf Ergon*. 2016;22(1):32–39. doi:10.1080/10803548.2015.1116816
- [59] Durniat K. Doświadczanie mobbingu i negatywnych emocji w pracy – analiza porównawcza: Polska – Hiszpania [Experiencing bullying and negative emotions at work – comparative analysis: Poland – Spain]. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*. 2018;512:36–47. Polish. doi:10.15611/pn.2018.512.03
- [60] Nettelbladt P, Hansson L, Stefansson CG, et al. Test characteristics of the Hopkins Symptom Check List-25 (HSCL-25) in Sweden, using the Present State Examination (PSE-9) as a caseness criterion. *Soc Psychiatry Psychiatr Epidemiol*. 1993;28:130–133. doi:10.1007/BF00801743
- [61] Durniat K. Polish adaptation of L. Rosenstiel and R. Boegel's organizational climate diagnosis questionnaire. *Polish J Appl Psychol*. 2012;10(1):147–168.
- [62] Warszewska-Makuch M. Ocena ryzyka mobbing w miejscu pracy [Risk assessment of workplace bullying]. *Bezp Pracy – Nauka i Praktyka*. 2012;(5):8–19. Polish.
- [63] Brzeziński J. Etapy konstruowania kwestionariusza osobowości [Stages of the personality test construction]. In: Sanocki W, editor. *Kwestionariusze osobowości w psychologii*. Warszawa: PWN; 1976. p. 269–312. Polish.
- [64] Anastasi A, Urbina S. Testy psychologiczne [Psychological tests]. Warszawa: Pracownia Testów psychologicznych PTP; 1999. Polish.
- [65] Hornowska E. Testy psychologiczne. Teoria i praktyka [Psychological tests. Theory and practice]. Warszawa: Wydawnictwo Naukowe Scholar; 2001. Polish.