Short communication

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Does exposure to bullying behaviors at the workplace contribute to later suicidal ideation? A three-wave longitudinal study

by Morten Birkeland Nielsen, PhD,[1,2] Ståle Einarsen, PhD,[2] Guy Notelaers, PhD,[2] Geir Høstmark Nielsen, Cand Psychol[3]

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Objective This study aimed to determine the relative impact of person-related, work-related and physically intimidating bullying behaviors on suicidal ideation two and five years after the fact.

Methods Logistic regression analyses were utilized to examine relationships between bullying behaviors and suicidal ideation in a random and representative cohort sample of 1775 (T1–T2)/1613 (T1–T3) Norwegian employees. The time lag between T1 and T2 was two years and five years between T1 and T3. Exposure to bullying behaviors was measured with the revised version of the Negative Acts Questionnaire. Suicidal ideation was measured with a single item asking respondents whether they had "Thoughts about ending your life" during the past seven days.

Results Prevalence of suicidal ideation was 4% at T1, 5% at T2, and 4.2% at T3. At T1, 8.2% reported monthly exposure to person-related bullying, 19.1% to work-related bullying, and 1.8% to physically intimidating bullying behaviors. After adjusting for demographic characteristics, baseline suicidal ideation, and the shared variance of the bullying behavior categories, exposure to physical intimidation was the only form of bullying which significantly predicted suicidal ideation two [odds ratio (OR) 10.68, 95% confidence interval (95% CI) 4.13–27.58) and five (OR 6.41, 95% CI 1.85–22.14) years later.

Conclusions Exposure to workplace bullying behaviors in the form of physically intimidating behaviors is a risk factor for suicidal ideation. Although the prevalence of physical intimidation is low, this study shows that the consequences can be detrimental and organizations should therefore be especially aware of, and have available measures against, this type of bullying.

Key terms aggression; harassment; mental health; physical bullying; physical intimidation; prospective; suicide.

With over 800 000 yearly incidents (1), suicide is a major cause of death around the globe. While most who consider ending their life do not make actual suicide attempts, suicidal ideation is a key antecedent of suicide (2). Identification of risk factors for suicidal ideation is therefore important for the development of prevention strategies. Victimization from workplace bullying has been established as a significant predictor of suicidal ideation in both cross-sectional (3–5) and longitudinal studies (6). Bullying is more strongly associated with suicidal ideation than well-known risk factors such as gender, neuroticism, anxiety, somatic complaints, and depersonalization (7).

Workplace bullying is defined as a situation where an employee persistently and over a period of time perceives him-/herself to be on the receiving end of mistreatment from superiors, coworkers, subordinates, and/or customers/clients while finding it difficult to defend against the mistreatment (8, 9). Although there is no definitive list of bullying behaviors, three main categories are (10): person-related behaviors (spreading gossip and rumors, humiliations, social exclusion), work-related behaviors (unreasonable work pressure, withholding information, setting impossible deadlines), and physically intimidating behaviors (verbal and physical threats).

1 National Institute of Occupational Health, Oslo, Norway
2 Department of Psychosocial Science, University of Bergen, Bergen, Norway
3 Department of Clinical Psychology, University of Bergen, Bergen, Norway

Correspondence to: Morten Birkeland Nielsen, National Institute of Occupational Health, PB 8149 Dep, 0033 Oslo, Norway. [E-mail: morten.nielsen@stami.no]

The impact of workplace bullying on suicidal ideation can be explained by the Interpersonal Theory of Suicide (11, 12): when people over a prolonged time period perceives themselves to be socially alienated and simultaneously feel that they are a burden to others, they develop the desire for death. This makes a strong case for arguing that exposure to bullying constitutes a risk factor for suicidal ideation (6). While there is theoretical and empirical evidence for bullying as a risk factor for suicidal ideation, previous studies have not provided information about the particular behavioral content of the bullying. Hence, it is not known whether some forms of bullying have a stronger impact on suicidal ideation than others. This study determines the relative impact of different types of bullying behaviors on suicidal ideation two and five years after the fact.

Method

This study, which extends previously published data (6, 13), was based on a three-wave survey of a representative sample of Norwegian employees (14, 15). Time-lags between surveys were two (T1–T2) and five years (T1–T3). In 2005, Statistics Norway drew a random sample of 4500 employees from The Norwegian Central Employee Register. Sampling criteria were adults aged 18–65 years and employed during the last six months in an enterprise with a staff of ≥5 and with a mean working hour >15 hours per week. Questionnaires were distributed through the Norwegian Postal Service to respondents' home addresses. Altogether, 2539 questionnaires were returned (response rate: 57%). T2 data was collected in 2007 (N=1775, response rate 70%), and T3 data was collected in 2010 (N=1613; response rate 64%). In total, 1291 persons participated at all three time points (overall response rate: 51%), while 2062 participated at least twice. All 2539 respondents participating at T1 were invited at both T2 and T3. The Regional Committee for Medical Research Ethics in Western Norway approved the project.

At T1, women (55%) were slightly overrepresented in the sample. Mean age was 46.5 years. Altogether 85% were employed in full- (68%) or part- (17%) time positions. Fifteen percent were on sick leave, paid leave, or vocational rehabilitation. A total of 75% had a regular day time working arrangement. Mean working hours per week was 37.5. Participants [mean 44.72, standard deviaton (SD) 11.32, N= 2061] were older than dropout respondents (mean 39.82, SD 11.53, N=478) (t=8.49, df=2537, P<0.001). Systematic gender differences (X2=12.56, df=1, P<0.001) were revealed between cohort (54% women) and dropouts (46%). Participants (mean 1.16, SD 0.29, N=1932) reported significantly (t=2.81, df=2364, P<0.01) lower levels of person-related bullying compared to drop-outs (mean 1.21, SD 0.42, N=434). No differences were found for work-related and physically intimidating bullying. There was no difference in suicidal ideation between cohort and dropouts (X2=2.49, df=1, P>0.05).

Instruments

Exposure to bullying behaviors was measured with the 22-item revised version of the Negative Acts Questionnaire (NAQ-R) (10) which describes different behaviors that may be perceived as bullying if occurring on a regular basis. For each item, the respondents were asked about the frequency of exposure to the behavior at their present worksite during the last six months. Response categories ranged from 1–5 ("never", "now and then", "monthly", "weekly", and "daily"). The NAQ-R contains three subscales categorizing forms of bullying: (i) person-related (12 items; Cronbach's α 0.88; inter-item correlation (IIC) 0.38; eg, "Spreading of gossip and rumors about you", "Being ignored or excluded"), (ii) work-related (7 items; α 0.76; IIC 0.32; eg, "Being ordered to do work below your level of competence", "Being given tasks with unreasonable deadlines"), and (ii) physical intimidation (3 items; α 0.55; IIC 0.29; items: "Being shouted at or being the target of spontaneous anger", "Intimidating behaviors such as finger-pointing, invasion of personal space, shoving, blocking your way", "Threats of violence or physical abuse or actual abuse").

Suicidal ideation was measured with a single item from the 25-item version of the Hopkins Symptoms Checklist (HSCL) (16) asking the respondents whether they had "Thoughts about ending your life" during the past seven days. Respondents provided answers on the following 4-point severity scale: "not at all", "sometimes", "very often", and "extreme". Positive responses were recoded into a single category. This single item method is a valid approach for measuring suicidal ideation (17, 18).

Statistical analysis

Statistical analyses were conducted using SPSS Statistics 22.0 (IBM Corp, Armonk, NY, USA). Logistic regression analyses were used to examine relationships between bullying at T1 and suicidal ideation at T2 and T3. Due to low prevalence of weekly and daily exposure, indicators of bullying were dichotomized with "monthly exposure to at least one behavior" as the cut-off criterion. Level of significance was 0.05.

Results

Work-related bullying was positively correlated with both person-related (Pearson's r=0.67, P<0.001) and physically intimidating bullying (r=0.38, P<0.001). Person-related bullying was positively correlated with physical intimidation (r=0.55, P<0.001). Variance inflation factor (VIF) indices (person-related 2.00, work-related 1.76, physical intimidation 1.34) and tolerance values (person-related 0.50, work-related 0.57, physical intimidation 0.75) provided no indication of multicollinearity.

Table 1 displays descriptive information, prevalence rates, and tests for gender differences. The respondents reported low levels of, and little variance in, work-related (mean 1.37, SD 0.41, range 1.00–4.00), person-related (mean 1.15, SD 0.29, range 1.00–4.64), and physically intimidating (mean 1.11, SD 0.27, range 1.00–4.33) behaviors. The prevalence of monthly exposure to at least one of the behaviors was 19.1%, 8.2%, and 1.8% for work-related, person-related, and physically intimidating behaviors, respectively. At T1, 4% reported suicidal ideation, rising to 5% at T2, and dropping again to 4.2% at T3. Male respondents reported significantly higher prevalence of suicidal ideation at T2 (X^2=11.32, df=1, P<0.001), but not at T1 and T3.

Table 2 shows odds ratio (OR) and 95% confidence intervals (95% CI) from bivariate and multivariate logistic regression analyses. Age was not related to suicidal ideation in any of the analyses. Male gender was a risk factor for suicidal ideation in all analyses. In bivariate analyses, all three categories of bullying behaviors predicted suicidal ideation at T2, with physically intimidation (OR 7.12, 95% CI 3.09–16.44) as the strongest predictor. Adjusting for age, gender, baseline suicidal ideation, and the shared variance of the indicators of bullying, physically intimidating behaviors was the only form of bullying that predicted new cases of suicidal ideation at T2 (OR 10.68, 95% CI 4.13–27.58). The predictor variables explained 29% (Nagelkerke

Table 1. Means scores for age and bullying, and prevalence of suicidal ideation, in total sample and separated by gender. [NS=not significant; SD=standard deviation]

Variable	Mean levels for age and bullying at T1									P-value gender difference
	Total sample (N=1939)			Women (N=1108)			Men (N=953)			
	M	SD	%	M	SD	%	M	SD	%	
Age (years)	45.23	11.29		44.54	11.24		46.08	11.29		<0.01
Person-related behaviors	1.15	0.29		1.14	.28		1.17	0.29		<0.05
Work-related behaviors	1.37	0.41		1.35	.39		1.39	0.43		<0.05
Physically intimidating behaviors	1.11	0.27		1.10	.24		1.12	0.30		NS
Prevalence exposure to bullying behaviors monthly at T1										
Person-related behaviors			8.2			8.1			8.3	NS
Work-related behaviors			18.3			18.3			20.1	NS
Physically intimidating behaviors			1.1			1.1			2.7	<0.05
Prevalence suicidal ideation T1 to T3										
Suicidal ideation T1 (baseline)			4.0			3.3			4.9	NS
Suicidal ideation T2			5.0			3.3			7.0	<0.001
Suicidal ideation T3			4.2			3.1			5.5	NS

Table 2. Bivariate and multivariate (adjusted) logistic regression analyses of the prospective associations between exposure to bullying behavior at T1 (2005) and suicidal ideation at T2 (2007) and T3 (2010). [OR=odds ratio; 95% CI=95% confidence interval

Baseline variables (2005)	Time 2 (N=1508)				Time 3 (N=1281)			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	1.00	0.98–1.02	1.00	0.97–1.02	0.99	0.97–1.02	1.00	0.97–1.02
Gender (reference = male)	0.45 [c]	0.28–0.73	0.55 [d]	0.31–0.96	0.46 [d]	0.26–0.82	0.51 [d]	0.27–0.96
Suicidal ideation (reference = none)	37.67 [e]	20.60–68.90	43.81 [e]	22.55–85.11	22.97 [e]	11.75–44.89	22.91 [c]	11.08–47.37
Person-related behaviors [f]	2.54 [c]	1.36–4.76	0.84	0.34–2-12	2.05	0.94–4.48	0.93	0.41–2.10
Work-related behaviors [f]	2.14 [c]	1.30–3.54	1.18	0.56–2.42	1.64	0.89–3.03	0.96	0.34–2.73
Physically intimidating behaviors [f]	7.12 [e]	3.09–16.44	10.68 [e]	4.13–27.58	5.37 [c]	1.76–16.37	6.41 [e]	1.85–22.14

[a] Analyses of bivariate relationship between predictor variables at Time 1 and suicidal ideation at follow-up time points.
[b] Full multivariate model adjusted for age, gender, baseline suicidal ideation and of the shared variance of the indicators of bullying behavior.
[c] P<0.01.
[d] P 0.05.
[d] P<0.001.
[f] Reference category for all indicators of bullying behaviors: exposed to behavior less than once per month.

R-square) of the variance in T2 suicidal ideation. The full multivariate model was significant (X^2=146.99, df=6, P<0.001). Physical intimidation was the only indicator of bullying that predicted suicidal ideation at T3 in bivariate (OR 5.37, 95% CI 1.76–16.37) and multivariate (OR 6.41, 95% CI 1.85–22.14) analyses. The predictor variables explained 21% of the variance in the multivariate model at T3. The model was significant (X^2=77.26; df=6; P<0.001).

Discussion

The results showed that exposure to physically intimidating bullying, but not person- or work-related bullying, is a significant risk factor for suicidal ideation two and five years after the fact. The findings support the Interpersonal Theory of Suicide by confirming that repeated exposure to painful and provocative events in the form of physical intimidation is associated with an increased risk of suicidal ideation. An explanation for the findings is that intimidating behaviors, such as being the target of spontaneous anger or experiencing (threats of) violence or physical abuse, may have a more direct and profound impact on the physical and psychological integrity of targets, compared to the other investigated forms of mistreatment. Another explanation is that physical intimidation is rather uncommon and less acceptable than other forms of bullying (19). This kind of exposure may therefore be experienced as especially offensive and threatening.

The findings should be interpreted with caution due to the use of self-reported measurements, recall bias, and unobserved confounding factors such as negative affectivity and socioeconomic status. While the response rates were higher than the average rate in organizational survey research (20), 43% of invited respondents did not participate at T1. The external validity of the findings may therefore be questioned. As both bullying and suicidal ideation are low-prevalent phenomena, it was necessary to dichotomize the variables, and thereby reduce their variability in order to retain statistical power. The use of three time points with two and three year time-lags only provides a snapshot of the relationship between bullying and suicidal ideation. More advanced longitudinal designs with several measurements points over an extended period of time, such as diary studies, might further our knowledge of the short-term dynamics as well as the long-term development in suicidal ideation and bullying.

Despite these limitations, our results indicate that physical intimidation increases the risk for later suicidal ideation. As the findings suggest that employees who are exposed to bullying may be particularly likely to consider ending their lives, our study highlights the importance of effective preventive measures against workplace bullying.

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