

BRIEF REPORT

Naturalistically Observed Swearing, Emotional Support, and Depressive Symptoms in Women Coping With Illness

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Objective: The goal of this study was to explore the intra- and interpersonal consequences of swearing. Specifically, it investigated what implications swearing has for coping with and adjustment to illness. **Methods:** The present project combined data from two pilot studies of 13 women with rheumatoid arthritis and 21 women with breast cancer. Participants wore the Electronically Activated Recorder, an unobtrusive observation sampling method that periodically records snippets of ambient sounds, on weekends to track spontaneous swearing in their daily interactions, and completed self-reported measures of depressive symptoms and emotional support. **Results:** Naturalistically observed swearing in the presence of others, but not alone, was related to decreases in reported emotional support and increases in depressive symptoms over the study period. Further, decreases in emotional support mediated the effect of swearing on disease-severity adjusted changes in depressive symptoms. **Conclusion:** These exploratory results are consistent with the notion that swearing can sometimes repel emotional support at the expense of psychological adjustment. This is one of the first studies to examine the role of swearing, a ubiquitous but understudied psychological phenomenon, in a medical context.

Keywords: Electronically Activated Recorder, depression, language, breast cancer, rheumatoid arthritis

Swearing is a ubiquitous but sorely understudied psychological phenomenon (Jay, 2009). Recently, researchers have begun to explore its biological (Pinker, 2007), personality (Fast & Funder, 2008), and social implications (Jay, 2000; Rassin & Muris, 2005). However, researchers' understanding of what role swearing plays in the context of coping with illness remains rudimentary (Jay, 2009). Only very few studies have investigated aspects related to swearing in a medical context (Bird & Harris, 1990; Palazzo & Warner, 1999).

Recently, Stephens, Atkins, and Kingston (2009) demonstrated that swearing can facilitate coping with pain. Participants showed higher pain tolerance and lower pain perceptions when reciting swear words while undergoing a cold-pressor task compared to when they recited neutral words. The authors concluded that "perhaps swearing induces a negative emotion . . . as an immediate alarm reaction" (p. 1060) which, in turn, might induce temporary analgesia.

In addition to such analgesic properties, though, it is possible that swearing could also have a "dark side." Specifically, Stephens et al. (2009) noted that participants' accelerated heart rate following swearing is consistent with the idea that it may increase negative affect as a "side effect." In addition to such direct intrapersonal (i.e., affective) consequences, Jay (2009) questioned, "Swearing may be viewed as a beneficial coping mechanism, but is there an interpersonal cost?" (p. 160). Based on these ideas, this study explored the degree to which swearing can have deleterious consequences for health, despite any potential for immediate (pain-relieving) benefits.

The current project investigated the relationship between swearing and adjustment to coping with illness. It used a naturalistic observation tool to study the interplay among swearing, depressive symptoms, and emotional support among women coping with one of two diseases, rheumatoid arthritis (RA) and breast cancer (BC).

Based on Stephens et al.'s (2009) speculation that swearing might induce negative affect, this study explored whether swearing is related to increases in depressive symptoms. In addition, it sought preliminary evidence for Jay's (2009) postulation that swearing might have negative interpersonal consequences, by investigating whether swearing is related to changes in participants' reported emotional support.

Method

This project combined data from two pilot studies with largely parallel designs involving married or partnered female patients. Sample 1 consisted of 13 women with RA (mean age: 56 years,

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$SD = 13$, mean disease duration: 6.9 years, $SD = 4.3$; education: at least bachelor's degree: $n = 5$). Sample 2 consisted of 21 women with BC undergoing radiation or chemotherapy (mean age: 57 years, $SD = 13$; mean time since date of initial diagnosis: 2.3 years, $SD = 2.4$; education: at least bachelor's degree: $n = 16$).

In both samples, participants wore the Electronically Activated Recorder (EAR; Mehl, Pennebaker, Crow, Dabbs, & Price, 2001; Mehl, Vazire, Ramírez-Esparza, Slatcher, & Pennebaker, 2007), an observational ecological momentary assessment tool that periodically samples ambient sounds from participants' moment-to-moment social environments, on weekends during their waking hours. Recruited from a larger study (Kasle, Wilhelm, & Zautra, 2008), the 13 women with RA participated in two EAR monitorings separated by 1 month (Robbins, Mehl, Holleran, & Kasle, in press), and a 4-month follow-up. The 21 women with BC were recruited at the Arizona Cancer Center and participated in one EAR monitoring and a 2-month follow-up (see Figure 1).

The EAR consisted of a small handheld computer (Dell Axim \times 50) with recording software and a lapel microphone. In the RA sample, the EAR recorded 50 s every 18 min and yielded on average 224 waking sound files per participant over both weekends ($SD = 33$). In the BC sample, it recorded 50 s every 9 min and yielded on average 177 waking sound files per participant over one weekend ($SD = 50$). After debriefing, participants were given the opportunity to review their recordings and erase parts they preferred to remain private. One RA participant deleted one sound file.

Participants with RA completed the brief COPE (Carver, 1997) at each session they received the EAR. They also completed the Center for Epidemiological Studies-Depression scale (CES-D;

Hann, Winter, & Jacobsen, 1999; $\alpha = .95$), pain ratings for the past month (0–100 = no-worst pain), and number of flare days over the past 6 months at the initial session (1 month before the 1st EAR weekend) and 4 months after the 2nd EAR weekend (see Figure 1).

Participants with BC completed the full COPE (Carver, Scheier, & Weintraub, 1989), the CES-D ($\alpha = .86$), and the SF-36 bodily pain item (over the past 4 weeks) when they received the EAR and at the 2-month follow-up (see Figure 1). Changes in reported emotional support (brief COPE and COPE: "I get sympathy and understanding from someone"; "I get emotional support from others.") and depressive symptoms (CES-D: "I felt depressed.") were computed by residualizing follow-up for baseline scores.

Verbatim transcripts of the sound files were analyzed using the swearing category of *Linguistic Inquiry and Word Count* (e.g., "crap," "hell," "shit"; Pennebaker, Francis, & Booth, 2001). Separate measures of swearing in the presence of others and swearing alone were derived from only those transcripts in which participants were with others and alone (descriptives in Table 1). All swearing variables were log transformed (using \log_{10}) to reduce their positive skew and improve normality. For metric comparability, all variables were standardized within-sample before analyses.

Results

Consistent with Stephens et al.'s (2009) prediction that swearing might induce negative affect, EAR-observed swearing was related to increases in depressive symptoms over the study period, $r = .53$, $p = .001$. This association remained significant after accounting

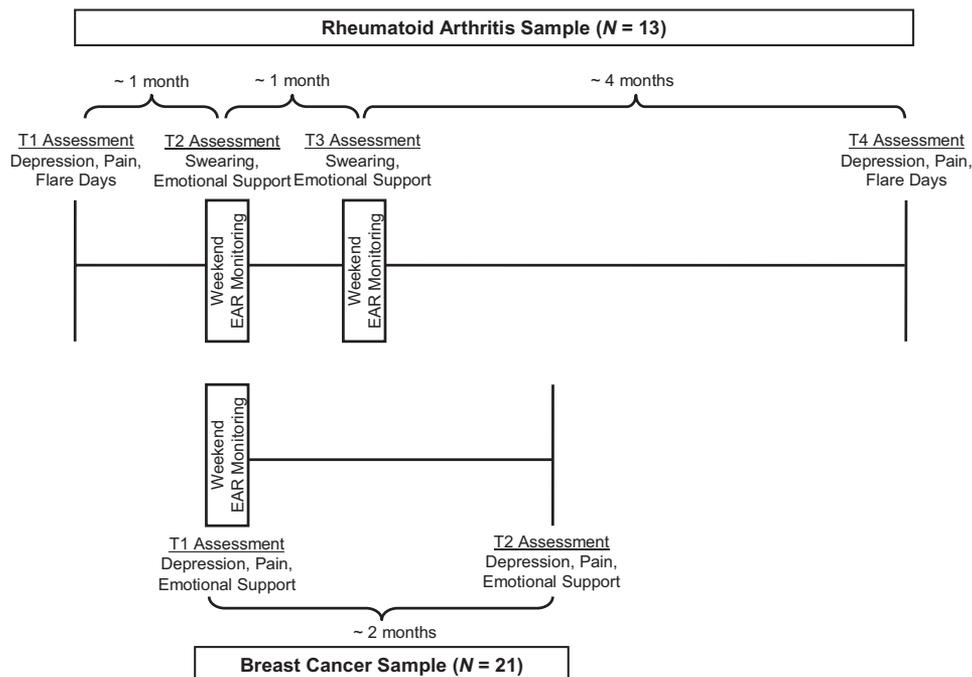


Figure 1. Timeline of the data collection in the RA study ($N = 13$; top half of the figure) and the BC study ($N = 21$; bottom half of the figure). T = time; Weekend EAR Monitoring refers to participants wearing the EAR for one weekend during their waking hours (from Friday afternoon to Sunday night).

Table 1
Results of Correlation and Regression Analyses Relating Swearing to Changes in Emotional Support and Depressive Symptoms

	Mean (SD)	Change in emotional support		Change in depressive symptoms										
		<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	Controlling for disease severity								
						<i>r</i>	<i>p</i>	Total effect	<i>t</i>	<i>p</i>	Direct effect	<i>t</i>	<i>p</i>	
Swearing	0.09 (0.12)	-.37	.03	.53	.00	.47	.01							
With others present	0.08 (0.12)	-.40	.02	.51	.00	.44	.01	2.18	2.70	.01	1.41	1.71	.10	
Alone	0.22 (0.66)	.19	.29	-.02	.92	.01	.96							

Note. The swearing measures are percentages of participants' words that were swear words. Means and standard deviations are raw percentages, and numbers used for all analyses were log transformed. All variables were standardized within sample before analyses. Changes in depressive symptoms were computed by residualizing CES-D follow-up scores for baseline scores (across 6 months in the RA sample and 2 months in the BC sample; Figure 1). Changes in reported emotional support were computed by residualizing brief COPE and COPE subscale follow-up scores for their respective baseline scores (across 1 month in the RA sample and 2 months in the BC sample). Disease severity comprises pain ratings averaged across the study period (both samples), the number of flare days (RA sample), and stage of cancer (BC sample). Total and direct effect estimates are unstandardized regression coefficients derived from a bootstrapping mediation analysis (Preacher & Hayes, 2004; 5,000 bootstrap resamples). Total effect refers to the estimate for the total effect of the IV on the DV (c path); direct effect refers to the estimate for the effect of the IV on the DV after accounting for the mediator (c' path).

for variance in depressive symptoms associated with disease severity (indexed by cancer stage, flare days, and pain ratings), $r = .47$, $p = .006$.

Further, on an exploratory basis, Jay's (2009) idea that swearing can come at an interpersonal cost was tested. Consistent with this idea, EAR-observed swearing was related to decreases in reported emotional support, $r = -.37$, $p = .03$.¹ In addition, and further consistent with the notion of negative interpersonal consequences, only swearing in the presence of others, and not swearing alone, was correlated with both increases in depressive symptoms and decreases in emotional support (see Table 1 and Figure 2).

Finally, whether decreased emotional support might serve as a mediator of the relationship between participants' swearing in the presence of others and their increased depressive symptoms was examined. Though a test for indirect effects is clearly exploratory at this stage, Preacher and Hayes (2004) consider bootstrapping mediation analysis appropriate for small samples like ours. Based on 5,000 resamplings, the indirect effect of swearing with others on disease-severity-adjusted changes in depressive symptoms via changes in emotional support was statistically significant ($b = .76$; 95% CI = .03, 2.73).

Discussion

These results suggest that spontaneous swearing in daily life can in certain contexts (a) undermine psychological adjustment and (b) potentially affect emotional support in the coping process. These findings are consistent with past self-report research showing that swearing has the potential to repel social support, particularly among females (Bird & Harris, 1990), and that undermined social support can increase the risk of depression (Bolger, Foster, Vinokur, & Ng, 1996). Theoretically, it would be interesting to differentiate "casual" swearing that often serves as an intensifier (e.g., "This is f*** great!) from "angry" swearing that directly expresses hostility (e.g., "F*** you!; Jay, 2009). In this sample, there were very few instances of angry swearing. However, the potential to undermine emotional support should clearly be much higher with the latter one.

If replicated, these findings have potential clinical implications. Because swearing is a highly automatic behavior, getting patients

to stop swearing might be difficult. Instead, clinicians might effectively interrupt this psycho-social process by intervening with support providers. For example, couple-focused interventions could discuss the "side effects" of swearing with partners (e.g., Manne & Ostroff, 2008).

This study had several limitations. First, the sample size was quite small. However, the observed effects were statistically reliable and strong in magnitude. Second, these correlational analyses are consistent with, but cannot establish, the implied causal model. It is noteworthy, though, that in the RA sample changes in depressive symptoms were temporally preceded by changes in emotional support (see Figure 1). Third, this sample consisted of women in midlife for whom swearing might have violated gender and age norms. Thus, it is unclear to what degree acting in nonstereotypic ways, or swearing, is ultimately responsible for the association with reduced emotional support. In other words, it is possible that the negative interpersonal consequences may not extend to other populations. Swearing may even serve a bonding function among men, or younger people, and in different contexts, as some have speculated (Rassin & Muris, 2005). Future research should test the generalizability of these findings in larger samples of men and women of different age groups and cultural backgrounds.

Finally, these analyses, particularly those of the potential interpersonal costs of swearing, were exploratory. This study measured emotional support indirectly via the COPE subscales, rather than directly via collateral (i.e., friend and family) reports of provided emotional support. Conceptually, the COPE is designed to primarily capture *use* of emotional support (Carver et al., 1998). Thus, an alternative explanation could be that these findings indicate that swearing put participants into an "I am tough" mindset in which they sought less emotional support. Although one cannot defini-

¹ An important question concerns the degree to which swearing is a behavioral proxy for dispositional hostility, disagreeableness, or impulsivity. Entering the Big Five dimensions, agreeableness and conscientiousness, into the regression only minimally affected the effects of swearing on emotional support and depressive symptoms. Further, statistically controlling the effects for the frequency of behaviorally coded arguments and verbal anger expressions also had negligible effects on the results.

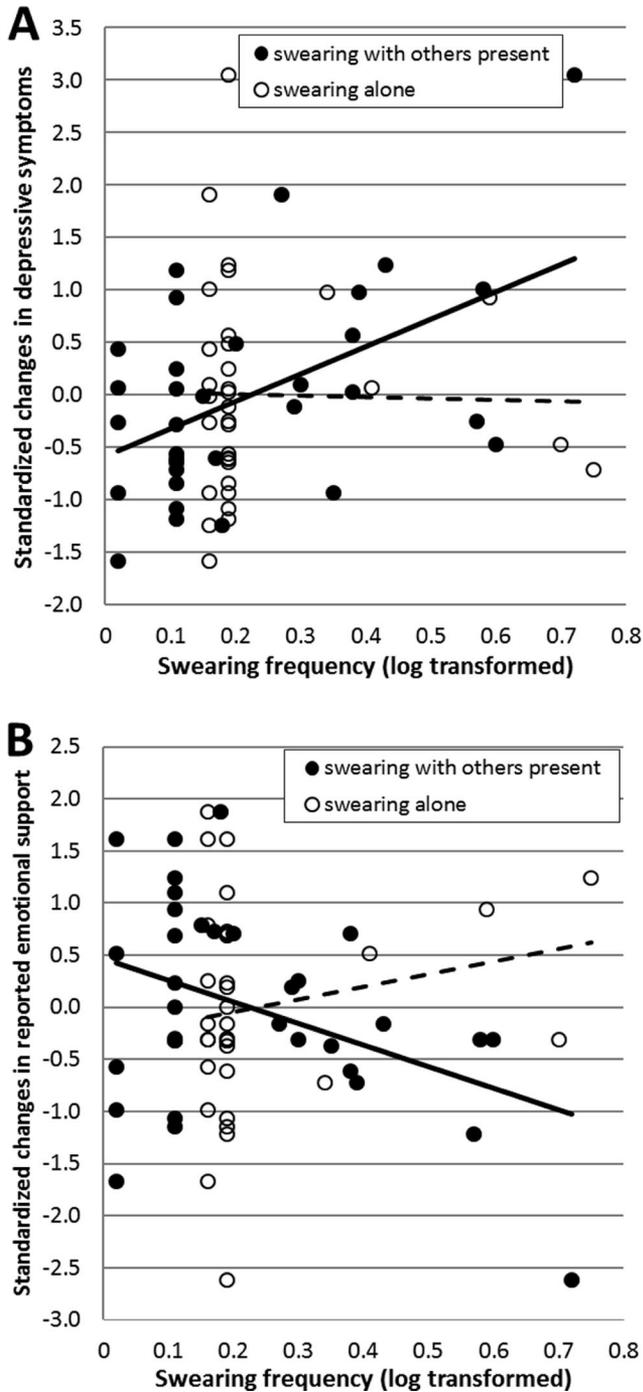


Figure 2. Scatterplots and linear trends for predicting changes in participants' depressive symptoms (A) and reported emotional support (B) from swearing with others present and alone.

tively rule out this or other potential alternative explanations, it is important that (a) the wording of the majority of the COPE items is consistent with an interpretation of levels of emotional support, for example, "I get sympathy and understanding from someone"; "I've been getting emotional support from others"), and (b) this particular explanation cannot readily account for the finding that

only swearing in the presence of others predicted decreases in emotional support and increases in depressive symptoms. Given its exploratory nature, it is important for future research to replicate the effect with a direct assessment of available emotional support.

To conclude, this is one of the first studies to provide evidence of how swearing is implicated in the coping process. It highlights a potential cost of swearing—that it can undermine psychological adjustment, possibly via repelling emotional support.

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