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Swearing: A Biopsychosocial Perspective

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Abstract

Swearing, also known as cursing, can be best described as a form of linguistic activity utilizing taboo words to convey the expression of strong emotions. Although swearing and cursing are frequently occurring behaviors, the actual functions of swearing remain largely unknown. Since swearing typically includes taboo words, these words can be more powerful than non-swear words. Therefore, people who swear are often judged negatively, because the uttered swearwords can shock and disturb others, though the comments of others are strongly dependent on contextual factors. In this review, we provide an insight into the current state of the literature with respect to the interpersonal functions of swearing. In addition, we briefly discuss neurological, psychosocial and contextual factors that may contribute to person's swearing behavior. Swearing is hypothesized to produce a catharsis-effect, which results in a relief of stress or pain. Swearing also influences the perceived credibility, intensity, and persuasiveness of the swearer. Additionally, swearing can have a variety of interpersonal consequences, including promoting group bonding and solidarity, inhibiting aggression, eliciting humor, and causing emotional pain to others. This paper further presents a hypothetical model of swearing that draws from basic emotion research in an attempt to provide a scaffolding for future research.

Keywords: swearing, cursing, taboo, emotion, emotional expression, catharsis, interpersonal context

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Introduction

Swearing,¹ or cursing, is a linguistic activity involving the use of taboo words (Stapleton, 2010). Humans have been using curse- and swearwords since the emergence of language. Some scientists even propose that all modern languages have developed from primitive linguistic utterances that were comparable with swearing (Montagu, 1967). Andersson and Trudgill (2007) define swearing as language use in which the expression: (i) refers to something taboo or stigmatized in the swearer's culture, (ii) is not intended to be interpreted literally, (iii) can be used to express strong emotions or attitudes. The combination of these aspects results in an expression with a greater expressive power. For this reason, swearing can be more functional in particular circumstances (Stapleton, 2010).

Over history, there has always been some resistance against the use of swearing. In the 15th century cursing was punished by imprisonment, excising of the tongue, or even the death penalty (Pinker, 2007; Stone & Hazelton, 2008). Although these rigorous measures are no longer applicable in our current society, there still exists notable resistance against the use of swearwords, which varies across cultures. In some countries swearing is still prohibited by law, although the punishments are currently not quite as severe as they used to be (Rassin & Muris, 2005). In the Netherlands there exists a "League against swearing," which opposes profanity and swearing. Similarly, in the USA the Federal Communication Commission tries to regulate speech that may be considered offensive on radio and television. However, most people in Western society admit to uttering a swear word from time to time (Rassin & Van der Heijden, 2005). According to recent literature (e.g., Baruch & Jenkins, 2007) this has been happening more and more regularly in our conversations with other people since the 1960's and has therefore almost become a new norm in our contemporary language use. At the same time, swearing seems to have lost some of its power over time and has become more diluted with the increased frequency of its use (Howe, 2012).

Not all swearing is the same: There are many different forms and types of swearing that have been described. Patrick (1901) distinguished between different kinds of religious swearwords related to sacred places or sacred matters of religion, which may be considered the origin of "cursing." Nowadays we distinguish a much larger variety of swearwords based on numerous taboo categories. Across the world, the most commonly used taboo categories for swearing involve bodily functions, body parts, sex, and religion (Pinker, 2007; Stapleton, 2010). In the

¹ The words swearing and cursing are used as synonyms in this text, although it may be argued that there are subtle distinctions between them.

Netherlands diseases are also used as a taboo category for swearing (Rassin & Muris, 2005). Besides the taboo nature of swearwords, another important and related characteristic is their connection with strong emotions, both positive and negative. However, the expression of strong emotions (swearing, but also laughing, yelling, and crying) is not equally appreciated in all cultures (Jay & Janschewitz, 2008; Vingerhoets, 2013).

Swearing can also be differentiated by its particular function or by its degree of conscious controllability. Montagu (1967) separates annoyance swearing and social swearing, with annoyance swearing serving primarily intra-individual functions (e.g., catharsis), whereas social or conversational swearing refers to swearing which mainly serves inter-individual functions. Jay and Janschewitz (2008) distinguish between automatic (unconscious, reflexive) versus more consciously controlled forms of swearing. It has been argued that swearing can be characterized on a continuum from unconscious/automatic to fully conscious/controlled (Jay, 2009a). Certain neurological disorders (e.g. Gilles de la Tourette syndrome) are associated with uncontrollable swearing in more extreme forms, but this form of swearing appears less functional (Jay, 2000). Pinker (2007) even distinguishes at least five different ways of swearing (1) descriptively (*Let's fuck*), (2) idiomatically (*It's fucked up.*), (3) abusively (*Fuck you, motherfucker!!*), (4) emphatically (*This is fucking amazing!*), and (5) cathartically (*Fuck!!!*).

Swearing is a topic that can be examined from very different perspectives. For example, Pinker (2007) provides a most interesting and amusing account on swearing, mainly from the perspective of a psycholinguist. The current review has a different focus in which we will integrate evolutionary, historical, social, and psychological perspectives. Specifically, in this review, we will first briefly address the evolution and historical context of swearing. Then an impression will be given of the contextual and psychosocial factors that may determine whether or not a person will swear in a given context, including what motivates people to swear and the social factors that influence an individual's swearing behavior. Finally, we briefly overview individual differences in swearing, including what factors will predict who will swear more or less. The emphasis, however, will be on the intra- and inter-individual functions that might be served by swearing. The goal of this review in addressing these questions is to provide a better insight into the functions of swearing behavior and to shed light on why people keep swearing, even when they have learned that swearing may be met with disapproval or negative consequences. To put it differently, this review will be primarily focused on mapping the functional aspects of swearing and its moderating factors.

The Evolution and Neurobiology of Swearing

Patrick (1901) refers to swearing out of annoyance or frustration as a primitive act of speech, comparable to the growling of animals. The growling of an animal communicates its emotional state, so other animals will be deterred from further action, and the resulting growling animal's stress level will subsequently be reduced. Relatedly, growling will also contribute to the inhibition of physical aggression towards other animals. In fact, growling can be regarded as an alternative behavior to an immediate attack. While attacking costs a lot of energy and can lead to severe physical damage, often it will be much more effective and less costly to deploy alternative methods like growling (Montagu, 1942). Swearing is thus thought to serve as a way to reduce an individual's own stress level (through the venting of strong emotions such as anger and frustration) and as a way to intensify communication (Ginsburg, Ogletree, & Silakowski, 2003). However, the empirical support for a catharsis effect of swearing is scant at best.

Pinker (2007) points to the possible relevance of the so-called "Rage circuit," which runs from a part of the amygdala down through the hypothalamus and subsequently in the gray matter of the midbrain. According to Pinker, the sudden activation of this system when confronted with pain or frustration may have a cathartic effect as a by-product. Alternatively, cathartic swearing may be considered as part of a more comprehensive linguistic phenomenon called ejaculations or response cries (Goffman, 1978). In this notion, cathartic swearing is regarded as an adaptation, especially meant to communicate that the situation we are confronted with deeply affects us, as evidenced by the display of strong emotions.

Interestingly, in regards to the neurobiology of swearing, although in the great majority of Western people the speech areas are located in the left hemisphere of the brain, several case studies demonstrate that brain areas associated with swearing are primarily located in the right hemisphere (Van Lancker & Cummings, 1999). However, if swearing is used purposefully in the context of a person's speech, the left hemisphere will also be actively engaged (Jay, 2000). More automatic or impulsive forms of swearing result from activity in the limbic system and basal ganglia of the brain. When these structures are damaged, this can lead to *coprolalia*, a condition in which a person frequently and uncontrollably utters swear words. This condition is also a symptom in some patients with Tourette's disease, in which swearing manifests as an uncontrollable tic, along with other sudden, repetitive, non-rhythmic movements or utterances (Van Lancker & Cummings, 1999).

The prefrontal cortex, known for its crucial role in regulating emotions (Quirk & Beer, 2006) has been shown to play a role in managing our "swearing etiquette",

in that this region is responsible for the evaluation of social situations and the inhibition of inappropriate behavior like swearing in certain contexts (Jay, 2000). In addition, the basal ganglia have been attributed a similar role (Pinker, 2007). Children develop this swearing etiquette, because swearing can trigger strong negative reactions in others, which can have negative repercussions for the swearing person. When this etiquette has developed sufficiently, children will learn to use swearing (as well as other behaviors) more selectively as a way to accomplish inter-individual goals in certain contexts. When the prefrontal cortex is damaged, such as in the case of an advanced stage of Alzheimer's disease and some other neurological disorders, the ability to inhibit inappropriate swearing becomes reduced (Jay, 2000).

Also potentially relevant to the development of swearing, Owren, Amoss, and Rendall (2011) make a distinction in animals between *production-first* and *reception-first* vocal development, each with a separate neural pathway. Emotional expressions (crying and laughing) might be strongly under the influence of the "production-first" pathway, whereas language is mainly connected with the "reception-first" neural pathways. Swearing might be an interesting example of the interaction between these two systems.

Motivational and Contextual Factors of Swearing

Andersson and Trudgill (2007) emphasized that swearing is an utterance of strong emotions. It is therefore expected to occur in situations in which a certain strong emotion emerges or when a person expresses a particularly strong attitude towards another person. Indeed, in a survey of over 200 college students, Jay, King, and Duncan (2006) found that anger and frustration were the most frequently mentioned emotions (53%), followed by humor (9%), and pain (6%). Previous research by Jay (2000) yielded similar results, with anger and frustration reported as the primary triggers of swearing (64%), followed by humor (12%), and surprise and sarcasm (5% each). Swearing can thus be regarded as an expression of both positive and negative emotions that involve significant intensity.

Further details regarding the context of swearing were revealed by Van Sterkenburg (2001) who asked over 600 respondents to describe the most common places and contexts in which swearing occurred. Remarkably, three out of four highest ranked places concerned a sports context: the soccer field, the sports canteen, and the locker room. Research by Rainey and Granito (2010) confirms the finding of swearing primarily occurring in a sports context, as a substantial percentage of athletes admit the regular use of swearwords. However, there were substantial individual differences, which will receive due attention later on.

An additional important contextual factor was examined by Daly, Holmes, Newton, and Stubbe (2004), who demonstrated the importance of factors related to the toleration of swearing in a particular context, namely the presence of others. These investigators recorded mutual conversations between colleagues in a New Zealand soap factory for 35 hours. These employees were divided into several different work teams. It turned out that when only an individual's own team members were present, swearing occurred more frequently than when members of other teams were also present. The swearing thus seemed to be connected with feelings of in group closeness.

Generally speaking, swearing is more tolerated in informal and private or in-group settings relative to more formal and public settings (Mercury, 1995). The formality of the situation in which swearing occurs matters (Johnson & Lewis, 2010). For example, Jay (1992) showed that students hardly swear in official or public contexts, such as the Dean's office, when there is a risk of losing one's status and respect. Relatedly, another characteristic of the context that may influence the reaction to swearing concerns the relationship between the swearing person and the listener in terms of differences in status or closeness (Jay & Janschewitz, 2008). In general, people of both genders are less likely to swear in the presence of a person with a higher status or in the presence of someone of the other gender. Other examples of verbally restrictive situations include the presence of new acquaintances, someone's own parents, or one's physician (Mercury, 1995). Further, swearing is typically not tolerated by others in the presence of children. On the other hand, there is currently also evidence of increased use of aggression and swearing in situations in which authority figures (e.g., police) or aid workers (firemen, ambulance personnel, emergency unit workers) are operating. More generally, health care professionals currently seem to be exposed increasingly to swearing and verbal aggression (e.g., Stone, McMillan, & Hazelton, 2010).

To summarize, swearing primarily occurs when the swearer experiences a strong emotion or when he or she wants to accomplish certain goals through swearing. In such an appropriate context, the risk of being subjected to negative reactions of others is less likely. The best suited context to swear seems to be an informal setting with familiar people of the same status and gender, such as in a sport club's locker room or in a pub with friends.

The Functions of Swearing

Intra-individual Functions

The conceptualization of swearing as a way to express intense emotions (e.g., frustration, aggression) suggests that it also may produce a catharsis effect (Patrick,

1901). In other words, expressing negative emotions may result in both tension reduction and aggressive drive reduction. This catharsis effect turned out to be the most frequently mentioned reason to swear in an investigation among 72 students (Rassin & Muris, 2005). Similarly, 16% of a group of over 200 students reported having experienced a feeling of stress relief after a swearing episode (Jay et al., 2006). According to Montagu (1967), annoyance or frustration swearing is more likely to occur when the swearer feels a high level of stress (Baruch & Jenkins, 2007). However, an overall lower life satisfaction and an associated state of elevated stress were not found to be associated with a higher swearing frequency (Rassin & Muris, 2005).

The catharsis effect may also explain why swearing might be an alternative for physical aggression. By "letting off steam" through swearing, feelings of anger and frustration can be reduced, resulting in a decreased probability of overt, physical aggression. In this way, swearing serves as a tool for the inhibition of physical aggression, which can prevent more severe consequences (Jay, 2009a; Montagu, 1942). However, Bushman and colleagues (Bushman, Baumeister, & Stack, 1999) demonstrated that venting anger may actually reinforce engagement in future aggression, rather than decreasing aggressive tendencies.

Although these intra-individual functions are mentioned frequently in the literature, actual research into the catharsis effect is confined to survey studies, as the ones mentioned earlier (Jay, 2009a; Johnson & Lewis, 2010). Experimental studies on the catharsis effect of swearing are needed to systematically evaluate this hypothesis and to provide insight into the underlying mechanisms of possible stress relief. However, in a relevant experimental study, Stephens, Atkins, and Kingston (2009) examined the effect of swearing on pain tolerance and pain perception by exposing 67 students to the cold-pressor test. More precisely, participants had to hold their hand in ice water as long as they can bear, and while doing this, they had to repeat a chosen swear word or a neutral word over and over again. It was found that participants could endure the painful stimulus longer in the swearing condition than when uttering a neutral word, and this increased pain tolerance was accompanied with a reduced pain perception and an elevated heart rate.

In a follow-up study, Stephens and Umland (2011) demonstrated with the use of the cold-pressor test that the pain reducing effect of swearing might be explained by the emotional reaction of the body to swearing. The reduced pain perception can be attributed to the increased physical arousal, very similar to the fight-flight response (Dong, 2010). This reaction can, however, bring about a negative effect when it occurs on a regular basis, which may interfere with psychological adjustment, as has been demonstrated in case of a chronic disease (Robbins et al.,

2011). Further, Stephens and Umland (2011) showed that a high swearing frequency reduced the pain lessening effect probably through habituation.

Inter-individual Functions

Besides the intra-individual functions of swearing, numerous inter-individual functions of swearing have been postulated, which typically refers to the interpersonal context. That is, what the person who swears conveys is dependent on the concerning interpersonal context of the message. One important question is why swearing is often not appreciated by others. In certain contexts, swearing generally elicits negative reactions in others, even though there are typically no obvious negative effects found in terms of harm to the swearer, listener or society (Jay, 2009a).

Since swear words are based on a culture's taboo categories, and these words can be judged as shocking, swearing people are often considered to be antisocial and offensive. As a consequence, swearing can thus negatively impact the swearing individual's social status and how that individual is perceived by others (Stapleton, 2010). Johnson and Lewis (2010) demonstrated that the evaluation of swearers is subject to an 'expectancy-violations explanation,' which implies that individuals who swear are judged negatively in contexts where swearing is not anticipated. Violation of the norms of the context may lead to negative judgments by others, which will inhibit most people from swearing.

As alluded to earlier, swearing also has a communicative function. If someone swears, the environment is warned of the emotional state of the swearing person. It can thus serve as an alarm signal of potential threat for others, just like any other sign of anger. Indeed, both verbal and physical aggression are often accompanied by swearing (Rassin & Muris, 2005). Moreover, swearing may suffice to cause others to discontinue their ongoing activities.

Related to the communicative function of swearing, this behavior can also indicate that the swearing person has a problem managing his or her emotions. As a consequence of the taboo character of swearing, many other people will mainly focus on the used taboo words. Therefore, the person who swears runs the risk of deterring other people. As a consequence, these individuals may become socially isolated, which eventually may lead to feelings of rejection and depression (Robbins et al., 2011). Although it is evident that someone who swears can evoke fear and hostility in other people, possibly at the expense of his or her reputation, it turns out that swearing can also elicit certain positive reactions in others, as detailed below.

A further determined inter-individual function of swearing concerns the increase of credibility. Rassin and Van der Heijden (2005) reported on relationship

between swearing and (perceived) credibility and demonstrated that when exposed to fictitious testimonies of a suspect and a victim, people tend to judge versions containing swearwords as more credible than statements in which swearwords are lacking. In contrast, Scherer and Sagarin (2006) found no effects of swearing on the perceived credibility in an investigation in which subjects had to judge a speech. Swearing did however influence other perceived characteristics of the speech, such that swearing at the beginning or the end of the speech resulted in a higher rated intensity and a more positive perspective concerning the topic of the speech, compared to the speech without swearwords. Jay (1992) earlier proposed that swearing in an inappropriate context may lead to lower ratings of credibility and persuasiveness of the speaker. Thus, the effects of swearing, again, turn out to be highly dependent on its context: in an appropriate context swearing may raise a speaker's credibility and persuasiveness, because it is an expression of emotions and for that reason seems more genuine and honest to other people.

The intensity of a speech, which is increased by swearing, can also enhance its effectiveness (Howell & Giuliano, 2011). For example, criticism of a sports coach can be judged as less effective when it contains multiple swearwords, compared to a speech without these swearwords. On the other hand, the use of swearwords in coaching itself can, in fact, lead to a higher rated effectiveness of the coach, though this effect was only found for male sports teams.

A further inter-individual function of swearing depends upon the specific interpersonal context, including the composition of the group in which swearing occurs. As mentioned earlier, Daly et al. (2004) examined conversations of a team of colleagues of a New Zealand soap factory and demonstrated a high frequency of swearing within the teams. Collective swearing, mainly out of frustration or dissatisfaction with regard to their job, boosted the social connectedness of these group members. Non-members were only allowed to participate in the subculture of the group if they expressed their solidarity with the group colleagues by swearing and thereby complying with its norms (Daly et al., 2004). Because of this positive effect of swearing on the mutual solidarity between colleagues and the associated improvement of the work atmosphere, Baruch and Jenkins (2007) suggest that managers should adopt a rather permissive leadership style with respect to swearing. Similarly, among groups of adolescents, swearing is often used as a sign of solidarity (Stapleton, 2010). In this way, swearing can be used in a positive way to express a personal or group identity (Stapleton, 2010), whereby people can convey that they have a certain identity and are part of a certain group by swearing or not swearing. Another example of this is the way in which editors of a men's magazine, for example, can emphasize its masculine identity by using

swearwords in the text, since swearing is perceived as a symbol of masculinity (Benwell, 2001).

Given the informal character of swearing, it can also be used to create an informal atmosphere, such as in a stand-up comedy act, in conversations about sex, or when telling stories (Jay, 2009b; Seizer, 2011). When used in a setting, like in a stand-up comedy act, the use of swearwords can signal that certain usual taboos are momentarily inapplicable. In that way, it is possible to achieve an elevated state of hilarity in public, as the use of swearwords implies that it is permitted to lose control and gain a sense of "letting go".

The use of swearing in humor may, however, also result in negative reactions of others, particularly when the humor used is offensive to an individual or group. Because of the powerful nature of swear words, they can make an utterance more offensive relative to when no swearwords are used. Therefore, swearing is especially functional when the purpose is to verbally "hurt" another person (Jay, 2000). Sexual intimidation, discrimination, and verbal abuse, all are often accompanied with swearwords (Jay, 2009b). Research by Rainey and Granito (2010) has demonstrated that the use of swearing for the purpose of insulting other people is used by athletes in order to belittle their opponents and boost up themselves to improve their own performance.

In conclusion, it seems that swearing serves multiple intra-individual as well as inter-individual functions. This functionality is strongly dependent on contextual factors. In the short-term, swearing can elicit fear and hostility in others. In the long-term, it can even result in a loss of social status and a decrease in emotional support. In addition, for some people, swearing may become a habit, probably no longer serving any function at all (Rassin & Muris, 2005; Rassin & Van der Heijden, 2005; Van Lancker & Cummings, 1999). Table 1 summarizes the primary intra-individual and inter-individual effects of swearing.

Table 1. *Possible Interpersonal Effects of Swearing*

Effects of swearing	Positive	Negative
<i>Intra-individual</i>	- Stress relief - Pain reduction - Inhibition of aggression - Confidence	- Negative affect
<i>Inter-individual</i>	- Stops unwanted behaviors - Signaling function - Credibility - Persuasiveness - Group binding - Identity marker - Humor elicitation	- Fear - Hostility - Decreased social support - Loss of status - Insult

There are good reasons to support the idea that there are large individual differences in swearing. Apparently, people differ in the level of development of their swearing etiquette or in the degree to which they comply with their swearing etiquette. Obviously, cultural and social learning factors are involved, but what about the impact of personality factors? An individual's personality characteristics may also determine the ease by which a person swears or doesn't swear. It might be expected that highly impulsive or emotional people will swear more often, because they will have more trouble complying with their swearing etiquette (Jay, 2000). Connections have also been reported, among others, with hostility, sexual anxiety, and religiosity (Jay, 2009a).

In line with these expectations, people with low scores on the personality characteristics agreeableness and conscientiousness, or with high scores on extraversion, are most likely to swear (Fast & Funder, 2008; Jay, 2009a). In addition, people with a high degree of hostility, such as individuals with a Type-A Personality and antisocial personality have been shown to swear more often than the average individual (Jay, 2000, 2009a). On the other hand, people whose personality is characterized by sexual anxiety and sexual repression or religiosity, may swear less often than other people (Jay, 2009a). Because of the small amount of research on the relationship between personality and swearing, more studies on this topic are needed.

In addition to individual differences, there are also considerable group differences in swearing. Patrick (1901) concluded that swearwords are primarily used by soldiers, sailors, laborers, uneducated people, and criminals. Swearing currently still seems to be a widespread phenomenon in mainly lower social-economic classes of society (McEnery, 2006). Lower class individuals are relatively resistant to negative reactions of other people, since they do not run the risk of a diminished social status (Jay, 2000). Also students and adolescents seem to swear a lot, since they have little power and status and therefore cannot lose them either. In addition, policemen, soldiers, athletes, psychiatric patients and delinquents are explicitly mentioned as groups well-known for their frequent swearing (Jay, 2009a).

Gender effects are the most frequently investigated group difference in swearing (Johnson & Lewis, 2010). As just shown, the occupational groups in which swearing is common, appear to be professions that are mainly occupied by men. According to Jay (2000), individuals having high scores on the trait of masculinity will also swear most frequently. Thus, swearing has long been defined as primarily a masculine behavior.

Several studies indeed confirm that men do swear more than women (Jay, 2000; Jay et al., 2006) and that boys begin to swear at earlier ages than girls

(Johnson & Lewis, 2010). Moreover, compared to women, men know more swear words and use more swear words (Jay, 2000). Women report that they swear less than men and regard swearing on television or in newspapers as less appropriate (Johnson & Lewis, 2010). A possible explanation for this gender difference is that women are better aware of social situations and the social consequences of swearing than men are (Jay & Janschewitz, 2008). Furthermore, swearing by women might be judged by others as a stronger violation of the norm, because swearing is regarded as a characteristically masculine behavior, whereas women are expected to be more affiliative and tend to cry more when experiencing frustration or helplessness (Baruch & Jenkins, 2007; Vingerhoets, 2013). Strong violations are often disapproved by other people (Blake, 1952), which would explain why women have been more prone to avoid swearing.

In more recent publications, however, the presumed masculine character of swearing is challenged. It is suggested and that there are now no gender differences at all in swearing frequency (Jay et al., 2006; Johnson & Lewis, 2010; Stone & Hazelton, 2008). In nursing homes, female residents swore even more than male residents (Jay et al., 2006). Women also tend to swear more than men in gender-mixed company (Baruch & Jenkins, 2007). Differences between men and women in swearing behavior seem to be dependent on contextual factors. Given these insights, one may even wonder about the presumed masculine character of swearing, which could have been arisen because women were expected not to swear, not because they actually swore less often (Coates, 1986).

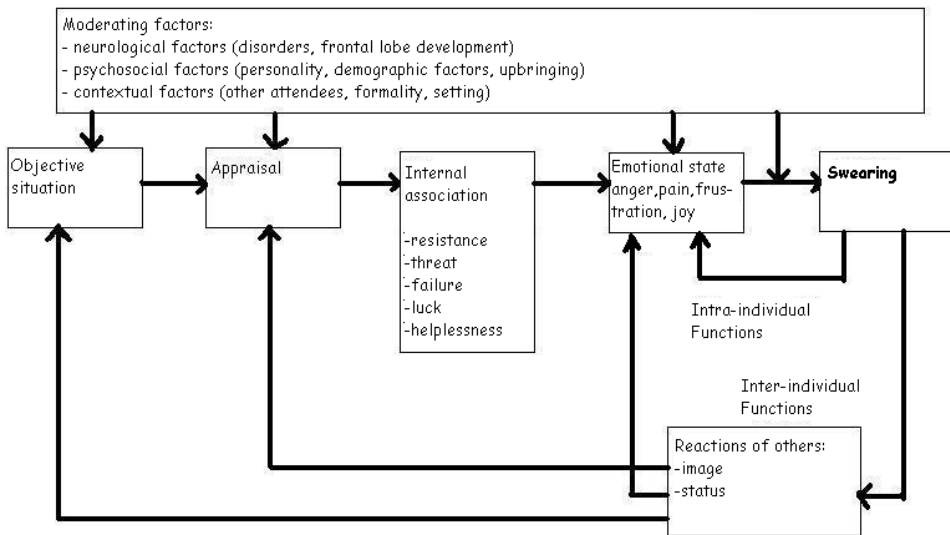
Why some individuals swear in certain situations and not in others also depends on how they perceive the situation. This appraisal of the objective situation determines the kind and intensity of the emotion that is activated (Frijda, Kuipers, & Ter Schure, 1989). When an individual experiences certain intense emotions, they can be expressed by swearing, although this is not necessarily the case. The expression by swearing may further be dependent on the individual's personality and the wider social context, whether it is felt appropriate to swear in such a situation.

Towards a Model of Swearing

Montagu (1942) considers swearing in adults to have the same function as crying by younger children out of frustration. Montagu further suggests that laughing, crying, and swearing are reciprocally related, because all these primitive outbursts of emotion may bring about a catharsis effect and can serve inter-individual goals. The apparent correspondences with crying are remarkable and interesting. Crying and swearing are both connected with a variety of intense

(mainly negative, but also positive) emotions, and both are hypothesized to serve intra- and inter-personal functions. And for both behaviors, biological and cultural factors seem to be relevant. Vingerhoets, Cornelius, Van Heck, and Becht (2000) have introduced a model illustrating the role of biological, psychosocial and contextual factors involved in crying.

Figure 1. *A Proposed Model of Swearing.*
Adapted from Vingerhoets' et al. (2000) Model of Crying



Given these remarkable similarities, we propose a model of swearing based on Vingerhoets et al.'s (2000) crying model (see Figure 1). The core of the model is a cognitive emotion model, with its key characteristic being appraisal of the objective situation. Appraisal here refers to the individual's judgment regarding whether the situation is or is not personally relevant. When a situation is deemed personally relevant, the appraisal process continues with the evaluation of the situation in terms of positive or negative, threat, challenge or loss, who is responsible, etc. This appraisal process is influenced by biological, psychosocial, and contextual factors (Frijda et al., 1989; Vingerhoets, 2013; Vingerhoets et al., 2000). Specific appraisal patterns subsequently result in specific emotions like anger, frustration, disappointment or sadness.

When someone experiences a certain intense emotion, this emotion can or cannot be expressed by swearing, dependent on several factors, which have been reviewed here. The model further shows that swearing may serve *intra*-individual

and *inter*-individual functions. Swearing may thus influence the emotional state of the swearing person him- or herself, as well as the emotional state of others. Reactions of those other people in their turn may also influence the emotional state of the swearing person, as well as his appraisal of the objective situation itself.

As shown above, swearing can also bring about positive reactions in others, for example when swearing out of dissatisfaction leads to more group binding. This group binding in its turn can positively influence the emotional state of the person who swears. Also this group binding may lead to support by others, which may change the appraisal by the swearing person as well as the objective situation. In addition, swearing can evoke negative reactions in others. For example, an aggressive reaction by another person may lead to fear instead of the previously felt frustration, which may cause a threatening situation. When swearing drives away other people, the emotion-provoking factor may sometimes also disappear. This all may result in an emotional state of the swearer person that has turned back to a baseline level.

Conclusion

This review addresses several important questions regarding swearing. What motivates people to swear? Which social factors are of influence for an individual's swearing behavior? What intra- and inter-individual functions are served by swearing? What kinds of individuals will swear more or less? The presented model, based on Vingerhoets et al.'s (2000) crying model may be helpful in unraveling various key factors relevant for crying.

One of the most notable characteristics of swearing is its involvement in the expression of strong emotions, either positive or negative, such as anger, frustration or joy. As made clear by the model, the appraisal of the objective situation by the individual is of extreme importance. Additional contextual and personal factors will determine whether this emotion is expressed by means of swearing. The relationship between the swearer and others in the social context, the formality of the situation, and the public or private nature of the situation are examples of such contextual factors that can influence the functionality of swearing.

By its strong expressive power, swearing may provide a sense of stress relief and can function as a replacement behavior for physical aggression. There is also some evidence to suggest that swearing may provide a higher pain tolerance for the person who swears, though the precise mechanisms for this remain unclear.

In addition to these intra-individual functions, swearing also serves several important inter-individual functions. For example, swearing may inhibit unwanted

behaviors of others, or may influence how positively a speaker's persuasiveness and credibility is perceived. Swearing can further convey a sense of solidarity and stimulate group binding, or it can be used as a clarification of a certain group identity. In addition, swearing can elicit humor, create an informal atmosphere, or make people feel better by belittling or verbally "hurting" other people. However, because of its powerful nature, swearing may also cause negative effects for the swearing person. For example, frequent swearing may lead to a loss of image of the person who swears and even may lessen the swearer's social support.

Demographic factors, such as gender or age can influence a person's swearing behavior. Although swearing was long considered a predominantly masculine activity, women now tend to swear as much, or even more often, than men. People of lower socio-economic status also appear to swear more often. Swearing or not swearing in a certain situation is also dependent on a person's education and the toleration of swearing by that person's parents. Furthermore, personality is a determinant—people with an antisocial personality swear more often than others, whereas people who would have high scores on religiosity, sexual anxiety, or repression seem to swear less frequently. Certain neurological diseases, like Alzheimer's disease or Gilles de la Tourette's syndrome, also increase an individual's swearing behavior.

The model presented here thus might be helpful in formulating hypotheses and designing studies to investigate the proposed connections and to reveal new relationships. Future studies should pay more systematic attention to the possible harmful effects and aversive reactions of others for the swearing person, which have not yet been examined by the current literature. Indeed, Jay (2009b) suggests that swear words can "hurt" other people, although this is highly dependent on contextual factors and the intentions of the swearer. Findings regarding the possible harmful effects of swearing could then be integrated in our model of swearing. Whereas there is ample research on other forms of emotional expression, it is surprising that this specific frequent emotional expression has received so little attention from the scientific community.

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