

1 Article

2 Personality and the moderating effect of mood on 3 verbal aggressiveness risk factor from work activity

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18

19 **Abstract:** One of the trends in current research in psychology explores how personal variables can
20 determine a person's communication style. Our objective was to find out the moderating effect of
21 Mood in the relationship between the five big personality traits and an aggressive verbal
22 communication style risk factor from work activity in a sample of nursing professionals. This study
23 is a quantitative descriptive design. The final sample was 596 nurses with a range of 22 to 56 years.
24 An ad hoc questionnaire was used to collect sociodemographic data, the 10-item Big Five
25 Inventory, the Communication Styles Inventory, and the Brief Emotional Intelligence Inventory for
26 Senior Citizens. This study showed that for nursing professionals, the "Agreeableness",
27 "Conscientiousness" and "Neuroticism" traits have a close relationship with aggressive verbal
28 communication. Even though Mood moderates this relationship, it is only significant for those
29 individuals with high scores in "Neuroticism". Because personality dimensions are considered
30 relatively stable over time and consistent from one situation to another, organizations should hold
31 workshops and other types of practical activities to train workers in communication skills and
32 Emotional Intelligence in order to promote employee health and that of their patients and avoid
33 risk factor from work activity in nursing.

34 **Keywords:** personality; emotional aspects; communication; work activity.

35

36 1. Introduction

37 Communication is a basic function of human beings, of vital importance for developing
38 interpersonal relationships and for groups, organizations and society to function well [1, 2]. Since
39 the 70s, considerable academic and professional attention has been given the study of
40 communication styles due to their practical relevance in any setting in which "*Transfer of personal*
41 *information, knowledge, ideas, opinions and feelings play a fundamental role*" (p. 507) [3]. As a result of this
42 scientific interest, the study of communication styles has undergone an increase in recent decades,
43 with a diversity of lines of research emerging which have examined the phenomenon in different job
44 contexts (e.g., education, organization, healthcare) [4-7]. Moreover, its importance in clinical and
45 health contexts has been underlined in the literature. For example, effective communication styles

46 between nursing professionals and their patients positively influence the health, satisfaction and
47 safety of the patient [8-10].

48 The communication style concept was originally introduced by Norton [11] to refer to "*The*
49 *verbal and nonverbal interaction with signs which have literal meaning and must be understood, filtered and*
50 *interpreted*" (p. 99). Verbal aggressiveness [3], widely studied by Infante et al. [12, 13], refers to a
51 destructive communication style (taunts, threats, hostility, etc.) characterized by the use of a hostile
52 language, lacking in affect and authoritarian, which does not facilitate dialogue and can cause
53 psychological damage to those who receive the message, in addition to negatively influencing the
54 quality of interpersonal relationships [14].

55 One of the trends in current research in psychology explores how personal variables, such as
56 personality, can determine a person's communication style [2, 15, 16]. This influential line has
57 developed based on the theoretical basis of the Big Five Personality Traits Model (Five-Factor
58 Theory of Personality) [17, 18]. From this perspective, it is understood that individuals develop a
59 certain communication style according to their personality traits and the influence of social and
60 cultural factors [7, 19].

61 In the literature reviewed, low levels of "agreeableness" and "conscientiousness" and high
62 levels of "neuroticism" have been found to predict counterproductive behaviors in the workplace,
63 specifically, the use of aggressive verbal language with coworkers and clients [20-22]. In the study by
64 Grumm & von Collani [23] verbal aggressiveness was shown to be positively related to a personality
65 profile characterized by high levels of "neuroticism" and low "extraversion", "agreeableness",
66 "conscientiousness" and "openness to experience": Similarly, Barlett & Anderson [24] found the
67 dimensions "Agreeableness" "Openness to experience" and Neuroticism" to be the best predictors
68 of a wide range of violent behaviors, while authors such as Xie, Chen, Lei, Xing, & Zhang [25]
69 demonstrated that all the personality traits except "Neuroticism", could predict prosocial behavior.

70 In addition to the above, some studies have explored the role of emotions with regard to
71 aggressive behavior. One of the constructs studied most is Emotional Intelligence (EI), referring to
72 those skills which people have for understanding, perceiving and adaptively regulating their own
73 emotions and those of others [26]. Some empirical studies have shown a significant relationship
74 between low EI and aggressive verbal behavior [27, 28].

75 Guo, Sun and Li [29] found that EI functions as a mediator between neuroticism and prosocial
76 behavior. However, a relationship has also been found between the five personality traits and EI,
77 especially with "Responsibility" and "Neuroticism" [30, 31]. It has been suggested that EI is
78 determinant for achieving personal and social success as well. Thus people who manage their
79 emotions adequately can cope with conflictive situations in an adaptive manner [32].

80 It has likewise been shown that positiveness and optimism ("Mood") [33] favor positive
81 interpretation of potentially stressful situations, contributing to improving their perception of their
82 ability to control their surroundings, and thereby, their wellbeing [34-36]. However, the relationship
83 between positiveness and wellbeing is stronger in persons with high scores on "Extraversion",
84 "Agreeableness" and "Conscientiousness" [37].

85 Our objective was to find out the moderating effect of Mood in the relationship between the five
86 big personality traits and an aggressive verbal communication style in a sample of nursing
87 professionals.

88 2. Materials and Methods

89 2.1. Participants

90 The original sample was 619 nursing professionals, but 23 were discarded (19 because random
91 answers were detected by the control questions, and four because they had not completed the entire
92 battery of questionnaires), leaving a final sample of 596 nurses.

93 The mean age of the participants was 31.53 ($SD=6.55$) in a range of 22 to 56 years. The sex
94 distribution in the sample was 83.7% ($n=499$) women and 16.3% ($n=97$) men, with a mean age of 31.56
95 ($SD=6.62$) and 31.38 ($SD=6.21$), respectively. The marital status of the participants was 53.7% ($n=320$)

96 single, 44.3% ($n=264$) married or stable partner, 1.8% ($n=11$) divorced or separated and 0.2% ($n=1$)
97 widow. Their employment situation at the time of the study was distributed as follows: 72.1%
98 ($n=430$) were working with a part-time contract and 27.9% ($n=166$) with a stable contract.
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100 2.2. Instruments

101 An ad hoc questionnaire was used to collect sociodemographic data from the participants (age,
102 sex, marital status), and also their current employment situation.

103 The 10-item Big Five Inventory (BFI-10) [38] as applied for the personality dimensions. This is a
104 brief version of the BI-44 scale [39, 40], developed to provide a personality inventory for research
105 with time limitations. It enables the Five Big Personality Factors (Extraversion, Conscientiousness,
106 Agreeableness, Neuroticism, and Openness to Experience). Previous studies have demonstrated that
107 the BFI-10 has psychometric properties comparable in size and structure to the complete BFI-10
108 scale. There are findings that back BFI-10 factor validity, construct validity and criterion validity [38,
109 41, 42].

110 In addition, the Communication Styles Inventory [43] consists of 96 elements for evaluating
111 communication behaviors. The items are divided in equal parts on six domain scales (16 items per
112 scale): Expressiveness, Preciseness, Verbal Aggressiveness, Questioningness, Emotionality and
113 Impression Manipulativeness. Each of the domain scales has four facets, and each of these has four
114 elements. The items are answered on a Likert-type scale with answer choices from 1 (completely
115 disagree) to 5 (completely agree). The authors reported Cronbach's alpha on the scales varying from
116 .82 to .88 in a sample from the general population and .83 to .87 in a sample of students. In this case,
117 we used the Verbal Aggressiveness scale with a Cronbach's alpha of .78.

118 Finally, to measure mood, we used the scale with the same name included in the Brief
119 Emotional Intelligence Inventory for Senior Citizens (EQ-i-20M) [44] validated and scaled by the
120 authors for an adult Spanish population, adapted for adults from the Emotional Intelligence
121 Inventory: Young Version (EQ-i-YV) by Bar-On & Parker [45]. It consists of 20 items with four
122 answer choices arranged on a Likert-type scale. It is structured in five factors: Intrapersonal,
123 Interpersonal, Stress management, Adaptability and Mood. The Cronbach's alpha for the Mood
124 scale used in this study was $\alpha=.88$.

125 2.3. Procedure

126 Before collecting data, the participants were guaranteed compliance with information,
127 confidentiality and ethical standards in data processing. The study was approved by the Bioethics
128 Committee of the University of Almería. The questionnaires were implemented on a Web platform
129 which enabled the participants to fill them out online. A series of control questions were included to
130 detect random or incongruent answers, which were then discarded from the study sample.

131 2.4. Data analysis

132 This study is a quantitative descriptive design. The article includes as well valuable
133 recommendations for the revision of STROBE. First, frequency analyses were done to find out the
134 distribution of the sample according to the sociodemographic variables, descriptive analyses and
135 Pearson's correlation coefficient to identify the interaction between the variables in the study. A
136 stepwise multiple linear regression analysis was performed based on these data. SPSS v.23 statistical
137 software was used for these analyses. Then a simple moderation analysis was done to identify how
138 Mood moderates each of the dimensions of personality included in the regression analysis as
139 predictors of Verbal aggressiveness. The SPSS macro was used to compute simple moderation effect
140 models [46]. Bootstrapping with 5000 bootstraps was used to estimate coefficients.

141 3. Results

142 Table 1 shows the descriptive statistics and correlations between the study variables. A
 143 significant association was observed between Verbal aggressiveness and most of the personality
 144 factors. Specifically, there was a positive correlation with Neuroticism ($r=.30, p<.001$) and negative
 145 with Agreeableness ($r=-.35, p<.001$), Conscientiousness ($r=-.34, p<.001$), and Openness to Experience
 146 ($r=-.13, p<.01$). Mood correlated negatively with Verbal aggressiveness ($r=-.40, p<.001$).
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Table 1. Descriptive Statistics and Correlations

	M	SD	1	2	3	4	5	6	7
1. Verbal aggressiveness	2.19	.45	–						
2. Extraversion	3.29	.81	-.03	–					
3. Agreeableness	3.98	.60	-.35***	.02	–				
4. Conscientiousness	3.71	.66	-.34***	.15***	.16***	–			
5. Neuroticism	2.73	.82	.30***	-.10**	-.14***	-.24***	–		
6. Openness to experience	3.48	.75	-.13**	.62***	.16***	.27***	-.09*	–	
7. Mood	2.96	.62	-.40***	.08*	.23***	.36***	-.40***	.23***	–

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151 The analysis of interaction between variables found correlations of Mood with all the
 152 personality factors: positive with Extroversion ($r=.08, p<.05$), Agreeableness ($r=.23, p<.001$),
 153 Conscientiousness ($r=.36, p<.001$) and Openness to experience ($r=.23, p<.001$), and negative with
 154 Neuroticism ($r=-.40, p<.001$).

155 3.1. Predictors of Verbal Aggressiveness in nursing personnel

156 As shown in Table 2, the regression analysis found four models, the last of which had the most
 157 explanatory capacity with 28.2% ($R^2=.28$) of the variance explained by the factors included in the
 158 model (Agreeableness, Mood, Conscientiousness and Neuroticism).
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Table 2. Stepwise Multiple Linear Regression Model for Verbal Aggressiveness

Model	R	R ²	corrected R ²	Change statistics				Durbin Watson	
				Standard error of estimation	Change in R ²	Change in F	Sig. of change in F		
1	.40	.16	.15	.42	.16	113.01	.000	1.94	
2	.48	.23	.22	.40	.07	54.88	.000		
3	.51	.26	.26	.39	.03	29.35	.000		
4	.53	.28	.27	.39	.01	12.00	.001		
Model 4		Non-standardized coefficients		Standardized coefficients		t	Sig.	Collinearity	
		B	Standard Error	Beta				Tol.	VIF
(Constant)		3.70	.16			22.06	.000		
Mood		-.15	.03	-.21		-5.35	.000	.74	1.35
Agreeableness		-.19	.02	-.25		-6.96	.000	.93	1.06
Conscientiousness		-.13	.02	-.19		-5.07	.000	.84	1.17
Neuroticism		.07	.02	.13		3.46	.001	.82	1.21

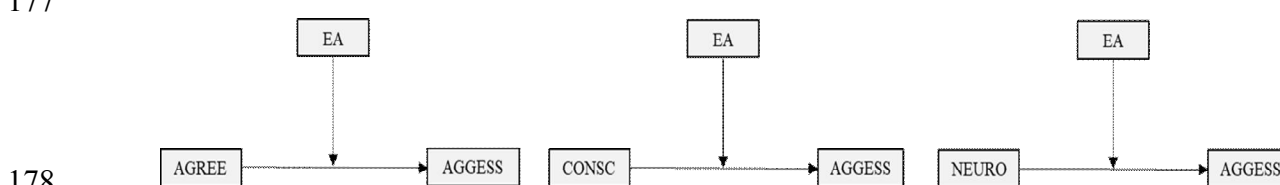
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162 To confirm the validity of the model, residual independence was analyzed. The Durbin-Watson
 163 D was =1.94, which confirms absence of positive and negative self-correlation. Furthermore, it may

164 be observed how the t was associated with a probability of error below .05 in all cases. The
 165 standardized coefficients reveal that the variable with the most explanatory weight was
 166 Agreeableness, followed by Mood. Finally, from the tolerance and VIF, absence of collinearity
 167 among the variables included in the model may be assumed.
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169 3.2. The moderating effect of Mood on the predictive value of the dimensions of personality for Verbal 170 aggressiveness

171 According to Hair, Anderson, Tatham, & Black [47], moderating relationships entered could
 172 modify interpretation of the regression coefficients. The coefficients of the effects of each of the
 173 independent variables (Agreeableness, Conscientiousness and Neuroticism), the moderating
 174 variable (Mood) and the interaction term on the dependent variable (Verbal aggressiveness) were
 175 estimated based on simple moderation models. The figures below present the simple moderation
 176 models proposed for their analysis.
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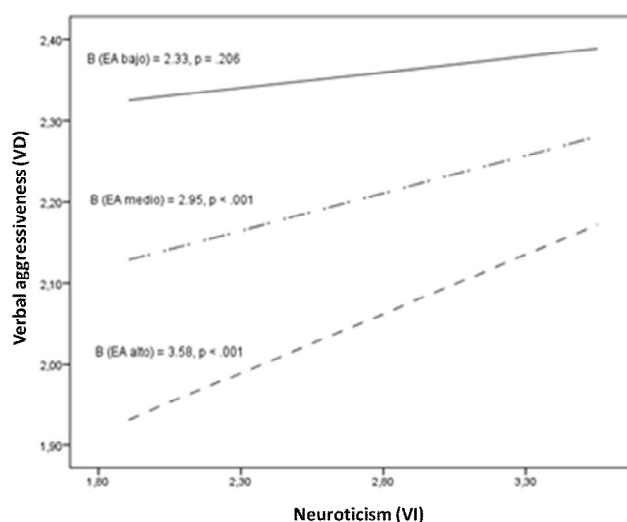


179 **Figure 1.** Simple moderation models proposed.

180 The results of Model 1 report a statistically significant effect of Mood ($B_{e_mood} = -.40, p < .01$) and
 181 Agreeableness ($B_{afab} = -.32, p < .01$) on Verbal Aggressiveness. However, in this case, the coefficient of
 182 the interaction term is not significant ($B_{aree \times e_mood} = .04, p = .30$). Model 2, which takes
 183 Conscientiousness as the independent factor, had similar results: a statistically significant effect on
 184 Verbal Aggressiveness, both on the independent variable ($B_{cons} = -.26, p < .05$), and the variable
 185 considered a moderator ($B_{e_mood} = -.35, p < .05$), but with no statistical significance on the interaction
 186 term coefficient ($B_{cons \times e_mood} = .03, p = .38$).

187 In Model 3, the effect of Mood on Verbal aggressiveness is statistically significant ($B_{e_mood} = -.47,$
 188 $p < .001$), while the same is not true of the effect of Neuroticism ($B_{neuro} = -.16, p = .10$). However, in this
 189 case, the interaction term coefficient is significant ($B_{neuro \times e_mood} = .08, p < .01$), which shows that there is
 190 a moderation effect, where Mood conditions the effect of Neuroticism on Verbal aggression.

191 Then, using Pick-a-Point approach, the prediction of Neuroticism on Verbal aggressiveness was
 192 calculated for low, medium and high Mood. This shows the conditional effect of the independent
 193 variable on the dependent variable at different moderator strengths. Thus the results shown in
 194 Figure 1 suggest that the influence of the moderator variable comes about at medium ($B = 2.95,$
 195 $p < .001$) and high ($B = 3.58, p < .001$) Mood. This implies that the moderating effect of Mood takes place
 196 when it becomes medium-to-high.
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Figure 2. Interaction between Neuroticism and Mood in predicting Verbal aggressiveness.

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Finally, the data found after application of the Johnson-Neyman technique makes it possible to establish a wider range of moderator values and specify its involvement in the effect the independent variable exerts on the dependent variable. That is, when does the effect of the moderator begin to be significant? Specifically, when the Mood score is greater than or equal to 2.50 (76% of the participants), Neuroticism induces a stronger tendency toward Verbal aggression.

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4. Discussion

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This study showed that for nursing professionals, the “Agreeableness”, “Conscientiousness” and “Openness to experience” factors maintain a significant negative relationship with the verbal aggressiveness communication style. On the contrary, it was found that the “Neuroticism” trait has a close relationship with this disruptive style of communication, negatively affecting the nurse-patient relationship [8, 9].

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These results confirm what has previously been found in other studies suggesting that there is a close relationship between personality and verbal aggressiveness [20, 22, 23, 25]. For instance, Bolton et al. [21] showed that workers with low levels of “Agreeableness” and “Conscientiousness” and high in “Neuroticism” were more prone to use verbally aggressive language with their coworkers and clients. Similarly, Barlett & Anderson [24] demonstrated that “Agreeableness”, “Openness to experience” and “Neuroticism” are associated with a wide range of violent behavior.

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The data from our study also show a negative relationship between verbal aggressiveness and “Mood”. These results confirm previous studies [28, 32], which have underlined the importance of adaptively regulating emotional information in social and work situations and avoiding aggressive behaviors. Along this line, it has been shown that positiveness and optimism are essential for interpreting potentially stressful situations more positively, especially in such emotionally and psychologically challenging professions as nursing [34, 35].

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Moreover, our data have also revealed a significant positive relationship between “Mood” and all of the personality traits, except for the “Neuroticism” dimension, which it has a negative relationship with. These results are consistent with previous studies, such as the meta-analysis by O’Boyle et al. [31] who found that EI had a significant positive relationship with “Extraversion”, “Openness to experience”, “Conscientiousness” and “Agreeableness”, while it was the opposite with “Neuroticism”. Joseph et al. [30] emphasized the relationship between “Conscientiousness”, “Extraversion” and Neuroticism with EI, as did Lui et al. [37], who demonstrated that “Mood” predicted wellbeing in individuals with high scores in “Extraversion”, “Agreeableness” and “Conscientiousness”.

234 According to our moderation analysis, “Neuroticism” alone would not have a significant direct
235 effect on verbal aggressiveness. However, it begins to be significant in interaction with “Mood”. In
236 fact, “Mood” modulates the effect of personality on verbal aggressiveness more strongly as
237 positiveness and happiness increase. These results agree with previous studies where it was
238 proposed that personality traits partially determine communication styles [7]. Therefore,
239 emotionally unstable persons faced with stressful situations tend to develop a negative
240 communication style. However, only those with a positive attitude will be able to buffer the negative
241 effects of their personality trait on the way they communicate [29].

242 This study has important practical implications for the job context. The relationship between
243 personality traits and aggressive verbal communication must be emphasized as well as the
244 important effects EI has on this relationship. Because personality dimensions are considered
245 relatively stable over time and consistent from one situation to another [7], organizations should
246 hold workshops and other types of practical activities to train workers in communication skills and
247 EI in order to promote employee health and that of their patients.

248 In like manner, the following limitations should also be considered. In the first place, the
249 sample is made up of a majority of women, so the results may not be extensive to both genders. In
250 the second place, the results cannot be generalized to the whole area of healthcare because the
251 sample used is very specific, so it would be recommendable to enlarge the sample with other
252 professionals. Finally, as the study design did not allow it to be established whether the
253 relationships between the variables are stable over time, it would be interesting to carry out
254 longitudinal studies to delve more deeply into the study of the influence of personality traits on
255 communication style.

256 Future studies should widen the set of variables used in this one, that is, include aspects related
257 to the characteristics and working conditions (e.g., work areas, shifts, type of patient), in addition to
258 considering all the facets of Emotional Intelligence and including other personal constructs, such as
259 self-efficacy, for example.

260 5. Conclusions

261 In recent decades, there has been an exponential increase in scientific publications in which
262 nursing professionals and avoid risk factor from work activity have been the subject of study. This
263 interest derives from the characteristics and job context where they carry out their functions, as well
264 as the important consequences and effects that their behavior has on the wellbeing of the patients
265 and the organization.

266 Our study was interested in evaluating the moderating effect of Mood on the relationship
267 between personality and verbal aggressiveness. The “Agreeableness”, “Conscientiousness” and
268 “Neuroticism” traits have a close relationship with aggressive verbal communication. Even though
269 Mood moderates this relationship, it is only significant for those individuals with high scores in
270 “Neuroticism”.

271 .
272 **Author Contributions:** M.M.M.J., M.C.P.F., A.B.B.M., M.M.S.M., and A.M.M. contributed to the conception and
273 design of the review. J.J.G.L. applied the search strategy. All authors applied the selection criteria. All authors
274 completed the assessment of risk of bias. All authors analyzed the data and interpreted data. M.M.M.J.,
275 M.C.P.F., A.B.B.M., M.M.S.M., and A.M.M. wrote this manuscript. M.C.P.F. and J.J.G.L. edited this manuscript.
276 M.C.P.F. is responsible for the overall project.

277 **Funding:** This research received no external funding.

278 **Acknowledgments:** The present study undertaken in collaboration with the Excm. Diputación Provincial de
279 Almería.

280 **Conflicts of Interest:** The authors declare no conflict of interest.

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