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PRIMARY AND SECONDARY EMOTIONS AS AN INSTRUMENT TO MEASURE IMPLICIT PREJUDICE

BASIC RESEARCH PROGRAM

WORKING PAPERS

**SERIES: PSYCHOLOGY
WP BRP 110/PSY/2019**

This Working Paper is an output of a research project implemented at the National Research University Higher School of Economics (HSE). Any opinions or claims contained in this Working Paper do not necessarily reflect the views of HSE

PRIMARY AND SECONDARY EMOTIONS AS AN INSTRUMENT TO MEASURE IMPLICIT PREJUDICE⁴

The article presents the results of the selection of relevant to the Russian context emotions perceived as primary (which humans share with animals) or secondary (experienced only by humans). Three stages of the selection and evaluation of emotions made it possible to distinguish 12 emotions: primary positive emotions (Joy, Pleasure, and Interest), primary negative emotions (Anger, Irritation, and Rage), secondary positive emotions (Inspiration, Afflatus, and Enthusiasm), and secondary negative emotions (Disappointment, Regret, and Devastation). The results of confirmatory and multigroup confirmatory factor analyses demonstrated that these emotions are well grouped into primary-secondary subgroups and that their valence is important to grouping. The highlighted emotions can be used to study implicit prejudices towards various social groups.

JEL Classification: Z

Keywords: infrahumanization, emotion, prejudice

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Introduction

Prejudice towards different social groups is one of the most acute socio-political problems nowadays. A high level of prejudice is a factor of social instability, which makes a significant contribution to discrimination, violence against minorities (Bjørgero, 2003), and genocide (Glick, 2005; Rothschild, Landau, Molina, Branscombe, & Sullivan, 2013). One of the main problems in the study of prejudice is that various methods of measuring explicit prejudice may be extremely inaccurate due to the spread of egalitarian attitudes and a tendency for social desirability. As a result, in recent years, researchers have moved from studying explicit forms of prejudice to more implicit forms (Devine, 2001; Rudman, Greenwald, Mellott, & Schwartz, 1999).

One way to measure implicit prejudice is to study an attribution to individuals or groups of primary and secondary emotions. This method is described in the framework of the Infrahumanization theory which was developed by Leyens and colleagues (Leyens et al., 2001; Leyens et al., 2000). According to the authors, in lay perception, individuals believe that there is a unique 'human essence' that can be described through the fact that humans have intelligence, language, and sentiments. Leyens and colleagues (2001) define sentiments as secondary or uniquely human emotions (e.g., love, hope, contempt, resentment). In contrast to primary emotions which humans share with animals (e.g., joy, surprise, fear, anger), secondary emotions are experienced only by people, and, therefore, they can be considered a criterion for separating people from other living beings. Previous studies have demonstrated that secondary emotions are perceived as more cognitively complex and invisible to others (Paladino & Vaes, 2009). Moreover, the studies have shown that recognition and attribution of primary (basic) emotions is spontaneous and culturally universal (David Matsumoto, 2001) in contrast to secondary emotions which, in particular, are not spontaneously associated with outgroups (Gaunt, Leyens, & Demoulin, 2002).

Leyens with colleagues (2007) claim that infrahumanization occurs when both positive and negative secondary emotions are more often attributed to one group than to another group and primary emotions are equally attributed to groups because this kind of emotion is not uniquely human. As a result, the differences in the attribution of secondary emotions lead to the perception of members of some groups as not fully human beings and can be considered as implicit prejudice. Even though implicit prejudices may not be fully conscious, they have serious consequences for intergroup relations, in particular, they are associated with explicit prejudice and discriminatory behavior. The scholars have found that infrahumanization reduces empathy to outgroup victims (Čehajić, Brown, & González, 2009) and readiness to help outgroup members in an emergency situation (Cuddy, Rock, & Norton, 2007), it weakens empathy to outgroup

rivals and readiness to forgive them for damage to ingroup (Tam et al., 2007; Wohl, Hornsey, & Bennett, 2012) as well as decreases support for outgroup autonomy (Prati, Crisp, Meleady, & Rubini, 2016).

Infrahumanization studies conducted in different countries have clearly shown that there are cultural differences in what emotions are perceived as typically primary or secondary emotions. For example, preliminary testing showed that Belgians perceived panic, exhaustion, and aggressiveness as negative primary emotions; amusement, calm, excitement as positive primary emotions; embarrassment, torment, rancor as negative secondary emotions; and admiration, passion, delight as positive secondary emotions (Boccatto, Cortes, Demoulin, & Leyens, 2007). At the same time, respondents from Spain perceived anger, fear, pain, fright as negative primary emotions; joy, pleasure, happiness, enjoyment, excitement as positive primary emotions; melancholia, greed, culpability, pessimism, shame as negative secondary emotions; felicity, delectation, enjoyment, hope, fascination, optimism, pride as positive secondary emotions. A study conducted in Norway demonstrated that pain, suffering, loneliness, sorrow, pleasure, surprise, happiness, and calm are perceived as primary emotions while bitterness, comfortless, guilt, remorse, optimism, passion, nostalgia, fascination - as secondary emotions (Dalsklev & Kunst, 2015). Moreover, the studies with the culture-specific lists of primary and secondary emotions were conducted in France (Boudjemadi, Demoulin, & Bastart, 2017), Israel (Gaunt, 2009), Germany (Eyssel & Ribas, 2012), Greece (Iatridis, 2013), etc.

All these results indicate that for the effective assessment of implicit prejudice, it is necessary to identify primary and secondary emotions relevant to the Russian context, which is the main aim of our study.

Pilot study

To determine the initial list of uniquely (secondary) and non-uniquely (primary) human emotions fifty-four students (66,7 % - women, $M_{age} = 17.85$, $SD = .66$) rated 146 words which were identified as designation of emotions in the previous study (Lusin & Sinkevich, 2010). Respondents categorized each emotion from 1 to 3 (1 – this emotion is typical both for humans and animals; 2 - this emotion is typical for humans only, 3 - this emotion cannot be categorized into any of the groups) and evaluated a valence of emotion from 1 to 3 (1 for a positive emotion, 2 for a negative emotion, and 3 when it was difficult to answer).

Twenty-one out of 146 emotions were selected based on the frequency of categorization of emotions into primary or secondary emotions group and their valence. The emotion was considered as the primary or secondary and positive or negative when at least 80 percent of the

respondents categorized it to a certain group. As a result, we formed a list of emotions including five positive primary emotions, five negative primary emotions, five positive secondary emotions, and six negative secondary emotions (see Table 1).

Table 1. The frequency of categorization the emotion

| Typical for both humans and animals (primary emotions) | | | | Typical of humans only (secondary emotions) | | | |
|--|------|--------------------------------|------|---|------|-----------------------------------|------|
| positive | | negative | | positive | | negative | |
| emotion | % | emotion | % | Emotion | % | emotion | % |
| Excitation (Возбуждение) | 83,3 | Fear (Страх) | 92,6 | Afflatus (Вдохновение) | 94,4 | Gloat (Злорадство) | 92,6 |
| Calmness (Спокойствие) | 81,5 | Anger (Злость) | 87 | Elation (Душевный подъем) | 96,3 | Devastation (Опустошенность) | 88,9 |
| Joy (Радость) | 81,5 | Anxiety (Тревога) | 85,2 | Enthusiasm (Энтузиазм) | 85,2 | Disappointment (Разочарование) | 87 |
| Interest (Интерес) | 81,5 | Rage (Ярость) | 83,3 | Admiration (Восхищение) | 81,5 | Hopelessness (Безнадежность) | 87 |
| Pleasure (Удовольствие) | 81,5 | Irritation (Раздраженность) | 81,5 | Inspiration (Воодушевление) | 81,5 | Disgust (Омерзение) | 83,3 |
| | | | | | | Regret (Сожаление) | 83,3 |
| | | | | | | Repentance (Раскаяние) | 81,5 |

Main study

In order to verify that the highlighted emotions are indeed perceived as primary and secondary, it is necessary to conduct three stages of analysis. At the first stage, it is necessary to check the structure of the selected emotions (primary-secondary and positive-negative), the second stage involves confirmatory analysis, and, the third stage demonstrates that the structure of emotions is reproduced when comparing different social groups.

We selected professional groups with a low social status as the objects of assessment in the main study. Our choice was determined by several factors. Firstly, professions with low social status are outgroups in relation to the respondents, therefore, they have to be infrahumanized, according to the infrahumanization theory (Leyens et al., 2001). Secondly, in the case of evaluating certain groups (e.g., gender or ethnic), the attribution of emotions can be caused either by the existing stereotype about the degree of emotionality of the members of these groups (Plant, Hyde, Keltner, & Devine, 2000), or by the context of intergroup relations (Cottrell & Neuberg, 2005). Thirdly, in contrast to gender and ethnic groups, in relation to professional groups, essential thinking (the beliefs that group's attributes are innate and unchanging) is less prevalent (Haslam, Rothschild, & Ernst, 2000; Prentice & Miller, 2007). Since people themselves choose their profession, to a lesser extent it can be expected that the perception of professional groups and the attribution of primary or secondary emotions to them will be

determined by the beliefs that all members of the group must necessarily have the same attributes.

We based our choice on the taxonomy of dirty work (a low-status work degrading human dignity) that was described by Ashforth and Kreiner (1999). The authors identified three different bases of dirty work: physical (related to direct contact with waste), moral (related to punishing moral norms) and social (related to contact with stigmatized groups). Since it is better to carry out each stage of the analysis on a separate group of respondents to ensure cross-validation and assess the robustness of the results, we used three types of dirty work (cleaner, stripper, and social worker) as the objects, which were evaluated by different samples of respondents.

Method

Participants

The participants included 738 Russians (75,3 % - women, $M_{\text{age}} = 19.49$, $SD = 2.80$) randomly allocated to one of three groups. Sample 1 included 240 participants (78,8 % women, $M_{\text{age}} = 19,45$, $SD = 2.42$). Sample 2 consisted of 243 participants (78,6 % women, $M_{\text{age}} = 19.19$, $SD = 1.89$). Sample 3 included 255 participants (69 % women, $M_{\text{age}} = 19.82$, $SD = 3.69$).

Procedure and measures

The first group (Sample 1) read the description of a woman who is a stripper; the second group (Sample 2) read the description of a woman who is a cleaner, and the third group read about a woman who is a social worker. The participants were presented with the list of 21 primary and secondary positive and negative emotions (e.g., anger, admiration, joy, disappointment) selected in the pilot study. They rated the frequency to which a woman experiences each emotion in everyday life on a 7-point scale (1 = very rarely, 7 = very often).

Results

Exploratory analysis

To establish the factor structure of the selected emotions the exploratory factor analysis (EFA) was made using Mplus (Sample 1). EFA was conducted on the 21 emotions using the oblique Geomin rotation (Browne, 2001). We suggested that these emotions would be decomposed into 4 factors (positive primary emotions, negative primary emotions, positive

secondary emotions, negative secondary emotions). Table 2 shows the distribution of emotions by factors and standardized factor loadings of each emotion. Factor I contains three emotions that were early categorized as negative secondary emotions (disappointment, devastation, and regret) and one emotion conceptually related to negative primary emotion (fear) with factor loadings greater than 0.500. Factor II contains three emotions that were categorized as negative primary emotions (anger, rage, and irritation) and two negative secondary emotions (disgust, gloat). Since primary and secondary negative emotions can correlate with each other, it is not surprising that some of them are loaded in the same factors. The Factor III includes four positive secondary emotions (inspiration, afflatus, enthusiasm, elation). Finally, Factor IV consists of three positive primary emotions (joy, pleasure, and interest). In fact, the model with four factors and 21 emotions fit the data moderate $\chi^2(132) = 312.507$, $p = 0.000$, RMSEA = 0.078 [90% CI: .067 –.089], CFI = 0.886, TLI = 0.819, SRMR = 0.043.

Table 2. Factor analysis results with standardized loadings

| Emotions | Factors | | | |
|----------------|------------------------|------------------------|------------------------|------------------------|
| | I | II | III | IV |
| Fear | 0.545* | | | |
| Disappointment | 0.763* (0.646*) | | | |
| Regret | 0.530* (0.590*) | | | |
| Devastation | 0.664* (0.780*) | | | |
| Repentance | 0.287* | | | |
| Gloat | -0.234* | 0.562* | | |
| Anxiety | 0.327* | | | |
| Anger | | 0.772* (0.860*) | | -0.105* |
| Irritation | | 0.700* (0.696*) | | |
| Rage | | 0.703* (0.616*) | | |
| Disgust | 0.217* | 0.549* | | |
| Inspiration | | | 0.888* (0.767*) | |
| Afflatus | | | 0.757* (0.787*) | |
| Enthusiasm | | | 0.689* (0.595*) | |
| Elation | | | 0.621* | |
| Joy | | | | 0.537* (0.795*) |
| Pleasure | | | | 0.976* (0.821*) |
| Interest | | | (0.376*) | 0.754* (0.570*) |
| Admiration | | | 0.344* | 0.423* |
| Calmness | | | 0.342* | 0.271* |
| Excitation | | | 0.315* | 0.400* |

Note. Loadings outside parentheses were obtained via EFA with 12 emotions.

To obtain more reliable results emotions with lower factor loadings were removed from the analysis. In particular, we deleted Fear as a negative primary emotion from Factor I (negative secondary emotions), Disgust and Gloat as negative secondary emotions from Factor II (negative primary emotions), Elation from Factor III (positive secondary emotions). In the last case the emotion was removed because it has a smaller factor loading than other emotions in this Factor. As a result, 12 emotions were selected and repeated EFA was conducted (see Table 2). The new

model with 12 emotions and four factors fit the data well $\chi^2 (24) = 41.488$, $p = 0.0147$, RMSEA = 0.057 [90% CI: .025 – .085]), CFI = 0.978, TLI = 0.939, SRMR = 0.021. As a result, the next stage was conducted with 12 emotions.

Confirmatory factor analyses

To formally confirm the fit of factor solutions identified via EFA we used confirmatory factor analysis (CFA) on an independent sample (Sample 2). We compared 5 potential models of interaction of various emotions with each other. Model 1 includes four components (positive primary emotions, negative primary emotions, positive secondary emotions, negative secondary emotions). Model 2 includes two first-order components: positive emotions (primary and secondary) and negative emotions (primary and secondary). Model 3 includes two first-order components: primary emotions (positive and negative) and secondary emotions (positive and negative). Model 4 includes four first-order components (positive primary emotions, negative primary emotions, positive secondary emotions, negative secondary emotions) and two second-order factors: primary emotions (positive and negative) and secondary emotions (positive and negative). Finally, Model 5 includes four first-order components (positive primary emotions, negative primary emotions, positive secondary emotions, negative secondary emotions) and two second-order factors: positive emotions (primary and secondary) and negative emotions (primary and secondary). We used the following fit indices to evaluate the fit of each model to the data: the ratio of chi-square to degrees of freedom, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), Tucker-Lewis index (TLI), and standardized root mean square residual (SRMR). According to Hu and Bentler (1999), values of .08 or below for RMSEA, and .09 or below for SRMR indicate the model to be a good fit to the data. For CFI and TLI the values have to be at least .90 to indicate a good fit of a model (Kline, 2011).

The results of CFA are presented in Table 3. They demonstrate that Model 1 $\chi^2 (48) = 53.967^*$, RMSEA = 0.024 [90% CI: .000 – .051]), CFI = 0.990, TLI = 0.986, SRMR = 0.034 as well as the Model 5 $\chi^2 (49) = 53.903^*$, RMSEA = 0.021 [90% CI: .000 – .049]), CFI = 0.992, TLI = 0.989, SRMR = 0.034 fit the data well. The fit of three alternative models was weaker. Model 3 demonstrates a moderate fit to the data. Despite the fact that all the indexes meet the recommended criteria, their values are lower than that of Models 1 and 5. Model 2 and Model 4 demonstrate a poor fit. These results confirm that the previously identified emotions are well grouped based on their belonging to primary or secondary emotions and their valence. Importantly, the valence of emotions can be also a grouping factor. These findings need to be taken into account in the future analysis of the attribution of primary and secondary emotions. In

particular, the conclusion about attribution to a group of primary or secondary emotions can be made only if emotions' valence is controlled.

Table 3. Goodness of fit indicators for measuring models of the infrahumanization

| Model | χ^2 | <i>df</i> | RMSEA [90% CI] | SRMR | CFI | TLI | AIC |
|---------|----------|-----------|-------------------|------|------|------|------|
| Model 1 | 53.967* | 48 | .024 [.000; .051] | .034 | .990 | .986 | 8484 |
| Model 2 | 136.330* | 53 | .084 [.066; .101] | .067 | .857 | .822 | 8574 |
| Model 3 | 80.442* | 49 | .053 [.031; .074] | .076 | .946 | .927 | 8512 |
| Model 4 | 299.712* | 53 | .144 [.128; .160] | .139 | .577 | .473 | 8771 |
| Model 5 | 53.903* | 49 | .021 [.000; .049] | .034 | .992 | .989 | 8482 |

Note. *df* – degree of freedom; RMSEA – root mean square error of approximation; CFI – comparative fit index; TLI – Tucker Lewis index; SRMR – standardized root mean square residual; AIC – Akaike information criterion. * – $p < .001$.

Multi-group confirmatory factor analysis

To compare the equivalence in the perception of emotions as primary or secondary, we conducted a series of multi-group CFAs across the Samples 1-3. This analysis tests the configural (same structure across groups), metric (same factor loadings across groups), and scalar (same factor loadings and item intercepts across groups) invariance of the separation of emotions into primary and secondary subgroups. The result of multi-group CFA demonstrated that the separation of emotions on primary-secondary and positive-negative has a good configural and metric invariance (see Table 4). This result means that when evaluating different occupational groups, the highlighted emotions are equally grouped into primary and secondary, as well as positive and negative. Consequently, it is psychometrically valid to compare primary and secondary emotions across different social groups.

Model c (scalar invariance) demonstrated considerable deterioration in comparison to Model b (metric invariance) because $\Delta\chi^2$ was significant and the ΔCFI was $> .01$. This result is quite expected since it indicates that when evaluating different professional groups, emotions within one subgroup (e.g., secondary emotions) can have a different factor load. In other words, when evaluating one professional group, one secondary emotion may have more weight, while when evaluating another social group the picture may be different. In general, these results do not contradict the assumption that the selected emotions can be considered a tool for assessing primary and secondary emotions in relation to different social groups.

Table 4. The results of multi-group confirmatory factor analyses

| | Model | χ^2 | df | RMSEA [90% CI] | SRMR | CFI | TLI | AIC | $\Delta \chi^2$ | Δdf | ΔCFI |
|--------|-------------------------|----------|-----|---------------------------------|------|------|------|-------|-----------------|-------------|--------------|
| Groups | Model a (Configural) | 201.283* | 144 | .039 [.025; .051] | .043 | .971 | .961 | 29784 | | | |
| | Model b (Metric) | 227.023* | 160 | .040 [.027; .052] | .051 | .966 | .958 | 29782 | 29.825 | 16 | .005 |
| | Model c (Scalar) | 312.853* | 176 | .055 [.045; .064] | .063 | .931 | .923 | 29875 | 119.097*** | 16 | .035 |

Discussion

The aim of this study was to identify primary and secondary emotions relevant to the Russian context. The highlighted list contains 12 emotions and equally includes primary and secondary emotions with different valence (positive and negative). Different statistical tests performed on three various samples confirmed that the selected emotions are similarly grouped into primary and secondary subgroups in all cases and, moreover, can be used in future studies as an instrument of measurement of indirect prejudice towards different social groups.

Comparison of attribution primary and secondary emotions to an in-group and out-group allows to detect the infrahumanization effect - the denial of a full-human essence of members of certain groups. Infrahumanization effect is a consequences of group belongingness since it appears as a result of comparison of an in-group and out-group (Leyens et al., 2007). At the same time, this effect is not a positive in-group bias (such as ingroup favoritism) because it involves an attribution to an in-group not only positive but also negative secondary emotions. According to Haslam and Loughnan (2014), this view on prejudice is a major theoretical advance that explores intergroup relations in the new investigation way. Previous studies have shown that comparing the attribution of primary and secondary emotions is an effective way of measuring implicit prejudice towards ethnic (Bain, Park, Kwok, & Haslam, 2009; Costello & Hodson, 2014), gender (Viki & Abrams, 2003), people with mental illnesses (Betancor Rodríguez, Ariño Mateo, Rodríguez-Pérez, & Rodríguez, 2016), age group (Boudjemadi et al., 2017), professional (Iatridis, 2013) groups, etc. This allows us to conclude that now infrahumanization studies can be carried out in Russia using the list of selected primary and secondary emotions.

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