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The Relative Stability of the Beauty Connotations across a Lifespan and its Gender Differences

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Abstract

The concept of beauty is multifaceted and subject to various influences that include the age and gender of the perceiver. This study aimed to explore the relationship between age and the connotations associated with the concept of beauty over a lifespan. A sample of 1,558 adults aged 19 to 89 years provided connotations of beauty through free production tasks with the objective to investigate changes in the occurrence of connotations associated with the concept of beauty in relation to the age of the evaluator. Occurrences of sixty-two connotations were analysed with respect to age using Spearman's correlation. The results showed that only three percent of the connotations had a significant correlation with age, suggesting that the concept of beauty is relatively stable over time. Specifically, associations with the terms "man" and "God" decreased as age increased, particularly among women. Separate analyses by gender revealed distinct patterns, with women reporting stronger associations between age and connotations related to "man," "God," and "friend." In contrast, men reported correlations with connotations such as "flower," "sea," "joy," and "figure," suggesting shifts in perception away from physical attractiveness to natural scenery. The findings show the relative stability of the beauty concept over a lifespan, but also underscore the importance of considering gender in our understanding of the dynamics of the perception of beauty.

Keywords: Beauty, Concept, Lifespan, Connotation, Age

1. Introduction

The concept of beauty is an ambiguous and, as yet, insufficiently defined notion, the definition of which often varies depending on the nature of inquiry. This is partly caused by the fact that the concept of beauty is the subject of investigation in many scholarly disciplines – such as art (Chang, 2006), aesthetics (Dietrich & Knieper, 2022), philosophy (Brielmann & Pelli, 2017), history (Eco, 2012), psychology (Rhodes, 2006), biology (Vaidyanathan et al., 2023), mathematics (Zeki et al., 2014), etc., each of which focuses on a specific aspect of beauty. In

addition, beauty is not only interdisciplinary in character (Kisonova, 2023) but is also multidimensional (Sisti et al., 2021; Dimitrov & Kroumpouzos, 2023), and it is not entirely possible to fully capture all its important characteristics from single perspective (definition). Moreover, research into the concept of beauty is still active (see e.g., Dimitrov & Kroumpouzos, 2023; Singh et al., 2024), with new insights constantly emerging. In addition to the aforementioned complications, it is also known that the concept of beauty is determined by many factors – thanks to them, the content of the concept of beauty may vary depending on temporal (Eco, 2012) and cultural (Kara & Özgür, 2023) context, or, for example, on the influence of the media (Rollero, 2022). Specifically, one can consider the individual taste of the perceiver – what an individual considers to be beautiful is influenced by their emotional state or how it appeals to social status, financial interest, educational, cultural, or economic background (Vashi & Quay, 2015), as well as their personal experiences or the individual peculiarities of their perceptual apparatus.

Research focused on the factors that contribute to the formation of the concept of beauty has shown that important variables that shape the concept of beauty include the age and gender of the evaluator (He et al., 2021). The source of this influence can be identified in various areas. Beauty has indeed an evolutionary importance – in human objects, specific body of facial features considered as beautiful signal overall health (e.g. lower rates of cardiovascular diseases, diabetes, and cancer – Singh & Singh, 2011; World Health Organization: WHO, 2008) and fertility (e.g. optimal hormone levels, lower incidences of miscarriages – Hahn et al., 2014; Felisbino-Mendes et al., 2014) which are significantly affected by age. Research shows, for instance, that in the assessment of the beauty of human faces, older individuals tend to be less critical – they perceive the faces of others to be more attractive than younger participants (Kiiski et al., 2016). As the fertility naturally drops down with the age, the importance of beauty in faces and bodies decreases.

The evolutionary significance of beauty in perceived objects points also for an importance of the gender effect. As female fertility reflected in the specific body and facial features is more tightly connected with the age (males fertility drops down slowly and persists till the higher age), there is a bigger probability of a higher importance of the feminine beauty than of the masculine one. This presumption has been proved in various studies – e.g. age of the evaluator emerges as a significant variable in assessing the attractiveness of female faces in comparison to male faces (Ebner et al., 2018). Also, whilst male preferences for beautiful females are relatively universal (Little et al. 2014), females exhibit also other mating strategies – when searching for a long-term partner or a caring father, they may supress the tendencies to prefer handsome masculine faces over those which advertise warmth, willingness to help of faithfulness (Demuthova & Demuth, 2017; Gangestad & Simpson, 2000).

Except the evolutionary meaning of beauty, it is closely linked to the values of an individual, too. According to Sartwell, beauty is an inherently evaluative concept (Sartwell, 2022). Several studies have demonstrated that over the course of their lives the values of an individual change – either as a result of age-related changes in circumstances or according to the social roles that individuals play in society (Schwartz, 2005; Gouveia et al., 2015). According to Bardi and Goodwin's dual-route model, values can change as an "automatic change" due to environmental cues that activate an existing schema or through an "effortful change" that requires a conscious reflection on values (Bardi & Goodwin, 2011). The concept of beauty may change as age increases, not only due to shifting values; many objects are liked because they contain evolutionarily significant characteristics (e.g., predictability, allow us to save time and energy when we perceive them – Demuthova & Minarova, 2023), or even (in the case of living organisms) because they signal the hidden biological qualities of the objects (Little et al., 2011). In this case, beauty is tied to reproductive potential, which highlights a potentially significant

correlation with age – we can assume that the significance of beauty will peak during the fertile phases of a lifespan.

Another area, where the age and gender specifics can be analysed is the language. The analysis of the usage of the term beauty in natural language is an important source of information for understanding the concept. Language reflects not only cultural context but also historical experiences that integrate the knowledge of the language users. In our previous research (Demuthova & Demuth, 2024), we found, through an analysis of semantic differentials that describe the concept of beauty through twenty-one bipolar adjectives grouped into three dimensions of evaluation, potency, and activity, that as age increases there were statistically significant increases observed in the values of the activity dimension while the values of the potency dimension decreased. Thus, it is evident that age has an influence on the dynamics of the assessment of beauty. However, it is questionable whether there are similar changes in the conceptual understanding of the term beauty. Analyses of the expressions that individuals most commonly associate with the concept of beauty have shown that among the frequently mentioned terms are expressions such as family, child, car, grandchild, which may be influenced by the age of the evaluator (Demuthova & Demuth, 2021). However, comprehensive research in this area is lacking – studies focused on the connotations of the term beauty are sporadic, mostly quite specifically focused (e.g., beauty of a person – Rakhmatova, 2019), and analyses focused on the age of the evaluator are completely absent. Moreover, considering a lifespan changes with respect to gender is even less studied area.

2. Problem and Research Questions

2.1 Problem

Multidisciplinary character of the concept of beauty (Monti & Pećnjak, 2020) requires its analysis from various points of view. Research exploring concepts based on data from natural language of common users brings valuable finding in many areas (Crangle & Zbyslaw, 2004; Chen et al., 2020; Gholipour et al., 2023), including the concept of beauty (Demuthova et al., 2024). However, the research focused on intervening factors and verification by use of various methods is lacking. Based on the results of the research using the semantic differential method it seems, that gender (Demuthova & Demuth, 2023B) and age (Demuthova & Demuth, 2024) are important variables for research in the field of understanding the concept of beauty in natural language.

However, other data on the connection of age and gender on the concept of beauty is missing as well as approaches using other methods. The objective of the study is, therefore, to provide additional information on the topic of the concept of beauty in natural language with the focus on the occurrence of beauty connotations during the lifespan and the specifics of this relationship according to a gender of participants. The absence of previous data let to an exploratory approach and subsequent formulation of two research questions.

2.2 Research Questions

RQ1: Is there a relationship between changes in the frequency of connotations associated with the concept of beauty and age of the evaluator?

RQ2: Are there differences between men and women in the correlations between age and the frequency of connotations associated with the concept of beauty?

3. Method

3.1 Instruments

To analyse the potential impact of age on the contents of the concept of beauty, we utilised the list of connotations that the research sample reported with a frequency higher than 1% (see Table 1).

Table 1. Frequency of the connotations of the concept of beauty

Frequency ≥ 5%								
Connotation	N	%	Connotation	N	%	Connotation	N	%
nature	526	35.28	mountain	47		wife	29	1.95
woman	324	21.73	sport	43	3.15	face	28	1.88
love	265	17.77	friend	41	2.88	God	28	1.88
family	224	15.02	forest	41	2.75	inner	27	1.81
child	224	15.02	smile	41	2.75	perfection	26	1.74
flower	163	10.93	happiness	39	2.75	work	25	1.68
life	132	8.85	naturalness	38	2.62	eyes	23	1.54
art	106	7.11	joy	38	2.55	clothes	23	1.54
human	102	6.84	gorgeousness	36	2.55	snow	22	1.48
car	92	6.17	grandchild	35	2.41	aesthetics	22	1.48
animal	88	5.90	soul	35	2.35	tree	21	1.41
sun	87	5.84	fashion	35	2.35	natural	21	1.41
music	79	5.30	heaven	35	2.35	relax	20	1.34
peace	62	4.16	youth	35	2.35	feeling	19	1.27
pretty	62	4.16	sky	33	2.35	freedom	19	1.27
man	60	4.02	book	32	2.21	water	19	1.27
home	59	3.96	pleasant	31	2.15	landscape	18	1.21
sea	58	3.89	sex	31	2.08	Xmas	18	1.21
good (*n*)	55	3.69	picture	31	2.08	figure	16	1.07
purity	51	3.42	mother	30	2.01	heart	15	1.01
health	50	3.35	vacation	30	2.01			

Note: (n) = noun, Source: Authors

The 1% threshold was derived from a finding that associations represented by less than 1% of the observed population are considered to be highly original (Said-Metwaly et al., 2021), and therefore do not express a typical understanding of the concept of beauty. The frequency of occurrence of a connotation was determined by how many times it appeared in the lists provided by participants.

3.2 Procedure

Connotations of the concept of beauty came from the participants from free expression. They were asked to write down the words that came to mind when the term "Beauty" was mentioned. The participants were approached through convenience sampling – in schools, companies, organisations, as well as freely in public spaces. Participation in the research was voluntary, and the participants were informed before commencement that they did not need to participate and that they could withdraw from the study at any stage without consequences. Once they had given consent the participants provided basic demographic information such as age and gender. They were then asked to list as many connotations as they desired.

After collecting the data from the participants, the connotations went through lemmatization – a process in which all the words were reduced to their base forms (lemmas) (Garabik & Bobekova, 2021). This process eliminated repetitions of the same words in different grammatical forms (gender, case, number, or tense).

3.3 Subjects

The research was carried out on a sample of 1,558 members of the adult Slovak population aged 19 to 89 with an average age of 45.23 (SD = 16.33). The sample included 737 men (47.3%) and 821 women (52.7%). Participants were chosen by non-probability sampling method due to their convenience. During the data collection, participants from various backgrounds, districts, and age groups were recruited, however, the data should be interpreted with respect to the possible limits of the convenience sampling method used.

3.4 Statistical Processing

For each lemma (connotation), its frequency of occurrence in the research sample was determined, and only those connotations with a frequency of occurrence greater than 1% (N = 62) were included for further analysis.

As the age distribution of the participants did not meet the criteria of a normal distribution, Spearman's correlation was used to examine the correlation between age and the frequency of occurrence of each connotation. The significance level for statistical significance was set to 0.05 (95%).

The statistical analyses were conducted using the IBM Statistical Package for Social Sciences (SPSS), version 28.

4. Results

4.1 Research Question 1

Out of the 62 connotations of the concept of beauty (Table 1), only two demonstrated a statistically significant correlation ($p \leq 0.05$) between the frequency of occurrence and the age of the participants (see Table 2).

In both cases, the value of the correlation coefficient suggests that the connotations "man" and "God" are more typically provided by younger participants – as age increases, their frequency of occurrence decreases.

Table 2. Statistically significant correlations between age and the frequency of connotations of the concept of beauty (Spearman's correlation)

		Connotation	
		man	God
Age	Correlation Coefficient	-.326	-.449
	Sig. (2-tailed)	.011	.017
	N	60	28

Source: Authors

4.2 Research Question 2

To allow to investigate the effect of gender as a factor, we conducted separate correlation analyses for male and female participants. The results of these separate analyses (see Tables 3 and 4) showed that the occurrence of the connotations "man" and "God" is only age sensitive in the female population. In the analysis of the sample of female participants, the connotation "friend" was also included with the aforementioned connotations – in this case, as with "man" and "God", its frequency of occurrence decreased with age (Table 3).

Table 3. Statistically significant correlations between age and the frequency of connotations of the concept of beauty in women (Spearman's correlation)

.		Connotation		
		man	God	friend
Age	Correlation Coefficient	-.367*	-.695**	-.506*
	Sig. (2-tailed)	.014	.001	.027
	N	44	18	19

*Note: * p ≤ 0.05; ** p ≤ 0.01*
Source: Authors

Different results were obtained from the analysis of correlations among male participants (see Table 4). The connotations "man" and "God" did not appear among the statistically significant correlations. Instead, the expressions "flower," "sea," and "joy" were present, and the expression "figure" was at the threshold of statistical significance (p = 0.051).

Table 4. Statistically significant correlations between age and the frequency of connotations of the concept of beauty in men (Spearman's correlation)

		Connotation			
		flower	sea	joy	figure
age	Correlation Coefficient	.294*	.392*	-.740**	-.949
	Sig. (2-tailed)	.040	.043	.001	.051
	N	49	27	16	4

*Note: * p ≤ 0.05; ** p ≤ 0.01*
Source: Authors

5. Discussion

5.1 General Discussion

Despite the anticipated changes resulting from the evolution of tasks (Heymans, 1994) and an individual's roles throughout a lifetime (Kornadt, 2020), the concept of beauty expressed through connotations did not exhibit any radical changes depending on age. The research sample, as a whole, only exhibited a shift in the frequency of two connotations – "man" and "God," and this shift was inversely proportional to increasing age. Associating beauty with the term "man" may be an expression of evolutionary tendencies, which are factors that condition the content of the concept of beauty. According to evolutionary psychology, objects that possess evolutionarily significant characteristics are considered to be attractive/beautiful (Esel & Polat Esel, 2017). For the preservation of an organism, from an evolutionary perspective, its goals are its survival (competition for resources) and the preservation of genes in future generations (mate competition). These goals are more fully achieved if the organism succeeds in natural and sexual selection. For these purposes, it is desirable to have certain characteristics – to be healthy, able to resist diseases and adverse environmental influences or to possess physical strength (Dixson et al., 2003). These individual characteristics confer advantages in competition throughout our lives, and if heritable, also enhance the competitiveness of any offspring. The ability to detect such evolutionarily advantageous characteristics through external signals provided such strong phylogenetic advantages that a preference for organisms possessing these signals formed in humans. This "preference" causes us to like, seek out, value, and experience positive emotions in their presence, and thus our brains reward us every time we are in their vicinity (Cloutier et al., 2008).

The experience of beauty in this context can thus be understood as an evolutionarily conditioned reaction to the presence of signals of the biological fitness of the organism. Beauty is therefore what is good, suitable for the organism. From this perspective, the association of

beauty with the term "man" can reflect the evolutionary tendencies within the understanding of the concept of beauty. For the survival of an individual, the most important thing is to look for and discover the beauty in another person, man. With age, the ability to reproduce as well as fertility decreases, and the criteria for assessing beauty also change. Evolutionary mating reasons start to become less important and therefore it is possible to observe a decrease in the occurrence of the term "man" with age in the connotations of beauty. This assumption can also be confirmed by the results of gender analyses, which indicated that the association of beauty and "man" in the sample was dominated by responses from the female participants. Males keep they reproduction potential longer, therefore their health and fertility reflected in various body and facial features assigned as beauty is important for female for a longer time than vice versa. Males are attracted by females more intensively during the shorter time of women´s lives – during their fertile period. It is, therefore, understandable that as the interest of women in men as sexual partners decreases (an evolutionary perspective), so does the significance and frequency of the term "man" in the content of the concept of beauty.

Interpreting the decrease in the frequency of the term "God" with the age of the participants is more complicated. Most existing studies have reported an increased in religiosity with age (Zimmer et al., 2016; Koscielniak et al., 2024). To properly explain this result, we have limited additional information – possible reasons (albeit without further support from our data) can be found in various interpretative dimensions. It is possible that the ad hoc sampling of participants led to the selection of a younger subgroup in the research sample, which may have been characterised by higher religious orientation. In this context, the study's limitation becomes apparent, as it involves tracking changes depending on age through cross-sectional rather than longitudinal research. Another interpretation relates to the context of evolutionary influences discussed in connection with the occurrence of the connotation "man"; similarly, one can also consider the religious/spiritual term "God." Several experts consider that religious behaviour (similarly to other forms of behaviour) has an evolutionary basis (see, for example, McNamara, 2006; Feierman, 2009; Voland & Schiefenhövel, 2009). In terms of religiosity, this is evidenced by central components such as group bonding, formation of personal identities, communication using honest signals, and morals, which meet the criteria of evolutionary adaptation (Voland, 2009). Evolutionary contexts are particularly significant in the reproductive phases of ontogeny, and thus, it can be presumed that they decline with increasing age. However, in terms of a comprehensive summary of the analysis of the influence of age on the content of the concept of beauty, it can generally be stated that the concept of beauty is relatively stable – changes were only present in 3% of the connotations used to characterise the concept of beauty.

Separate analyses of the correlations between age and connotations of the concept of beauty conducted for men and women deserve attention. Once again, the suggestion made by several experts (Salusso-Deonier et al., 1993; Gouveia et al., 2015) that when trying to understand beauty gender needs to be considered has been confirmed. In women, the association of the connotations "man" and "God" with age was so strong that it was manifested in the results of the whole research sample. In a separate analysis of women alone, a statistically significant correlation with age was also evident for the connotation "friend." This connotation is semantically closely related to the term "man," and the decreasing trend in its occurrence can be interpreted in a similar way to the previous case (in connection with the term "man"). Men, in relation to age, exhibited entirely different changes in their understanding of the concept of beauty; in comparison to women, an association with age was demonstrated in four connotations – "flower," "sea," "joy," and "figure." While the frequency of occurrence of the connotations "flower" and "sea" increased with age, "joy" and "figure" decreased as the age of the participants increased. The nature of these connotations suggests that the significance of

evolutionarily relevant connotations (such as "figure" as a sign of physical attractiveness and "joy" as an emotional expression activating brain areas associated with reward systems) decreases with age and is replaced by content related to the beauty of natural scenery ("flower," "sea").

5.2 Limits of the Study

The provided results and their interpretations are tied to the limits of the study emerging mainly from the chosen method and type of data collection. Free production of the beauty connotations can be influenced by current situation, last experience, or specific influences, therefore may not reflect the common/most typical content of the term.

Also, the use of the convenience sampling method brings some risks. As participants were not chosen at random from a larger population, the actual sample used for the data analysis may not be typical of the greater population. Data collection primarily occurred within the context of humanities-oriented education (students of psychology, philosophy, and law) and among participants accessible through this group. Therefore, it is plausible that the results may be biased by the education and orientation of the participants. However, we do not anticipate a strong influence in this area, as previous research has shown that education did not emerge as a significant variable in the context of studying the meaning of the concept of beauty (Demuthova & Demuth, 2023A). Nonetheless, it is possible that due to other specific characteristics of the research sample, the findings may not be generalizable to other groups.

Another disadvantage of the convenience sampling method is the potential for homogeneity within the sample. The ease of access to participants can lead to data being collected from individuals who share more similar experiences, opinions, and attitudes than what would be observed in a general population. This similarity among participants can result in a sample that lacks the diversity necessary to accurately reflect the broader population. Consequently, the findings derived from such a sample may be limited in their applicability and may not capture the full range of perspectives and variations present in the wider community. The reduced variety in the sample can thus undermine the robustness and generalizability of the research outcomes.

As a consequence of the lack of variety and sampling bias, the external validity of the study is limited. Additionally, there is a risk of unknown errors, as convenience sampling can result in the researcher being unaware of how skewed or unrepresentative the sample is in relation to the overall population. Therefore, it is unclear to what extent the results can be considered representative and applicable to different populations. However, the relatively large number of participants, combined with an age range that encompasses the entire lifespan of the adult population, may mitigate some of these risks. The increased sample size and diversity in age distribution can enhance the robustness of the findings, potentially offsetting some of the limitations associated with sampling bias and lack of variety. However, the gained results together with the limits of the study can serve as inspiration for further research – either using other methods or on other samples of participants.

6. Conclusion

The analysis of correlations between age and the sixty-two characteristic connotations of the concept of beauty revealed that the concept of beauty maintains a relatively stable content throughout ontogenesis. The association with age was only demonstrated in three percent of the observed connotations and likely correlated with a diminishing influence of evolutionarily conditioned preferences that modify the concept of beauty. Separate analyses conducted specifically on the responses of the female and male genders revealed differences in the

occurrence of connotations that were associated with the age of the participant, which highlights the importance of the consideration of the aspect of gender in further research focused on understanding the concept of beauty.

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