

# Evolutionary Perspectives on Humor

Multiple evolutionary psychology theories successfully explain humor's development through various mechanisms, including social bonding and biological adaptations, without converging on one dominant explanation.

## Abstract

Evolutionary psychology proposes that humor evolved to promote social connection, signal mate quality, and emerge in early development. Gervais and Wilson assert that Duchenne laughter evolved 4–2 million years ago to enable playful emotional contagion, while Kuhle links humor's appeal to adaptations in mating strategies. Seven of eight studies describe social bonding mechanisms—ranging from eliciting shared understanding to initiating relationships—and Norman and Weisfeld characterize humor as a sign of interest and fitness. Four studies trace humor's roots from early hominids (via preadaptations and innate cognitive structures) to observable infant sensitivity. In addition, five of eight studies note cultural factors interacting with seven that emphasize evolved biological responses. Across distinct EP frameworks (including sexual selection, interest indication, and adaptive esthetic emotion), the papers collectively support an evolutionary account of humor and comedic art without converging on a single dominant theory.

## Paper search

Using your research question "Can EP theories explain the development of humor or comedic art?", we searched across over 126 million academic papers from the Semantic Scholar corpus. We retrieved the 50 papers most relevant to the query.

## Screening

We screened in papers that met these criteria:

- **Evolutionary Psychology Framework:** Does the study explicitly examine humor development through evolutionary psychological theories or frameworks?
- **Research Type:** Is the study either an empirical investigation (experimental, observational, or cross-cultural) OR a systematic review/meta-analysis?
- **Humor Focus with Theory:** Does the study investigate humor creation, appreciation, or comedic art forms while incorporating a clear theoretical framework?
- **Developmental Mechanisms:** Does the study examine cognitive, social, or developmental mechanisms of humor from an evolutionary psychological perspective?
- **EP Component Verification:** Does the paper include explicit evolutionary psychological components in its analysis or theoretical framework?
- **Empirical Support:** Does the paper present or analyze empirical data or evidence to support its claims (rather than being purely theoretical or opinion-based)?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

## Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Study Design:**

Identify the type of study design used:

- Theoretical/conceptual review
- Empirical review
- Theoretical framework development
- Conceptual analysis

If multiple approaches are used, list all that apply. Look primarily in the methods or introduction section. If the design is not explicitly stated, infer from the study's approach and methodology described in the text.

- **Theoretical Perspective on Humor Evolution:**

Extract the primary evolutionary perspective or theory proposed about humor/laughter:

- Specific evolutionary mechanisms described
- Proposed adaptive functions
- Timeframe of evolutionary development
- Key hypotheses about humor's origins

Look in the introduction, discussion, and conclusion sections. Be precise in capturing the theoretical framework, using direct quotes where possible to capture nuanced arguments.

- **Key Antecedents of Humor:**

Identify and list the specific psychological or evolutionary antecedents of humor discussed in the study:

- Specific cognitive mechanisms
- Social or emotional triggers
- Biological or neurological foundations
- Developmental considerations

Extract from theoretical discussions, literature review sections, and conclusion. If multiple antecedents are proposed, list them in order of importance or prominence in the study's argument.

- **Empirical Evidence Supporting Humor Theory:**

Summarize the key empirical evidence or research cited to support the study's theoretical claims:

- Types of evidence (experimental, observational, comparative)
- Specific research findings
- Disciplines or research domains referenced

Focus on sections discussing evidence, methodology, and research integration. If no direct empirical evidence is provided, note "Theoretical framework without direct empirical support."

- **Proposed Evolutionary Functions of Humor:**

Extract the specific proposed evolutionary functions or adaptive benefits of humor/laughter:

- Social bonding mechanisms
- Survival advantages
- Emotional regulation
- Group cohesion strategies

Prioritize direct statements about adaptive significance. Look in discussion and conclusion sections. Use verbatim quotes to capture nuanced functional explanations.

## Results

### Characteristics of Included Studies

Study	Study Type	Primary Evolutionary Psychology (EP) Framework	Humor Aspects Examined	Key Findings	Full text retrieved
Gervais and Wilson, 2005	Theoretical/conceptual review, theoretical framework development, conceptual analysis	Synthetic evolutionary framework	Laughter and humor evolution, Duchenne vs. non-Duchenne laughter	Duchenne laughter evolved 4-2 million years ago (mya) as medium for playful emotional contagion; humor originated from primate social play	No
Kuhle, 2012	Theoretical/conceptual review, conceptual analysis	Evolutionary psychology, sexual selection	Sex differences in humor, mating strategies	Humor is funny when it resonates with evolved psychological traits, particularly mating strategies	No
Mireault and Reddy, 2016	Theoretical/conceptual review, conceptual analysis	Evolutionary adaptation	Infant humor, social and emotional cues	Humor and laughter evolved to strengthen social bonds and enhance survival	No

Study	Study Type	Primary Evolutionary Psychology (EP) Framework	Humor Aspects Examined	Key Findings	Full text retrieved
Norman, 2009	Theoretical framework development, conceptual analysis	Interest indicator model	Humor in social relationships, attraction	Humor functions to communicate interest in social relationships	No
Polimeni and Reiss, 2006	Theoretical/conceptual review	Adaptive evolution	Evolutionary origins of humor, cognitive structures	Explores adaptive features of humor and its evolutionary path through hominid history	No
Warren et al., 2020	Theoretical/conceptual review, empirical review	Integrative review of humor theories	Antecedents of humor appreciation	Simultaneity, violation, and benign appraisals are key antecedents of humor	No
Weisfeld, 1993	Theoretical framework development, conceptual analysis	Adaptive value theory	Tickling, word play, fitness-relevant topics	Humor motivates seeking fitness-enhancing input; laughter serves as a social signal	No
Weisfeld, 2006	Theoretical framework development, conceptual analysis	Adaptive esthetic emotion	Humor appreciation, fitness-salient topics	Humor provides mental stimulation and social bonding benefits	No

Based on our analysis of the included studies:

- Study Types :
  - 6 studies involved conceptual analysis
  - 5 were theoretical/conceptual reviews
  - 4 included theoretical framework development

– 1 was an empirical review

- **Primary EP Frameworks :** Our analysis revealed a range of primary evolutionary psychology frameworks, with no single framework appearing to dominate across the studies we examined. Each of the 9 frameworks (synthetic evolutionary, evolutionary psychology, sexual selection, evolutionary adaptation, interest indicator model, adaptive evolution, integrative review of humor theories, adaptive value theory, and adaptive esthetic emotion) was used in 1 study.
- **Humor Aspects Examined :** We found a wide variety of humor aspects examined across the studies. The most commonly examined aspect was fitness-relevant topics, which we found in 2 studies. All other aspects (including laughter and humor evolution, sex differences, mating strategies, infant humor, social cues, attraction, cognitive structures, and humor appreciation) were each found in 1 study.

## Thematic Analysis

### Evolutionary Functions of Humor

#### Social Bonding and Group Cohesion Mechanisms

Study	Social Bonding Mechanism	Group Cohesion Strategy	Evidence Quality
Gervais and Wilson, 2005	Playful emotional contagion	Promoted resource-building social play	Theoretical, based on synthesis of existing research
Kuhle, 2012	Reinforcing social truths or shared understandings	Aligning perceptions of mating strategies	Theoretical, based on analysis of comedy routines
Mireault and Reddy, 2016	Strengthen social bonds	No mention found	Theoretical, based on infant development literature
Norman, 2009	Initiating and monitoring social relationships	No mention found	Theoretical, supported by review of existing studies
Polimeni and Reiss, 2006	Social bonding	Group cohesion	Theoretical, based on review of multiple disciplines
Warren et al., 2020	No mention found	No mention found	Not applicable
Weisfeld, 1993	Encouraging social interaction	Fostering group play	Theoretical, based on observations of human and primate behavior
Weisfeld, 2006	Mutual benefit in social interactions	No mention found	Theoretical, integrating findings from multiple disciplines

Social Bonding Mechanisms:

- Seven out of eight studies mentioned social bonding mechanisms

- We found 7 different social bonding mechanisms across the studies, each mentioned once:
  - Emotional contagion
  - Shared understandings
  - Strengthening bonds
  - Initiating relationships
  - Social bonding
  - Encouraging interaction
  - Mutual benefit

#### Group Cohesion Strategies:

- We found 4 different group cohesion strategies: social play, aligning perceptions, group cohesion, and group play, each mentioned in 1 study
- We didn't find an explicitly mentioned group cohesion strategy in 4 studies

#### Evidence Quality:

- 7 studies were based on theoretical evidence, drawing from various sources such as synthesis of existing research, analysis of comedy routines, infant development literature, review of existing studies, and observations of human and primate behavior
- For 1 study, the evidence quality was not applicable

The diversity of social bonding mechanisms and group cohesion strategies suggests that humor's role in social bonding and group cohesion is complex and multifaceted, with no single dominant theory emerging from this set of studies. Notably, all but one of the studies provided theoretical evidence, highlighting a potential gap in empirical research in this area of evolutionary psychology of humor.

### Sexual Selection vs Interest Indication

Evolutionary Mechanism	Supporting Evidence	Contradicting Evidence	Theoretical Integration
Sexual Selection	Humor preferences in mate choice (Kuhle, 2012)	Limited gender differences in humor appreciation (Warren et al., 2020)	Could be integrated with social bonding theories as a specific context
Interest Indication	Humor use in relationship initiation and maintenance (Norman, 2009)	No mention found	Compatible with both sexual selection and general social bonding theories

Our analysis revealed supporting evidence for two evolutionary mechanisms of humor:

- Sexual Selection: 1 study found evidence related to humor preferences in mate choice
- Interest Indication: 1 study found evidence related to humor use in relationship initiation and maintenance

We found contradicting evidence for one mechanism:

- Sexual Selection: 1 study found limited gender differences in humor appreciation

We didn't find explicit contradicting evidence for the Interest Indication mechanism.

Regarding theoretical integration:

- For Sexual Selection, we found 1 suggestion that it could be integrated with social bonding theories
- For Interest Indication, we found 1 suggestion that it is compatible with both sexual selection and general social bonding theories

These findings suggest that while there is some evidence supporting both sexual selection and interest indication as evolutionary mechanisms for humor, the relationship between these mechanisms and their integration with other theories of humor evolution remains an area for further exploration.

## Developmental Trajectory

### Early Emergence Patterns

Study	Developmental Stage	EP Explanations	Evidence Quality
Gervais and Wilson, 2005	Early hominids, 4-2 million years ago (mya)	Duchenne laughter as preadaptation	Theoretical, based on evolutionary timeline
Kuhle, 2012	No mention found	No mention found	Not applicable
Mireault and Reddy, 2016	First six months of life	Sensitivity to social and emotional cues	Theoretical, based on infant development literature
Norman, 2009	No mention found	No mention found	Not applicable
Polimeni and Reiss, 2006	Hominid history	Innate cognitive structures	Theoretical, based on review of multiple disciplines
Warren et al., 2020	No mention found	No mention found	Not applicable
Weisfeld, 1993	Early childhood (tickling)	Practice for self-defense	Theoretical, based on observations
Weisfeld, 2006	No mention found	No mention found	Not applicable

Four out of eight studies provided specific developmental stage information:

- 1 study focused on early hominids (4-2 million years ago)
- 1 study examined the first six months of life
- 1 study considered hominid history broadly
- 1 study looked at early childhood

Regarding evolutionary psychology (EP) explanations for humor:

- We found 4 different explanations, each proposed by 1 study:
  1. Duchenne laughter as a preadaptation
  2. Sensitivity to social and emotional cues
  3. Innate cognitive structures
  4. Practice for self-defense

For evidence quality:

- 4 out of 8 studies were classified as theoretical
  - 1 based on evolutionary timeline
  - 1 based on infant development literature
  - 1 based on review of multiple disciplines
  - 1 based on observations

The diversity in developmental stages and EP explanations suggests that the evolutionary development of humor may have occurred across multiple time scales, from early hominid evolution to individual human development. However, the predominantly theoretical nature of the evidence highlights a need for more empirical research in this area.

### Cultural-Biological Interaction

Study	Cultural Factors	Biological Factors	Interaction Proposed
Gervais and Wilson, 2005	Cultural evolution	Biological evolution	Co-evolution of cultural and biological factors
Kuhle, 2012	Cultural expressions of humor	Evolved psychological traits	Culture reflects evolved traits
Mireault and Reddy, 2016	No mention found	Innate responses	No mention found
Norman, 2009	Social relationship norms	Evolved interest indication	Cultural norms shape expression of evolved mechanisms
Polimeni and Reiss, 2006	Traditional societies	Cognitive structures	Interaction implied but not explicitly described
Warren et al., 2020	No mention found	No mention found	No mention found
Weisfeld, 1993	No mention found	Evolved pleasure response	No mention found
Weisfeld, 2006	Artistic offerings	Evolved stimulus preferences	Culture exploits evolved preferences

Cultural Factors:

- We found explicit mentions of cultural factors in 5 out of 8 studies
- These included cultural evolution, expressions of humor, social norms, traditional societies, and artistic offerings

Biological Factors:

- We found mentions of biological factors in 7 out of 8 studies
- These included biological evolution, evolved traits, innate responses, evolved mechanisms, cognitive structures, evolved responses, and evolved preferences

Interaction between Cultural and Biological Factors:

- We found explicit proposals of interaction in 4 out of 8 studies
- These included co-evolution of cultural and biological factors, culture reflecting evolved traits, cultural norms shaping the expression of evolved mechanisms, and culture exploiting evolved preferences



- We found an implied interaction in 1 study

Most studies (7 out of 8) considered both cultural and biological factors in some capacity, suggesting a recognition of the complex interplay between these factors in the evolution of humor. The nature of the proposed interaction varied, with some studies suggesting a bidirectional influence between culture and biology, while others proposed a more unidirectional relationship (e.g., culture reflecting or exploiting evolved traits). This diversity in proposed interactions highlights the complexity of understanding humor development from an evolutionary perspective and suggests potential areas for future research to further elucidate these relationships.

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