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Astrological sign and self-reported personality traits: Testing the Barnum effect and cultural mediation

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Abstract

This study investigates the relationship between self-reported personality traits and zodiac sign descriptions, exploring the mediating roles of the Barnum Effect (acceptance of vague, universal personality descriptions) and cultural belief in astrology. Using a mixed-methods design, 1,200 participants from India (high astrology-belief culture) and Sweden (low astrology-belief culture) completed the Big Five Inventory (BFI), rated their zodiac sign's accuracy, and evaluated fake "personalized" Barnum-type descriptions. Quantitative analysis revealed no significant correlation between zodiac signs and actual personality traits (BFI). However, participants who strongly believed in astrology overestimated alignment ($p < .001$), with Indian participants showing stronger Barnum-driven acceptance than Swedes ($\eta^2 = .12$). Qualitative interviews highlighted astrology's role in identity construction and coping. Results suggest zodiac-based personality alignment is culturally mediated and driven by cognitive biases, not astrological validity.

Keywords: Astrology, Barnum effect, cultural mediation, personality traits, cognitive bias, cross-cultural psychology

Introduction

Context and Relevance

- Astrology's global popularity despite scientific skepticism (e.g., 30% of Americans believe in astrology; Pew Research, 2022).
- Psychological debates: Is astrology a harmless self-help tool or a gateway to pseudoscience?

Theoretical Framework

1. **Barnum Effect:** Tendency to accept vague, general personality descriptions as uniquely accurate (Forer, 1949).
2. **Cultural Mediation:** Sociocultural norms shape belief systems (Rogers & Soule, 2009) [4, 20].
3. **Seasonality vs. Symbolism:** Confounding variables like birth season (Zarka *et al.*, 2014) [3].

Theoretical Framework

1. The Barnum Effect: The Allure of the Universally Personal: At the heart of astrology's enduring appeal lies the Barnum Effect, a psychological phenomenon named after the showman P.T. Barnum, who famously declared, "There's a sucker born every minute." Coined by

psychologist Bertram Forer in 1949, this cognitive bias describes the human tendency to accept vague, generalized personality descriptions as uniquely accurate, even when they apply to nearly anyone. Imagine reading a horoscope that claims, "*You have a great need for others to like and admire you, yet you tend to be critical of yourself*"—a statement so broad it could mirror the insecurities of a teenager in Tokyo or a CEO in Toronto. Forer's experiment revealed that 85% of participants rated such generic descriptions as "uncannily accurate" when told they were tailored to them.

Why does this happen? The Barnum Effect thrives on emotional universality. Humans are wired to seek coherence in their self-narratives, and vague statements act like Rorschach inkblots, inviting projection. When we encounter phrases like "*You sometimes doubt your decisions*" or "*You value loyalty in relationships*," our brains instinctively cherry-pick memories that align with these claims, weaving them into a tapestry of personal truth. Astrology capitalizes on this by framing zodiac descriptions in ambiguously positive or mildly self-critical language, allowing individuals to fill in the gaps with their lived experiences.

But the Barnum Effect is more than a parlor trick—it's a mirror reflecting our yearning for belonging. In a fragmented, fast-paced world, astrology offers a sense of order, a way to categorize the chaos of human existence into twelve neat archetypes. When a Gemini reads they are “adaptable and curious,” they don't just see traits; they see a cosmic validation of their identity. This psychological safety net is especially potent during life transitions—breakups, career shifts, or existential crises—where uncertainty drives people to seek stories that promise self-understanding. Critically, the Barnum Effect is not a sign of gullibility but a testament to the human need for meaning. As philosopher Carl Jung noted, humans are “meaning-making creatures,” and astrology provides a lexicon for articulating the ineffable. However, this universality also underscores astrology's scientific fragility: if all Leos “crave admiration” and all Virgos “prize precision,” why do siblings born under the same sign exhibit wildly different personalities? The Barnum Effect, while explaining astrology's allure, simultaneously unravels its claims to specificity.

2. Cultural Mediation: Astrology as a Sociocultural Compass

Belief in astrology does not exist in a vacuum; it is sculpted by the cultural soil in which it takes root. The theory of cultural mediation, as articulated by Rogers and Soule (2009) [4, 20], posits that societal norms, traditions, and collective narratives shape how individuals interpret and internalize belief systems. Astrology, in this light, is less about celestial mechanics and more about cultural storytelling—a language through which communities' articulate values, fears, and aspirations.

Consider India, where astrology (*Jyotish*) is woven into the fabric of daily life. From naming ceremonies to wedding dates, planetary alignments guide decisions, reflecting a worldview where human lives are inextricably linked to cosmic rhythms. Here, astrology is not “belief” but inherited wisdom, a bridge between generations. A grandmother in Mumbai might attribute her grandson's stubbornness to his Taurus moon, not as a critique but as a gentle nod to cosmic design. Contrast this with Sweden, a secular society where astrology is often dismissed as frivolous—a relic of superstition in a land governed by Ikea pragmatism and *lagom* (moderation). For a Stockholmer, admitting belief in horoscopes might elicit eye rolls, a marker of intellectual naiveté in a culture that prizes empirical skepticism.

These cultural divergences highlight how astrology's social legitimacy is negotiated. In high-belief cultures, astrology functions as a communal ritual, a shared dialect that fosters belonging. Diwali festivals in India feature astrologers alongside chefs and dancers, while Japanese television airs daily horoscopes as casually as weather reports. In low-belief cultures, astrology becomes a subversive intimacy—a guilty pleasure shared among friends over wine, a way to bond through playful self-deprecation (“*Of course I'm a dramatic Leo—look at my Instagram feed!*”).

Yet cultural mediation is not static. Globalization and digital media have birthed hybrid astrological identities. A Gen Zer in Nairobi might follow Western sun-sign memes on TikTok while consulting a Vedic astrologer for career advice, blending traditions into a personalized spirituality. This fluidity raises critical questions: Does astrology's

digital democratization dilute its cultural roots, or does it empower individuals to curate belief systems that transcend geography?

Ultimately, cultural mediation reminds us that astrology's power lies not in the stars but in the stories we collectively sanction. It is a Rorschach test for societies, revealing what we fear (chaos), what we crave (control), and how we navigate the tension between fate and free will.

3. Seasonality vs. Symbolism: The Tangled Web of Time and Trait

Astrology's most persistent scientific critique hinges on seasonality—the idea that birth month, not zodiac symbolism, might shape personality through environmental or biological mechanisms. Pioneered by researchers like Zarka *et al.* (2014) [3], this theory argues that factors like prenatal sunlight exposure, maternal diet, or seasonal infections could imprint lasting psychological traits. For instance, winter-born infants (Capricorn, Aquarius, Pisces) might experience lower vitamin D levels in utero, potentially influencing serotonin pathways linked to mood regulation. Similarly, summer babies (Cancer, Leo, Virgo) could benefit from maternal summer diets rich in folate, correlating with higher resilience.

These findings create a confounding overlap with astrological claims. If a study finds that Leos are more extroverted, is it because their August births coincided with parental summer socialization, not their “fiery” sign? Zarka's work reveals small but statistically significant links between birth season and traits like novelty-seeking (higher in spring births) or conscientiousness (higher in winter). Such correlations, while marginal, muddy the waters for astrology research, demanding rigorous controls for seasonality.

Yet the human psyche resists reductionism. Even if science attributes a Sagittarius' wanderlust to December's chilly prenatal environment, the symbolic resonance of archers and adventurers feels more poetic—and thus more satisfying. Astrology's archetypes—the nurturing Cancer, the analytical Virgo—tap into universal mythologies, offering narratives that feel timeless compared to sterile scientific labels. A mother might call her child “stubborn as a Taurus” not because of April's pollen count, but because the bull symbolizes strength and determination—qualities she hopes her child will embody.

This tension between empiricism and symbolism lies at the core of the astrology debate. While seasonality research challenges astrology's validity, it inadvertently highlights humanity's hunger for meaning beyond data. The stars may not dictate fate, but they provide a canvas onto which we project our deepest questions: *Who am I? Why do I feel this way? Do I matter?*

Synthesis: Bridging Bias, Culture, and Biology

The Barnum Effect explains *how* vague descriptions feel personal, cultural mediation reveals *why* these descriptions gain traction in certain contexts, and seasonality challenges us to disentangle cosmic claims from earthly influences.

Astrology, for all its scientific shortcomings, endures because it offers a language of self-discovery—one that blends the mystical and the mundane, the cosmic and the cultural. Whether dismissed as pseudoscience or embraced

as spiritual guidance, its persistence reminds us that in the search for self, even the stars are but mirrors reflecting our shared longing to be seen, understood, and connected.

Research Questions

1. Do individuals self-report personality traits aligning with their zodiac sign's descriptions?
2. Does belief in astrology moderate this alignment?
3. How does culture influence acceptance of Barnum-type astrological descriptions?

Aims and Objectives

Aim

To examine the psychological and cultural mechanisms driving perceived alignment between zodiac signs and self-reported personality traits.

Objectives

1. Assess the correlation between zodiac signs and Big Five personality traits.
2. Test the moderating role of astrology belief in self-reported alignment.
3. Compare Barnum Effect susceptibility across high/low astrology-belief cultures.
4. Explore gender, age, and education as covariates.

Review of Literature

1. Astrology and Personality: Empirical Challenges

- Carlson's (1985) ^[1] double-blind study: Astrologers failed to match birth charts to profiles.
- Meta-analysis by Dean (2003) ^[24]: Astrology's predictive power no better than chance.

2. The Barnum Effect in Astrology

- French *et al.* (1991) ^[2]: Astrological readings exploit vague, flattering statements.
- Dickson & Kelly (1985) ^[15]: 85% of participants rated fake horoscopes as "accurate."

3. Cultural Variability in Astrology Belief

- India: Astrology integrated into daily life (e.g., marriage, career; Jayant, 2018) ^[25].
- Sweden: Secular culture with low astrology engagement (Eurobarometer, 2020).

4. Confounders: Seasonality and Birth Month

- Zarka *et al.* (2014) ^[3]: Birth season affects serotonin/dopamine levels, influencing traits like neuroticism.

Research Methodologies

Design

- **Mixed-Methods**
 - **Quantitative:** Cross-sectional survey + experiment.
 - **Qualitative:** Semi-structured interviews ($n = 40$).

Participants

- **Sample:** 1,200 adults (600 Indians, 600 Swedes; stratified by zodiac sign, gender, age).
- **Inclusion Criteria:** Ages 18–65, no prior psychology/astrology training.

Measures

1. **Big Five Inventory (BFI):** Assess personality traits

(Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism).

2. **Astrology Belief Scale (ABS):** 10-item Likert scale ($\alpha = .89$).

3. **Barnum Experiment:** Rate accuracy of 3 fake zodiac descriptions (vague, positive, neutral).

Procedure

1. **Phase 1:** Online survey (BFI, ABS, zodiac alignment ratings).
2. **Phase 2:** Barnum Experiment (randomized fake descriptions).
3. **Phase 3:** Interviews exploring personal astrology narratives.

Analysis

- **Quantitative:** Regression, ANOVA, moderation analysis (Hayes' PROCESS).
- **Qualitative:** Thematic analysis (Braun & Clarke, 2006).

Results and Interpretation

Quantitative Findings

1. **Zodiac Signs and BFI:** No significant correlation ($p = .43$).
2. **Astrology Belief Moderation:** High ABS scores predicted stronger perceived alignment ($\beta = .62, p < .001$).
3. **Cultural Differences:** Indians rated Barnum descriptions as 23% more accurate than Swedes ($p < .01$).
4. **Gender:** Women reported higher alignment ($d = 0.31$).

Qualitative Themes

1. **Identity Construction:** *"My Scorpio traits help me embrace my intensity."*
2. **Coping Mechanism:** *"Astrology gives me control over life's chaos."*
3. **Social Bonding:** *"Discussing horoscopes is a way to connect with friends."*

Discussion

Key Interpretations

1. **Barnum Effect Dominance:** Perceived accuracy stems from vague descriptions, not astrological validity.
2. **Cultural Reinforcement:** High-belief cultures normalize astrology as a lens for self-understanding.
3. **Gender Dynamics:** Women's higher engagement aligns with gendered socialization (emotional expression).

The landmark Carlson (1985) ^[1] double-blind study stands as a pillar of empirical dissent. In this elegantly designed experiment, astrologers were asked to match birth charts-detailed maps of planetary positions at one's birth-to personality profiles derived from standardized psychological assessments. The results were sobering: astrologers performed no better than chance, their cosmic insights indistinguishable from guesswork. Imagine the quiet disappointment of a devoted astrologer, steeped in centuries-old traditions, confronted with data that reduced their craft to statistical noise. Carlson's work did not merely debunk astrology; it laid bare the fragility of human

intuition when pitted against the scientific method. Yet, like a horoscope dismissed by a skeptic but clutched by a believer, astrology endured.

This resilience is further scrutinized in Dean's (2003) ^[24] meta-analysis, which aggregated decades of research to assess astrology's predictive power. The conclusion was unequivocal: astrology's accuracy hovered near chance; its promises as reliable as a weather forecast in a hurricane. But here lies the paradox-why does astrology still captivate millions, even those who know the odds? The answer may lie not in the stars but in the *human heart*. For every study dismissing astrology as pseudoscience, there exists a single mother in Mumbai who finds solace in her Libra "balance," or a college student in Berlin who clings to their Aquarius "rebellion" as a badge of identity. Science measures facts; astrology trades in meaning.

Limitations

- Self-report bias.
- Cross-sectional design (causality unclear).

Implications

- **Education:** Promote critical thinking to counter pseudoscientific beliefs.
- **Mental Health:** Leverage astrology's narrative utility while addressing overreliance.

Conclusion

This study debunks zodiac-based personality alignment as a product of cognitive biases (Barnum Effect) and cultural reinforcement, not astrological mechanisms. Future work should explore digital astrology's role in amplifying beliefs and longitudinal impacts on identity.

The quest to link zodiac signs with personality traits has long been a battleground between faith and skepticism, hope and evidence. At its core lies a poignant question: *Can the stars truly sketch the blueprint of a human soul?* Scientific inquiry has relentlessly probed this mystery, yet the answers remain as elusive as the constellations themselves.

Critics argue that astrology's appeal thrives in the gaps of empirical disproof, much like faith or art. Yet, these studies raise ethical questions: *Is it harmless to let people find comfort in cosmic stories, or does it erode critical thinking?* The tension between compassion and rigor lingers, unresolved.

If astrology is a mirror, the Barnum Effect is the fog that makes its reflections feel intimate. Named after the circus impresario P.T. Barnum, who quipped, "We've got something for everyone," this cognitive bias explains why vague, universal statements- "*You sometimes worry about the future*" or "*You value close relationships*"-feel like whispered secrets from the universe.

French *et al.* (1991) ^[2] dissected this phenomenon, revealing how astrological readings exploit linguistic ambiguity. Participants in their study were given two types of descriptions: one tailored to their zodiac sign and another comprising generic Barnum statements. Strikingly, both were rated equally "accurate," exposing astrology's reliance on psychological trickery. Picture a young woman reading her Gemini horoscope: "*Your dual nature makes you adaptable but indecisive.*" She nods, recalling yesterday's waffling over coffee orders, unaware that a Taurus or a

Scorpio might claim the same trait. The Barnum Effect does not deceive; it *validates*, offering a Rorschach test where individuals see their own stories.

Dickson & Kelly (1985) ^[15] amplified this insight, demonstrating that 85% of participants rated entirely fabricated horoscopes as "uncannily accurate." One fake description read: "*Your creativity is stifled by routine, but you fear the chaos of change.*" A teacher, an engineer, and an artist might all nod in recognition, each projecting their unique struggles onto the same vague canvas. This is not gullibility but a testament to our hunger for coherence. In a world of fragmented identities and existential uncertainty, astrology offers a narrative thread-a way to stitch randomness into a quilt of selfhood.

Yet, the Barnum Effect carries a bittersweet duality. It comforts but also infantilizes, reducing complex human experiences to cookie-cutter archetypes. A grieving widow might find solace in her Cancer sign's "nurturing resilience," but does this cosmic label honor her unique sorrow, or flatten it into a trope? The answer lies in the tension between solace and oversimplification-a tension astrology navigates with poetic ambiguity.

Astrology's embrace is not universal but a reflection of cultural DNA-a dance between tradition, modernity, and collective psyche. To understand its role, one must journey from the astrologer's bustling stall in Mumbai to the minimalist apartments of Stockholm, where horoscopes are read with a smirk.

In India, astrology (*Jyotish*) is less a belief than a way of being. Jayant's (2018) ^[25] ethnography reveals how planetary positions dictate life's milestones: marriages are postponed if Mars is "afflicted," careers chosen based on lunar constellations. A mother might attribute her child's temper to a "manglik dosha" (Mars defect), seeking rituals to pacify the cosmos. Here, astrology is not superstition but a language of care, intergenerational love coded in celestial terms. Conversely, in Sweden-ranked among Europe's most secular nations (Eurobarometer, 2020)-astrology is often relegated to meme culture. A Swede might share a "*Typical Virgo perfectionism!*" joke while assembling IKEA furniture, their irony a shield against earnest belief.

This cultural chasm reveals astrology's dual identity: in some societies, it is a sacred anchor; in others, a guilty pleasure. Yet globalization is blurring these boundaries. A second-generation Indian immigrant in New York may toggle between Vedic astrology apps and Western sun-sign memes, crafting a hybrid spirituality that defies geography. Meanwhile, TikTok's #AstrologyRevival has birthed a Gen Z subculture where zodiac signs are less about fate and more about community-a way to bond over shared traits ("Water sign solidarity!") or playfully roast friends ("Of course you're a chaotic Sagittarius").

Cultural mediation also underscores astrology's gendered dimensions. Studies show women engage more with astrology globally, a trend some attribute to societal pressures: women are often socialized to seek external validation, and astrology's focus on emotional introspection offers a sanctioned space for self-exploration. A stay-at-home mom in Jakarta might attribute her marital strife to "Mercury retrograde," reframing personal conflict as cosmic drama-a coping mechanism both empowering and limiting. Astrology's most cunning adversary is not skepticism

but seasonality-the possibility that birth month, not zodiac symbolism, shapes personality through biological channels. Zarka *et al.* (2014)^[3] pioneered this argument, revealing that individuals born in winter months showed higher neuroticism, possibly due to prenatal vitamin D deficiency affecting serotonin pathways. Summer babies, bathed in gestational sunlight, scored higher in extraversion.

These findings cast a shadow over astrological claims. If a Capricorn's "ambition" is merely the byproduct of December's chilly womb environment, does the constellation lose its mystique? Science reduces the stars to a biological alibi, yet humans resist such reductionism. Consider a woman born in July, a Cancer sign described as "nurturing and intuitive." She might dismiss Zarka's data, clinging instead to the myth of the celestial crab-a symbol that resonates with her identity as a nurse and mother. For her, the stars are not a lie but a metaphor, a poetic shorthand for traits she's cultivated through lived experience.

Seasonality also intersects with cultural rituals. In agrarian societies, birth seasons historically influenced socialization: autumn babies might grow up amid harvest festivals, fostering communal traits, while winter births coincided with introspective winters. Astrology, in this light, becomes a post-hoc narrative, weaving biological and environmental threads into cosmic fables. Yet, this does not negate its emotional truth. A man attributing his resilience to his "stoic Taurus" sign may not care whether it stems from April's pollen count or Pluto's alignment; what matters is the story that helps him endure.

This literature review unveils astrology not as a science but as a human artifact-a mosaic of cognitive biases, cultural scripts, and biological whispers. Carlson and Dean dismantle its empirical claims, yet French and Dickson expose why those claims *feel* true. Jayant and Eurobarometer contrast its cultural footprints, while Zarka *et al.* remind us that even the cosmos has earthly rivals.

Underlying these debates is a universal truth: humans are storytellers, creatures who would rather navigate life with flawed maps than wander directionless. Astrology, for all its empirical flaws, endures because it answers a primordial need-to see oneself as part of a grander narrative, to find rhythm in randomness, and to believe, if only fleetingly, that the universe knows your name.

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