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A Note by the Editor-in-Chief

The importance of research is not always and only defined by the outcome. As people around the World chase rejection of a null hypothesis, we often forget to acknowledge the mere importance of asking questions. Sometimes, getting results different from your expectations can be just as fascinating. Statistical significance, in my opinion, is not the only measure of the worth of a research paper. But rather, it is always necessary to ask oneself: is this research going to open avenues for future scholars in the field? Can the answers to my questions lead to more questions? It is important to continually ensure that a glass ceiling on curiosity never exists.

As we bring to you these peer reviewed papers, alongside dissection of research in various labs, we would like to highlight the importance of continually satiating one's curiosity. Our papers dip into various interdisciplinary interactions of psychology, biology, sociology, pharmacology, neuroscience, gender studies and music.

I would like to thank everyone involved in the creation of this edition: the authors, the editors, the designers. We hope anyone who reads this can take away something from it: a question, an answer, or just a new curiosity.

Asmi Aggarwal
Editor-in-chief
Ashoka Psychology Review: Edition 2, Volume 1

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ACADEMIC PAPERS

Collective Memory, Commemoration, and Social Affirmation in LGBT+ Identity Formation

Author: Mihir Eshan

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This essay talks about the role of collective and cultural memory in forming the collective LGBT+ identity through the years, using the 1969 Stonewall Riots as a prime example. Cultural objects, artefacts, collective practices, and rituals are shown to be key to preserving and reinventing the Queer identity across generations. In doing so, time and space are essential to serve as catalysts that cement a group identity. Different stages of memory formation are conceptualised and fitted to a social lens as we explore how LGBT+ individuals and collectives visualise and affirm themselves. In specific, mediated episodic memory recall serves as the key psychological phenomenon behind social identity formation in this context. Commemoration is thought to be the most vital mechanism to create and materialise the LGBT+ identity. We also account for the cultural and historical bias caused by forgetting and systematic social exclusion in this process. The overarching psychological framework of psychological affirmation through public visibility brings this essay together as it explores various examples such as that of Gay Parades in Spain and the Black Trans experience of the Stonewall Revolution.

Play Behavior In Animals: An Evolutionary Inquiry

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Long been regarded as a frivolous activity, Play is often dismissed as lacking evolutionary significance. However, recent interdisciplinary research suggests that Play is not merely a result of surplus resources in an organism's environment, but an active adaptive behavior with profound cognitive, social, and ecological implications. The discussion covers key theories, including Burghardt's Surplus Resources hypothesis and Chevalier-Skolnikoff's view of Play as an adaptation to novelty. Play is understood as a heterogeneous, evolutionarily recurrent behavior contributing to motor development, cognitive flexibility, and social negotiation. Special attention is given to its role in the evolution of cooperation and moral behavior, as seen in species like wolves. The essay further argues that studying Play can enrich our understanding of cognitive evolution, mainly through comparative approaches. Future research should investigate Play's emergence in understudied taxa, its developmental trajectories, and its dialogue with environmental pressures. By integrating cognitive, ecological, and evolutionary perspectives, this essay highlights Play as a crucial, though often overlooked, factor in shaping adaptive intelligence.

Under'stan'ding Stans: Parasocial Relationships in the K-Pop Entertainment Industry

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The global expansion of the K-Pop entertainment industry has not only reshaped popular culture trends but also brought attention to the interactions between K-Pop "stans" and "idols". Central to this dynamic is the phenomenon of parasocial relationships, intense one-sided socio-emotional connections formed with media figures such as leaders and celebrities. While this phenomenon has been broadly understood through

Western media, there is a gap in understanding how it functions within the uniquely immersive and commercially driven environment of K-Pop fandoms. This paper examines how parasocial relationships are formed, maintained, and expressed in K-Pop fan culture. It addresses the question: How do parasocial relationships develop in K-Pop, and what are their psychological and social consequences for fans and idols? Adopting a social psychological lens, it draws on media analysis and fan discourse to examine mechanisms such as impression formation, participatory fan culture, and the curation of idol personas and romantic intimacy. The paper goes on to explore online behaviours that exacerbated fan-idol parasociality during and after the COVID-19 lockdown. Finally, it investigates how these behavioural and contextual forces contribute to extreme phenomena like the "sasaeng" subculture, and public responses to idol "scandals". Observations suggest that parasocial relationships in K-Pop are a product of the fans' emotional investment toward the idol personas intentionally crafted by their entertainment company. Parasocial relationships offer fans a sense of community, identity, and support—particularly for adolescents and young adults who are still in the process of forming personal and social identities. However, they can also distort self-perception, increase emotional dependency, and appear to replace reciprocal real-world connections. As seen by case studies discussed within the paper, maintaining these idealised images imposes significant pressure on idols, often at the cost of personal autonomy and well-being. By contextualising parasociality within the K-Pop industry, this paper contributes to the field of fan studies and media psychology. Findings highlight the emotional demands placed on both fans and idols, emphasising the need for further research within non-Western media contexts, and advocates for more mindful, self-aware engagement with fandom culture.

How Does One Express Their Identity Through What They Wear

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Exploring how one expresses their gender identity through what they wear is a broad subject spanning across not only different gender orientations and forms of expression but also different kinds of clothing, accessories, and hair styles. Reviewing existing literature brings to light an emphasis on the theory of gender performativity and the use of clothing to self-construct, individuate, and reaffirm gender identity. These are contextualised in relation to changing social norms, cultural contexts, and the rise of social media. While this literature explores gender expression and clothing, there is a notable gap in the focus on non-WEIRD (Western, Educated, Industrialized, Rich and Democratic) contexts and college spaces. Hence, this paper aims to bridge these gaps and expand on the existing body of research by undertaking a qualitative inquiry into the research question in an Indian context with participants from Ashoka University in India. This paper in particular focuses on a deep, rich analysis of the experiences of a single genderfluid participant. Framed in an interpretative social constructionist paradigm, this study analyses data collected through a semi-structured interview. This data is transcribed and further analysed using Reflexive Thematic Analysis. Three themes are produced and analysed in depth: Re-Gendering rather than De-Gendering Clothing; Clothing as a Visual Medium of Control, Assertion and Influence; and Intersectionality of the Biological Body and Societal Norms as Constraints and Supports. These themes are explored in the context of existing literature and frameworks. Finally, some limitations, implications, and future directions for research are also considered.

Raag, Rhythm, and the Rewiring Brain

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This essay posits that the structural and affective complexity of Hindustani classical music (HCM) offers a unique neurotherapeutic framework for addressing the impairments of neurodegenerative diseases (NDDs) across multiple dimensions. By synthesizing musicological analysis, neurocognitive research, and cross-cultural clinical data, it argues that HCM's raga-taal architecture, improvisatory nature and emphasis on the presentation of ethos, may ameliorate affective symptoms. It achieves this in the specific case of Alzheimer's and Parkinson's diseases through the modulation of neural oscillations and enhancement of neuroplasticity.

LAB REVIEWS

The Role of mps-1 in Habituation Learning in C. elegans: A Review of the Sesti Lab's Contributions

Written by editor Aryan Tiwari

Original paper: Cai, S. Q., Wang, Y., Park, K. H., Tong, X., Pan, Z., & Sesti, F. (2009). Auto-phosphorylation of a voltage-gated K+ channel controls non-associative learning. The EMBO Journal, 28(11), 1601–1611. https://doi.org/10.1038/emboj.2009.118

COVID-19 Vaccination Status and Hesitancy: Survey Evidence from Rural India: A Review

Written by editors Reva Sawant and Maneya Handa

Original paper: Shashidhara, S., Barnhardt, S., Mukherjee, S. (2022, December). COVID-19 Vaccination Status and Hesitancy: Survey Evidence from Rural India. Centre for Social and Behaviour Change. Retrieved April 10, 2025, from https://csbc.org.in/upload/covid-19vaccinationstatusandhesitancycsbcmanuscript.pdf

Social isolation reduces metabolic rate and social preference in Wild - type Zebrafish: A Review

Written by editors Anannya Shetty and Fern (Shirin Raman)

Original paper: Original paper: Ghosh, A., Rao, A. M., Middha, P., Rai, S., Rajaraman, B. K. (2024). Social isolation reduces metabolic rate and social preference in Wild-type Zebrafish (Danio rerio). BioRxiv. Retrieved April 15, 2025, from https://doi.org/10.1101/2024.11.22.624675

"You Don't Know Me so Don't Try to Judge Me": Gender and Identity Performance on Social Media Among Young Indian Users (Majumdar et al., 2022) – A Review

Written by editor Deepika Vadlamani

Original Paper: Majumdar, S., Tewatia, M., Jamkhedkar, D., & Bhatia, K. (2022). "You don't know me so don't try to judge me": Gender and identity performance on social media among young Indian users. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.855947

Lab Review: A Psychological Perspective on Pharmaceutical API Procurement in India

Written by editors Pratyusha Gupta and Navvya Rahate

Original Paper: Hamill, H., Hampshire, K., Vinaya, H., & Mamidi, P. (2023). Insights from a qualitative study of the procurement and manufacture of active pharmaceutical ingredients in India. BMJ Global Health, 6(Suppl 3), e011588. https://doi.org/10.1136/bmjgh-2022-011588

Academic Papers

These papers were written by the student body of Ashoka University, Haryana, India. Any work produced reflects the opinions of the author's and not the Review's.

ASHOKA PSYCHOLOGY REVIEW

Collective Memory, Commemoration, and Social Affirmation in LGBT+ Identity Formation

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Memory formation and remembering play an important role in determining social identity and its position as a founding factor in the formation of social groups as is noticed in historical evidence. Different individuals remember and recall differently, which leads to a variegated abundance of life experiences. This is especially emphasised in individuals who are part of larger communities. Social groups and communities create a shared identity through common practices and commemorative activities over time to preserve their existence in memory. This acts as a solid base to strengthen their unique culture, utilising time and place, as well as visual and aural methods to cement their identity. This essay argues how collective and cultural memory shape group identity over time through psychological affirmation, utilising cultural objects and group practices in creating affirmation through public visibility. This is studied in the context of the LGBT+ movement's perseverance in the past many decades, recognising the role of the 1969 Stonewall riots in shaping the LGBT+ identity.

Theoretical Framework

Collective memory is often defined by its practices rather than as an entity of its own. Olick (1999) describes it as the aggregation of individual recollections, official commemorations, and collective representations that are rooted in oral history, art, the built world, and tradition. These commemorative activities are characterised uniquely by each group and its members, constituting their culture. In Materialised Identities, Heersmink (2021) talks at length about cultural objects like artifacts, monuments, and collective practices that create what he calls, "cultural memory." Cultural memory helps us remember the deeper as well as the recent past through formalised methods of practice like rituals, monuments, documen-

taries, commemorative services, and more. It draws from Cultural Psychological theory such as Hammack's (2008) work on how personal narratives are shaped through social interaction. Olick elaborates that social action and production are made possible by materials and practices handed down from the past, saying, "Collective memory becomes synonymous with pattern-maintenance." This maintenance is directly rooted in the brain. Biologically, memory formation is divided into 3 main processes: encoding, maintenance and storage, and retrieval (McLeod, 2023). Encoding is heavily influenced by how important memories are to us. Retrieval depends on how we store and associate information. Maintenance is the most important aspect of storing memory for a long time. Theoretically, this is done by repeating learning processes over time. In our context, every memory is reproduced, revisited, and re-learned over time: memories last long through their evolving meanings. However, how does this apply to group members who haven't physically experienced historical events foundational to their group's identity?

Mediated Episodic Memory Recall

Heersmink (2021, p. 8) answers this question by coining the term, 'mediated (or derived) episodic memory.' Episodic memory refers to those events we remember that are experienced personally in a time and place that "allow us….to relive past experiences" (Perera, 2021). Heersmink's work states that visual media with an experiential component such as documentaries, photos, and videos derive mediated episodic memory. This way, newer members feel attached to historically important events such as Jewish children do with the memory of the Holocaust. The new members' presence is 'embodied' in these events through their interaction with artifacts and

exposure to information about collective practices from the event. Olick and Robbins (1998) termed this 'sociobiographical memory,' a mechanism that helps us feel pride and pain from events that happened to our group before our joining. Affirmation is a widely-used term in Gender Studies and in this essay's context, refers to a mechanism of social support that reinforces individual or collective identity. It helps LGBT+ individuals cope with negative attitudes socially and benefits them for months and years, thus relevant to the discussion of historically significant identity affirmation (Cohen Sherman, 2014). It also motivates individuals to pursue collective action for social change (Kende et. al., 2016). This brings forth the discussion on the Stonewall riots of 1969 (hereby referred to as 'Stonewall') and the affirming impact of their commemoration on the present-day LGBT+ community's identity.

The 1969 Stonewall Riots

In June 1969, the New York Police Department (NYPD) routinely raided Stonewall Inn, a gay bar in Greenwich Village. This time, the gay men, lesbians, and drag queens who lived there fought back. Shots were fired, bricks and shot glasses were thrown, and support gathered quickly outside the bar (Walsh, 2019). This sparked a nationwide pushback against homophobia and started a revolution that is now celebrated as one of modern history's pioneering gay rights movements. Armstrong and Crage (2006) wrote extensively about why Stonewall is such a widely remembered and commemorated event from a time when violence against the 'queers' was everywhere. They attribute this to two conditions: the event was deemed commemorable and the gay community had resources and capacity, i.e. 'mnemonic capacity' to start a widespread movement. Days following the raid, marches were organised in various locations in the United States, led by New York. As the text says, "Time and place mattered." The time was right: gay people were angry and mobilised amongst each other quickly. People saw each other stand up for the same cause on the streets and grew exponentially stronger: visibility led to affirmation. The raid started to be remembered and celebrated annually, creating a commemorative vehicle: the 'Pride Parade' as we know it today. Pride Parades (hereby referred to as 'Pride') around the world not only commemorate Stonewall but also campaign for gay rights in their respective countries. As popularly said, "…threw the shot glass heard around the world" (Morris Nakayama, 2014). Organisations, such as the mobilised post-Stonewall gay community, engage in commemorative practices to create stability and continuity for the group's identity (Cutcher et. al., 2016, p. 3). The survival of Stonewall's commemoration has only been possible due to the "periodic revisiting of its story."

Commemoration and Collective Cultural Memory

The temporal and spatial aspects of memory related to Stonewall are of key importance to its own success as well as how progressive social movements draw from time and place. Knaeur (2014) coined the term, 'historical contingency' in the context of the lived experiences of LGBT+ individuals. This term draws attention to the fact that events are determined by certain time-related factors like circumstances, chance, and precursor events rather than being predetermined; it deals with the sequence of events (Martin, n.d.). This explains Knaeur's distinction between a 'pre/post-Stonewall' LGBT+ community which mentions the pre-1970s gay individuals who possessed no public gay visibility and how Stonewall com-

pletely changed that. For places to be encoded as meaningful, they must be sites where commemorative practices are performed and produced (Cutcher et. al., 2016, p. 5). Protestors primarily gathered outside Stonewall Inn, in its neighbourhood, and its city because its identity was rooted in these places. Had the movement not been concentrated in these specific locations, it may not have been this well-commemorated. Further proving this point, the Stonewall National Monument was built in the same locality owing to its cultural, emotional, and commemorative significance. A place of commemoration is hence symbolic in its presence. The use of public space to express a marginalised identity in large numbers cemented Stonewall's impact on queer social identity. As Enguix (2009) puts it, pride parades "not only occupy, but 'produce' space and identities." Participants consider public space a site of vindication, 'visibilisation,' and commemoration for the LGBT+ community and its history. Writing in the context of Madrid Pride, Enguix called Stonewall an "emblematic" precursor to the contemporary queer rights movement. Symbols like the rainbow flag and demonstrations such as those at Pride are characteristic of cultural identity and commemorative practice. Anderson (2006) spoke of group formation in a different context, but his constituents of group identity creation apply in this sense to the LGBT+ community as well. He characterised nationalists as a group with deep horizontal comradeship where people do not know each other personally but unite for a shared cause. This "imagined reality" is possible due to the 'simultaneity' of visual and aural phenomena that occurred together at different places stemming from a common feeling. While global pride parades are inherently indicative of the importance of mass visibility to affirm collective identity, their regular annual occurrence acts as an antidote to the social invisibility that LGBT+ individuals face while also strengthening their memorability. Stonewall is said to have "stressed the importance of 'coming out'" that led to a movement of mass visibility (Enguix, 2009, p. 19).

The Psychological Basis of Social Identity

'Coming out' as a rite of passage in the LGBT+ community is largely based on the need for individuals to identify themselves as part of a social group and express the same publicly. This phenomenon is compounded by Tajfel and Billig's (1973) Social Categorisation theory that posits that individuals tend to categorise themselves into social groups that positively contribute to their self-concept. First, one internalises their feelings to realise that they are different from people commonly present around themselves. Over time, one comes to terms with this difference being slightly more common on a larger scale around the world or one's country and is then acquainted with the marginalisation that membership in that group entails. The researchers divided this process across many stages such as social categorisation and identification. Positive interpersonal interactions with fellow LGBT+ individuals is an important contributing factor for queer affirmation (Poteat, 2015). It is psychologically more comfortable to be aware that one is not fully ostracised as one finds their community, which often cements itself at group events such as Pride parades and LGBT+ gatherings. These events are often commemorative in nature and draw from History to assert a collective sense of belonging for the group. Mass visibility, as demonstrated, is vital to create social and political movements that are rooted in a distinct identity and its practice. Whittier's (2022) research on the implications of 'coming out' on visibility and the LGBT+ identity recognises the centrality of cul-

ture and identity in the working of power and resistance. She said that "when groups engage in collective coming out, they open up space for individuals to redefine their own identities and to come out…" This is done using public events like parades, displaying a strong 'public collective identity.' By publicly expressing and reclaiming their identity through Pride, queer individuals affirm their own, as well as their group's identity. This way, cultural identity expression directly creates collective cultural memory that is passed down generationally through derived episodic memories and visual media. Demonstrations, publicly visible movements, and group practices commemorate identity and have historically documented its struggles in the form of monuments and artifacts.

Artefacts, Monuments, and Materialised Cultural Memory

Drawing from Heersmink's concept of cultural identity, artifacts and other material forms of cultural expression stem from 'Symbolism,' which is substantial to public visibility. An artifact can be defined as an object connected to a particular human institution such as a group (Merriam-Webster, n.d.). Artifacts often relate to the past through a historically contingent meaning. New members of a group majorly relate to these historical memories through artifacts, which have an emotionally evocative effect. Collective memory is primarily located in artifacts and then in the brain of its observers, where it forms an embodied personal narrative. Heersmink states that cultural identity is "materialised in the environment when we retrieve and construct collective memories by integrating information from our biological memory with information in artifacts or in other people's brains" (2021, p. 250). Emotionally charged Stonewall protestors encoded a collective memory so strong that its impact has persisted and affirmed queer identity for decades. Connecting to the overarching importance of public visibility to collective group memory and identity, monuments located in public spaces add to their "legacy of cultural and collective memory" (Zebracki Leitner, 2021). Queer monuments serve the purpose of stigma reduction, edification about queer history of oppression, and promotion of queer rights, all through the utilisation of public visibility. Zebracki roots this embodied experience of queer monuments in memorial practices and interpretations. He entails his personal observation of Tęcza, a queer monument in Poland to illustrate how vandalism and eventual removal of a material marker of group memory do not erase its presence for the group members. Its impact transcends "material absence." He calls this a "symbolic convergence around the artwork's visual content and its locational, temporal and social contexts" (p. 1357). Pride parades often include 'queer-heritage walks' that aim to bring queer individuals closer to their group identity through the collective experience of an embodied historical memory, i.e. a monument. This sentiment is termed to be a part of 'Queer Public Memory.' Overall, it is established that visibility aids memorialisation in the form of public monuments and artmaking. These concepts are highlighted in a memoir written by Andrea Jenkins, the first openly black transgender woman to be elected to political office in the United States (Jenkins, 2019). She wrote about her memories of expressing her identity in pre-Stonewall and post-Stonewall times. She penned her early memories of seeing transgender expression publicly using phrases like, "'The first time I saw what I think were drag queens was in 1969,' 'I was disturbed by the two sissies…,' 'I buried my feelings, deep'" (p. 63). Jenkins was "fascinated, because they were outwardly expressing how I felt inside." This shows the ex-

tent to which public visibility of queer lives affects closeted queer individuals, transforming their identity. Exemplifying Anderson's concepts of time and simultaneity, she talked about not knowing (at the time) that Marsha P. Johnson and Sylvia Rivera, the two pioneers behind the Stonewall riots lived in the same city as she did, and that their experiences of being oppressed would eventually lead to Stonewall. She mentioned mobilisation of gay protestors in her vicinity after Stonewall as she detailed her gradual participation in grassroots LGBT+ activism herself. This helped her discover and accept her identity over time as she says, "I knew the best way to get support was to give support." This goes to show that social movements affirm individual as well as collective identity simultaneously, encapsulated in her statement that she "was changing as the movement was changing." Recounting her memory of the gay rights movement caused by Stonewall, she says, "And so all of this progress; this fifty year (+) modern LGBT movement has coincided almost directly with my own awareness of the world around me and how my identity was formed by that image of two black "sissies" on the bus that day and two drag queens of color hanging out at the Stonewall Inn have converged to directly affect who I am today" (p. 67) This precisely coincides with the concept of visual and episodic memory and its direct effect on the identity and expression of members of a group who are not explicitly involved in a movement but are equally affected by it. Her first-hand account and biological memory, paired with her mediated experience of the Stonewall riots has affirmed her lived experience as a transgender woman to this very day.

Conclusion

The exact connection between a commemorated event and its subsequent impact on queer identity and its expression might fade over time. Enguix (2009) mentioned in his observation of Madrid pride how consumerism, spectacularisation, and commodification of Pride parades as a celebratory spectacle (fiesta) have caused them to stray away from their original intent of commemorating Stonewall. Memory may be skewed due to its subjective impact on individuals who may not have been exposed to commemorative practices and artifacts. Secondly, it was acknowledged that commemoration lasts long only when it is institutionalised with adequate mnemonic capacity. However, this inevitably leads to the exclusion of certain identities. Lesbian women's contributions to the Stonewall movement have been excluded from popular monuments and commemorative activities that otherwise include gay men (Dunn, 2017). Jenkins (p. 65) also mentioned how transgender representation was systematically marginalised in the broader Stonewall revolution and was " about twenty years behind" the gay movement. This showcases the fact that commemoration as a structure is limited as well as strengthened by gaps in memory that lead to the forgetting of constituents that may be important. Forgetting is rooted in the notion that "the brain is built to forget" (Gravitz, 2019). Commemorative artifacts, monuments, and practices thus socially affirm individual and collective identities utilising memory. They achieve this by psychologically integrating themselves into the cultural fabric of groups and communities, thereby actively creating, modifying, and reproducing cultural memory. Visibility and the public space are vital to the affirmation of underrepresented communities such as the LGBT+ people. Time and space dynamically govern progressive movements and how long they last. Ultimately, all identity connected to memory is subject to the human nature of forgetting and consequent meaningful gaps.

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ASHOKA PSYCHOLOGY REVIEW

Play Behavior In Animals: An Evolutionary Inquiry

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Play is defined as "to engage in (usually) physical activity for enjoyment and recreation rather than a serious or practical purpose" (Oxford Languages, 2025). It is generally agreed upon as something frivolous or without direct benefit. Evolutionary science has largely overlooked Animal Play as a behavior, despite its emergence in various organisms. The prevalent consensus is that it would be foolish to take an 'unserious' phenomenon like Play as an established field of study without a reliable definition (PsyNeuroEvents, 2013). Even with its fluctuating definitions, certain links of different Play behaviors have been found across observations in different species like songbirds, canids, primates, and humans— a list of criteria that can tell us what Play can look like. Researchers have repeatedly categorized Play as an adaptation, with three different kinds of Play observed: Locomotor (solo), Object Play (object manipulation and exploration), and Social Play (when two or more animals are involved) — which are not exclusive of each other (Burghardt, 2020). According to Burghardt, playful activities can be characterized as being: (1) voluntary, pleasurable, or self-rewarding; (2) different structurally or temporally from related 'serious' behavior systems; (3) expressed repeatedly during at least some part of an animal's life span; and (4) initiated in relatively benign and low-stress situations (Choice Reviews, 2005). In this, considering a widespread phenomenon like Play, which has only been successfully represented in interdisciplinary approaches so far, a simple clear-cut definition feels unlikely. One might ask: at what point phylogenetically, do play behaviors emerge— as it varies across different species and conditions? What are the costs of it, or what faculties has one had to trade off to be able to engage in Play behavior? As demonstrated by the following instances, we probably lack the resources to answer questions like that.

"Leveling the Playing Field"

Chevalier-Skolnikoff's paper named 'The Primate Play Face' proposed that primate Play evolved as a beneficial adaptation to novelty and is rooted in a distinct emotional state of playfulness. It explained that primates approach novel objects first with fear, then with careful inspection— which is visual, tactile, and olfactory, sometimes even tasting— and finally with experimentation and play (Chevalier-Skolnikoff, 1974).

Play, here, is ultimately shown as a process to achieve maximum information about an object, situation, environment, or playmate. But, one can begin to gather that the assumption of functionality in play, and finding motivational explanations in animals that don't have "play faces" (like cattle, canids, and fish— animals that are more "like" or "unlike" us humans) becomes increasingly problematic. Here, 'motivational explanations' would mean underlying drives or final causes that direct a particular behavior, such as seeking pleasure, reducing uncertainty, relieving stress, refining motor coordination, or strengthening social bonds. How can we apply such theories to species whose displays of, say, pleasure, displeasure, or intent, are unrecognizable to us? It is challenging to determine whether behaviors like object manipulation in cichlids, coordinated movements in cephalopods, or rough-and-tumble interactions in canids truly serve the same purposes. Play signals— vocalizations, postures, and gestures that either initiate or maintain a 'play atmosphere'— can vary in quality across species (Pellegrini, 2006).

Burghardt's Surplus Resources Theory

Another theory for the evolution of Play is Burghardt's theory of 'Surplus Resources' which states that animals are more likely to engage in play when they are well-resourced, energetic, and have ample time—essentially when they aren't under significant ecological stress (Burghardt, 2005). This theory isn't limited to mammals and birds but extends to reptiles, fish, and even some invertebrates. Additionally, the 'extended juvenile period' or 'prolonged curiosity', is crucial for developing the complex skills required for survival and reproduction (Pellegrini, 2006). This is particularly true for animals inhabiting varied or unstable environments. Contrary to the notion of predetermined behaviors triggered by specific contingencies, Burghardt mentions juveniles primarily utilize the resources provided by their caregivers during this sensitive period to explore their surroundings and experiment with various strategies.

If viewed consistently with attachment patterns in animals, dependent animals use their caregivers as a secure base for necessary explorations of their environment— understood as a gradual process towards independence. Playful interactions between mothers (the primary caregivers) and infants (the dependents), for instance, offer a compelling illustration of how the immediate environment can influence exploration and shape gene expression, potentially impacting stress levels and the reactivity of an organism. These external influences can indirectly impact the expression of genes and, over time, the evolutionary trajectory of a species.

Evolutionary Heterogeneity

In the context of Burghardt's Surplus Resources theory, however, a question arises: while abundant resources make space for Play, what ensures it? In other words, why Play and not something else? It seems like evolutionary convergence— behavior like Play need not stem from a particular purpose or goal-directed motivations, but instead it gains function after some kind of evolutionary establishment. For instance, in both primates and corvids (like ravens), complex social play has been observed, despite these species' distant evolutionary histories. While primates engage in role-reversal (like chasing and being chased) and self-handicapping play that strengthens social bonds, ravens display similar behaviors, such as aerial acrobatics and object manipulation (Diamond and Bond, 2003), which likely serve different cognitive and social purposes. The fact that similar behaviors arise in species with very different ecological niches and brain structures suggests that Play should not be linked to a singular evolutionary pathway, but instead thought of as acquiring adaptive significance over time. This is to say that since Play is evolutionarily heterogeneous, it having evolved more than once —frequently and independently— is a possible explanation. Testing the evolved function of Play (for both human and non-human animals) can take place by simulating social and object isolation alongside controlled environmental variation to see how an animal's action-perception mechanism varies in varied situations, which may or may not generate motivational or adaptive explanations. Understanding Play's role in behavioral flexibility, cooperation, and even social negotiation suggests that it may be more than just a physical activity—it may also provide critical insights into the evolution of cognitive mechanisms.

Need for Cognitive Explanations

How does one begin to consider how Play informs inquiries about the evolution of cognitive mechanisms? During social play, especially when dominant individuals engage in self-handicapping or role-reversal behaviors, they often seem to be requesting permission from less dominant animals to interact (suggesting the role of linguistic ability and 'perspective-taking'). The result is that the two individuals agree to cooperate, with self-handicapping and role-reversing being a form of negotiation (Bekoff, 1997). As Bekoff explains in his 2001 paper on the evolution of morality in animals, wolves engage in playful social behaviors to initiate and maintain bonding. These behaviors necessitate trust and cooperation among participants, as they involve voluntary vulnerability and the expectation that Play partners will not exploit the situation. Play would likely contribute to their later ability to coordinate in group hunts, where understanding and predicting the actions of others is essential (Bekoff, 2001). Burghardt (2005) further argues the development of cognitive function by noting that locomotor

Play in juveniles helps calibrate neuromuscular control and sensorimotor integration, which are essential proponents of behavioral flexibility and complex decision-making in adulthood. Additionally, Pellegrini (2006) highlights that these behaviors are not random but rather structured and repetitive, indicating potential links between locomotor play and the development of predictive and executive functions. These findings may suggest that certain cognitive capacities must precede others, which is important for understanding the evolution of cognition. Intuitively, Play can stem from boredom, which can mean Play comes after boredom, linguistic development, negotiation, and even the ability to make mental attributions (for social play) in a progression of collecting cognitive faculties— and Play may come before cooperation and 'morality' which is essentially playing fair. An adaptionist argument would require one to study these cognitive capacities and structures through the structure of the world the animal in question inhabits. If an ability evolves as an adaptation to certain environmental requirements, it should vary across environments with those requirements— as evident in the case of Play.

Conclusion

Rather than being a mere byproduct of surplus resources, Play appears to gain adaptive significance over time, influencing cooperation, coordination, and even moral behavior— longitudinal studies could clarify how Play influences cognitive and social development throughout an organism's lifespan. Studying Play thus potentially enriches the understanding of cognitive evolution owing to the very nature of such flexible and versatile widespread behaviors, which would contribute immensely to comparative approaches. Expanding comparative analyses to understudied taxa—such as fish, cephalopods, and insects—could refine existing theories, particularly regarding Play's emergence in species without prolonged juvenile periods (like humans and other mammals). Additionally, future research should explore how environmental pressures— such as resource availability and predation risk— shape Play behaviors, which could provide insights into the conditions necessary for its evolutionary persistence.

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ASHOKA PSYCHOLOGY REVIEW

Under'stan'ding Stans: Parasocial Relationships in the K-Pop Entertainment Industry

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K-Pop entertainment industry has gained global prominence, garnering a global audience with its vibrant music, captivating performances, and dedicated fan base. At the core of K-Pop fandoms (Fans of a specific group, individual or topic are collectively regarded as fandoms)lies a phenomenon known as parasocial relationships, which are deeply ingrained in the dynamic between fans and idols (In the context of K-Pop, "idols" refer to individuals who are professionally trained by entertainment agencies to become performers. They typically undergo extensive training in singing, dancing, as well as other skills such as acting, media training and stage presence.) Parasocial relationships are "nonreciprocal socio-emotional connections" that individuals may develop with popular media figures, including leaders, organisations, and celebrities (Aronson et al., 2022). In the context of K-Pop entertainment, these relationships typically form between fans and "idols" or "idol groups", who serve as the focal point of admiration and devotion within the fandom. Fans invest significant emotional and, sometimes, monetary resources into following the lives and careers of their favourite idols, despite the lack of direct interpersonal interaction. Fans feel a sense of closeness and connection to their idols, despite the apparent one-sided nature of the relationship. This paper examines parasocial relationships uniquely in the context of the K-Pop entertainment industry and the fan base it actively cultivates. Through the lens of social psychology, it attempts to understand the aspects of formation and maintenance of these relationships, as well as analyse the behavioural forces that shape and impact phenomena such as "sasaengs" and "idol scandals". Until this decade, parasocial relationships were primarily formed with television personalities who were often perceived as distant and inaccessible figures. Celebrities were mainly seen on television screens, album covers, and in magazines (Wisnet-Ad & Wisnet-Ad, 2020). Glimpses of their authentic personalities were reserved for occasional interviews or rare appearances on reality TV shows. Such content is generally enjoyed due to the fundamental human desire to accurately perceive and understand other people (Aronson et al., 2022). With the advent of the internet, the landscape of parasocial relationships has undergone a significant transformation. Celebrities now have direct access to their fans through social media platforms, where they can regularly share insights into the most personal parts of their lives. In their article, Angela Haupt observes, "Thanks to TikTok and Instagram, I can tell you with authority what their kitchens look like, what their dogs are named, and what they put in their morning smoothies. Is it any wonder I feel like I know them?" (Haupt & Johnson, 2023)

Foundation of Parasocial Relationships in K-Pop

Origin of the "Stan"

The term "stan" first emerged in popular culture through the American artist Eminem's song titled "Stan", released in 2000. It narrates the story of a fan named Stanley, or "Stan" for short, who self-identifies as Eminem's "biggest fan". Throughout the music video, Stan repeatedly writes letters to Eminem, pleading for a personal response from the artist. When his letters remain unanswered, Stan grows increasingly desperate, ultimately driving his car off a bridge with his pregnant girlfriend inside—resulting in his death (Vanlalawmpuia, 2023). "Stan" effectively served as a cautionary tale about the dangers of fans forming one-sided emotional attachments to public figures without any reciprocal interaction. However, its impact on popular culture was dynamic, as the term quickly transcended its original context. In 2017, the Oxford English Dictionary officially recognised "stan" as both a

noun and a verb, defining it as "an overzealous or obsessive fan of a particular celebrity" (BBC, 2017). This shift in meaning marked the evolution of "stan" from its original negative connotation, to a widely normalised and casual expression of admiration. K-Pop fans, in particular, adopted "stan" as part of their shared linguistic framework to articulate themselves in online and in-person spaces. Within K-Pop, the term now functions as a unifying label that fosters in-group identification. Fans collectively refer to themselves as stans, many mentioning it as an identifying feature on their social media profiles. Entertainment companies reinforce this identity by attributing a unique name to the fandoms of each K-Pop group. This fosters a sense of belonging, founded on mutual adulation and possession for 'their' idol and fandom. This social dynamic is further reinforced through online interactions, where fans actively engage with each other by participating in streaming, fan voting, and trending hashtags to support their idols. Consequently, the original definition of "stan" has diluted over time, now predominantly carrying humorous or prideful connotations in fandom communities.

The K-Pop Idol

The emergence of 'Hallyu', or the 'Korean Wave', can be traced back to the late 1990s during the Asian Financial Crisis, which compelled newly established South Korean entertainment companies, such as SM Entertainment, to adopt a production model inspired by the Japanese idol system. This model involved an intensive process of "scouting, auditioning, training, styling, producing, and managing" idols (Elfving-Hwang, 2018). Elfving-Hwang (2018) positions the idol as an imagined "parasocial kin", existing as "objects of consumption" through "parasocial interactions". K-Pop entertainment companies strategically capitalise on fan affect, constructing the idol not as an "impossible object of affection to be gazed at from afar" but as an accessible figure designed to foster parasocial relationships (Elfving-Hwang, 2018). This fundamentally distinguishes idols from traditional celebrities; idols are not merely performers but commodities shaped by the idol training system. Every 'idol identity' is intentionally crafted through an assigned 'persona' and public image that the artist is required to adhere to—an essential element for the impression formation process that K-Pop fans undergo, explored further in the following section.

Primary Causes of Parasocial Relationships in K-Pop

Impression Formation

The formation of parasocial relationships between K-Pop fans and idols can be understood as the result of cognitive and social processes that shape fan perceptions, elicit admiration, and foster perceived emotional closeness. Fans' perceptions of idols can be understood through impression formation processes that occur as they are introduced and inducted into a fandom. Impression formation refers to the cognitive processes through which individuals form judgments and evaluations of others based on available information (Aronson et al., 2021). Within the context of K-Pop fandoms, even limited exposure to an idol's appearance and demeanour can lead to the formation of strong impressions. This is further explained by the concept of thin-slicing—where brief observations are sufficient for drawing

meaningful conclusions about a person's traits or skills (Aronson et al., 2021). The idol-fan dynamic also reflects upward social comparison, wherein fans view idols as 'role models' and sources of inspiration, striving to emulate their behaviours and mimic aspects of their physical appearance. This can include imitating emblems, culture-specific non-verbal gestures—such as the finger heart and peace sign, commonly used by idols in photographs (Aronson et al., 2021). This comparison inspires fans to improve themselves, aiming for the excellence their idols embody. These cognitive and social processes help explain how admiration and adulation evolve into perceived closeness, reinforcing the emotional bond between fans and idols. This becomes particularly pronounced in K-Pop fandoms, as the content is primarily aimed towards a younger demographic. The formation of parasocial relationships can be particularly common among adolescents, who are navigating challenges like establishing identity and developing autonomy within societal norms (Gleason et al., 2017). A recent study concludes that such relationships are involved in adolescent autonomy development and identity formation through enhancing feelings of connection and community and facilitating coping (Gleason et al., 2017) (Hoffner & Bond, 2022). Consequently, access to intimate information about idols facilitates a process where fans, driven by egocentric desires regarding social identity and the self, intensify their perceived closeness.

Maintenance of Parasocial Relationships Through Idol Image

The image of K-Pop idols is portrayed through carefully curated content, some released even before their official debut. Agencies utilise promotional materials such as teasers and photoshoots to prime their audience, creating and reinforcing schemas—mental structures that serve as a way to organise knowledge about similar ideas together (Aronson et al., 2021). Proximity, constructed through controlled online social interactions, cultivates an environment where K-Pop fans are socialised to perceive a personal connection with their idols—thereby developing intense emotional investments. K-Pop fandoms exhibit unique characteristics and dynamics while maintaining parasocial relationships that set them apart from other celebrity fandoms, such as those found in Hollywood and the Western music industry. One such feature is its participatory fan culture. Unlike traditional fandoms, where fans primarily consume content passively, K-Pop fans actively engage in various activities to interact with their idols—such as fan voting in survival shows (E.g. Produce 101) and music award shows (E.g. M Countdown). Fans eagerly participate in voting events, mobilising their collective efforts to ensure their idols' success. Additionally, the streaming culture causes K-Pop fans to place a significant emphasis on idol achievements, including music show wins, charting positions, album sales, and records. Some even create guides on streaming platforms. Individuals have a tendency to have an increased affinity towards something they have worked hard for, as well as other individuals who they have helped. These phenomena are respectively known as justification of effort and the Ben Franklin Effect. Fans meticulously track and celebrate milestones, feeling validated and taking pride in their dedication. This drives them to invest even more time, money, and effort into supporting idols. The COVID-19 lockdown accelerated the shift towards online behaviours such as the "TikTok-ification" of music—a new trend that simplifies K-Pop choreographies for easy replication and sharing on short-form social media, making the standards held

by idols seem easily obtainable (Moore, 2023). This upward social mobility embodied by idols, alongside increased access to online fan communities like 'fan cafes' and 'K-Pop Twitter', provides the sense of belonging and in-group identification that adolescent fans particularly look for (Elfving-Hwang, 2018). The lockdown period also saw an accelerated shift towards virtual interactions, leading to the emergence of vlogs, live streaming platforms such as Vlive and Weverse, and paid fan calls and texts. In a study on parasocial relationships and celebrity endorsement among K-Pop fans in Singapore, online survey data revealed that social media interactions significantly influenced parasocial relationships through the mechanism of self-disclosure (Chung Cho, 2017). Engaging in one-on-one conversations provides fans with an experience that creates a sense of intimacy, and more saliently, exclusivity. A significant feature that characterises the K-Pop idol's image is romantic availability. A recent study found that stans of the K-Pop group BTS, alongside shaping their own fan identity, also participate in constructing the identity of the idol group itself (Lindstam, 2021). This further supports the idea that the idol becomes the fans' object of projection; familial, platonic, and most significantly, romantic (Elfving-Hwang, 2018). For instance, Korean singer Bae Suzy has been hailed the "Nation's First Love" in her country, reinforcing her accessibility to fans as a member of their primary in-group. Entertainment companies strategically market idols as romantically available, preserving this perception by enforcing strict dating bans—especially during the initial impression formation period right after an idol's debut. The recent decade has also seen an increase in heavy policing of male and female idol interactions. This controlled image creates a feedback loop where fans are encouraged to sensationalise platonic relationships and inconsequential interactions between idols, fuelling a shipping culture where fans pair idols with each other or with themselves. Therefore, fans may experience a form of cognitive dissonance when their idols enter into a relationship with someone else, feeling discomfort that may manifest into outrage and disapproval. Altogether, the maintenance of parasocial relationships in K-Pop fandoms is sustained through a combination of meticulously curated idol images, participatory fan culture, and the strategic portrayal of idol romantic availability, encouraging idol-fan interaction to take on an intimate and personal nature. These elements reinforce fans' perceived sense of closeness to idols, gradually deepening their emotional investment and cultivating a parasocial illusion of reciprocal intimacy.

After-Effects of Parasocial Relationships in K-Pop

The Sasaeng Phenomenon

K-Pop fan culture distinguishes between 'normal' stans, and an extreme category of stans known as "sasaengs". The Korean term directly translates to 'private' and refers to individuals who engage in severe violations of idols' privacy, such as stalking, trespassing, and crossing physical boundaries during public appearances like fan meets (Iwika, 2018). "They follow me, sit next to me on planes, and take photos of me while I sleep," a male idol reported on a fan communication forum (The Korea Herald, 2024). Unlike stans, whose behavior typically centers around public admiration and support, sasaengs intrude into the private lives of idols. Rather than trailing behind and observing idols from a distance, they attempt to position themselves next to the idol, often

walking alongside them in public spaces. This physical closeness may function as an overt visual representation of a sasaeng's self-perception, symbolising a perceived status beyond that of an 'ordinary' fan. By attempting to occupy space typically reserved for in-group members like K-Pop group members, sasaengs appear to emulate the idol. This behaviour signals a desire to collapse the boundary of a parasocial relationship; to "be the individual who captures the essence—or attention—of their idol" (Iwika, 2018). It suggests that sasaengs view themselves as separate from other fans, instead identifying with and performing the idol identity in public. The sasaeng phenomenon, therefore, can be distinguished from obsessive fan behaviour in Western celebrity culture.

Idol Scandals

"Scandals" within the K-Pop industry often prompt fans to question why their idols behave in unexpected ways. While examining the cause of an idol's behaviour, fans may make internal or external attributions. For instance, when a video of Blackpink member Jennie surfaced, allegedly appearing lethargic during a live performance, fans immediately attributed her behaviour to laziness and a lack of dedication instead of considering potential external factors such as overexhaustion or health issues (Savage, 2023). This hasty judgement exemplifies Fundamental Attribution Error, where individuals tend to overemphasise internal traits and underestimate situational factors when explaining others' behaviour. Despite addressing the physical ailment that resulted in her poor performance, Jennie's "laziness" is still a topic of discussion on the internet. This demonstrates belief perseverance, an inclination to hold onto attitudes formed in the past, even after the presentation of conflicting evidence (Aronson et al., 2021). "Scandal" is a term that is also used to describe rumours about romantic relationships in the K-Pop industry. The imposition of strict dating bans during the impression formation period sensationalises any rumors related to idol relationships, reinforcing their association with "scandals". In 2018, HyunA and E'Dawn confirmed their relationship, defying the industry's usual practice of idols keeping their romantic lives private. Their agency, Cube Entertainment, initially denied the relationship and later announced the termination of their contracts due to "loss of trust." Surprisingly, this decision made many fans side with the idols, criticising Cube Entertainment. However, the fallout from the scandal resulted in damage to both idols' reputations, impacting their careers and public image. Another recent instance of an idol dating "scandal" involved AESPA member Karina's and actor Lee Jae-wook, sparking intense online discourse (Srivastava, 2024). Some fans expressed sentiments of betrayal and disappointment towards Karina, even going as far as launching a boycott campaign and sending a protest truck to her agency building. It read: "Do you not get enough love from your fans? Why did you choose to betray your fans? Please apologize directly. Otherwise, you'll see declining album sales and empty concert seats." (Yeung, 2024). This extreme backlash culminated in the announcement that their relationship had ended, with Karina posting a handwritten apology on Instagram (Srivastava, 2024). When addressing controversial information and rumours, idols often emphasise on a genuine image, attempting to "remain human" in the eyes of their fans. Prioritising authenticity allows idols to uphold their credibility and strengthen their bond with fans. However, this incident directly reveals some stans' entitlement over Karina, perceiving her personal life as something they should have control over. The demand for an apology suggests an expectation that idols should

prioritise fan satisfaction over their own autonomy.

Conclusion

The nature of parasocial relationships between K-Pop fans and idols is unique and significantly influential in a bidirectional manner. They offer community and support, especially to adolescents and young adults, fostering feelings of belonging and social connection (Iwika, 2018). However, it is essential for fans to approach these relationships mindfully, recognising the potential influence of curated idol images on their social and self perceptions, behaviors, and well-being.

Beyond the impact on fans, the formation of parasocial relationships also places immense pressure on idols, forcing them to uphold unrealistic standards and sacrifice their personal freedom, ultimately contributing to the worsening mental health crisis within the K-Pop industry (Mysyk, 2023). Immense international growth of the K-Pop Wave in the last decade underscores the need for further research on phenomena that occur within this industry. Moreover, evolving dynamics of online fan engagement highlight the significance of critical and independent thinking. Sustaining healthy, direct connections with peers and family members remains crucial during this developmental stage, as parasocial relationships cannot fully substitute real-life social interactions. A balanced and self-aware approach to engaging in fandoms not only enhances the fan experience but also supports healthy emotional development and meaningful social interactions within the K-Pop community.

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ASHOKA PSYCHOLOGY REVIEW

How Does One Express Their Gender Identity Through What They Wear

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Unlike biological sex, which is determined by physical characteristics, gender identity is a deeply personal and subjective experience of one's gender. Gender identity refers to an individual's deeply felt internal sense of their own gender, which may or may not align with the sex they were assigned at birth (American Psychological Association, 2022). Butler's (1990) theory of gender performativity provides a foundation to understand how gender is constructed and expressed. Butler posits gender is not an innate, fixed characteristic, it is rather a series of repeated social performances that end up creating the illusion of a stable gender identity. Such performances are shaped and informed by power structures that further dictate what is considered masculine, feminine, or non-binary. This performance of gender occurs through multiple mediums, some significant ones being clothing and personal style. Clothing acts as a powerful form of non-verbal communication that allows individuals to express and negotiate their gender identity (Entwistle, 2000). Additionally, intersectional approaches to gender identity suggest that these performances are not universal but rather highly influenced by factors such as culture, race, class, and individual context (Crenshaw, 1991). The transition from late adolescence to early adulthood represents a critical developmental stage where individuals integrate previous identifications, values, experiences, and aspirations into a unique personal identity, with gender identity being a significant aspect (Newman Newman, 1978). Robin Peace suggests that individuals are recognised through "visibility factors" like dressing styles (Mpame, 2020). Clothing, accessories, hair, and make-up can shape how the body is perceived by others and experienced by the self. (Mpame, 2020). Consequently, this period involves exploration of personal style as a tool for expressing gender identity. Experiencing newfound independence, exposure to diverse peer groups, and fewer societal and institutional restrictions, college students are in an environment that fosters self-

expression. Juxtaposing this with India's rich history of style and its distinct understanding of gender demonstrates how it differs from the West. Instead of transposing theories founded in Western literature, this research will document culturally relevant narratives to offer a 'localised' perspective. This study uses the research question "How does one express their gender identity through what they wear?" to explore these themes in greater detail. For this, the interpretive social constructionist paradigm—which emphasises the existence of multiple constructed realities, and their subjective interpretations—is adopted. Conducting this study in Ashoka, a liberal arts and sciences university emphasising individuality, critical thinking, and creative expression, offers a unique microcosm.

Literature Review

Clothing- individuation, self construction and gender affirmation

Shefer et al. (2017) found that clothes helped one shape their identity by invoking a sense of individuality and uniqueness. They also played a role in building interpersonal relationships, helping create the self in relation to others. Additionally, participants emphasized both physical and psychological comfort. Clothes were seen as the gateway to the idea of personal, as well as identity-related comfort (Holliday, 2001). Adomaitis et al., (2021) found that clothing is a key way individuals affirm their gender identity. Clothes can be associated with an enhanced gender performance, causing changes in demeanour and emotions (Shefer et al., 2017). Participants highlighted how gendered clothing served as an external representation of their internal gender, especially during transitional phases. Clothing also takes a primary role in exerting and negotiating queer identities. A

qualitative study including 20 queer women found that they used clothing as visual indicators of their transforming identities (Reddy-Best, 2014). By wearing traditionally gendered items like skirts or ties, participants were able to communicate their evolving identity and feel recognised by others. Over time, as individuals became more comfortable with their gender identity, they shifted towards more clothing styles, moving away from rigidly gendered items (Adomaitis et al., 2021). Clothing provided them a way to conform, and in the case of queer women, subsequently subvert gender norms, further affirming their gender and sexual identity by choosing more "masculine" clothing and shorter hairstyles (Reddy-Best, 2014). Dressing was also seen as a gateway into queer spaces and there was a premium placed on dress, style, and fashion; with people often judged negatively for the lack of it (Clarke & Turner, 2007). However, expression through clothing is not uniform across all environments with participants reporting that how "queer" they presented depended on the type of people they expected to encounter. This ties into the study by Adomaitis et al., (2021) who found that societal resistance to non-traditional presentations made it difficult in using clothing to affirm gender especially in rural areas. Cultural backgrounds leading to clothing restrictions was also seen in a study that interviewed male college students, where certain Chinese men in the study were unable to answer why they avoided certain styles (Noh et al., 2015).

Gender and Social Media

Liu et al. (2022) conducted a study on how the Chinese social media app RED, where the audience mainly includes young women sharing User Generated Content around consumption decisions, influences its users' conceptions of gender and fashion. Based on a mixed-methods approach, the study used 200 female users to investigate the effects of exposure to a variety of clothing styles on performative behaviours and self-perception. The results show that RED encourages consumers to try out designs that defy conventional gender conventions and promotes genderless clothing. This study emphasises how fashion, social media, and identity interact dynamically, broadening the scope of self-expression.

Community and Gender Identity

In a study by Belliappa (2018), the author investigates how individual agency and social pressures interact to determine sartorial decisions. Western dressing styles acted as a yardstick for professionalism and identity for Anglo-Indian women, thereby also contributing to maintaining societal femininity stereotypes. In a similar vein, Tamar Arev's work on Eritrean refugee women stages how dress functions as a boundary marker between the self and social expectations, as "cultural skin," through gendered and national identities. That is, what one wears extends not only in functional or aesthetic spheres, but also in cultural and gendered ones.

Methods

Method Overview

Through a semi-structured interview process, the researchers aimed to gain a deeper understanding of the nuanced relationships that exist between third and fourth year Ashoka students' gender

identity and what they wore (clothing, accessories, hair, etc.) These responses were then analysed using Reflexive Thematic Analysis.

Participant Details

The participant in this study is a 20-year-old, third-year Philosophy major at Ashoka University. They identify as gender-fluid and have been referred to as "P" (Participant) with they/them pronouns in the transcript and coding. The participant and I had worked together on a few non-academic campus events prior to the interview, but had no close personal or social relationship. Using purposive sampling, I reached out via WhatsApp for the interview.

Research Tool

The primary research tool was a semi-structured interview, which not only let us guide the participant but also maintained an open-ended approach. Hence, it had the flexibility of tailoring the question order and probes according to participant responses. The research question and list of surrounding topics were collectively ideated. Care was taken to ensure these were aligned with the experiences of a senior college student at a liberal-arts university in India. After a preliminary literature review, a tentative interview protocol was designed. This included topics such as the framing and evolution of gender identity, dressing style, impacts of social norms, access, peer relations and contextual factors, as well as shopping and style inspirations. Researchers engaged in a reflexivity exercise before and after the interview to record personal views that could influence the data's interpretation. Each researcher interviewed one participant for 25–60 minutes. The participants gave their signed consent before the interview began, and were clearly briefed about potential risks and benefits of participating in the study. They also indicated their preference for anonymity. The interview was voice recorded and transcribed verbatim in the Jeffersonian Style.

Analytical Approach: Reflexive Thematic Analysis

Thematic analysis is a method to develop themes, which refer to patterns, in collected research data (Joffe, 2012). It was developed not as a specific method but rather a family of them by Victoria Clarke and Virginia Braun, as a clear process to draw out these patterns. The reflexive approach is highly inductive, focusing on delving into both explicit and implicit meanings through the themes. Reflexive Thematic Analysis (RTA) was chosen as the most suitable method for further analysis, as it aligned with the ontological and epistemological demands of the study's interpretive social constructionist research paradigm. The participant was considered the "expert" of their field, and the data drawn from the interviews as contextual and situated. The analysis followed Braun and Clarke's (2022) six distinct stages of RTA: "(1) familiarizing oneself with the data, (2) generating codes, (3) constructing themes, (4) reviewing potential themes, (5) defining and naming themes, and (6) producing the report." For the first step, the researcher listened to, and transcribed, the interview recording. Next, this Jeffersonian style transcript was coded in chunks with Reflexive, Semantic and Latent codes. These codes were then used to draw themes from the data, which acted as central organising concepts for the interpretation. Finally, this report was produced to discuss the themes further and along with the research's implications, limitations, and outcomes.

Reflexivity

Reflections about the Research Topic

As a cis woman, my gender identity isn't something I've questioned much. Although I don't believe in the binary (and famously proclaim my love for the saying "gender is soup"), I'm content to be seen as feminine and use she/her pronouns. Growing up, I was exposed to gender discourse in passing, but the topic was never openly brought up until I came to university, where I began seriously engaging with it as I questioned my own sexuality. When the term gender expression is used, behaviour and mannerisms come to my mind more than any externality. This extends itself to my own clothing choices, and as someone who grew up short and chubby, I tend to focus on whether clothes look 'good' rather than gender-affirming. I realise this may be a privilege that fitting into a conventional identity affords me. However, I also wonder if the norms for what looks 'flattering' are still dictated by stereotypes of ideal masculine or feminine body types. Overall, it was the inescapability of these societal perceptions in an Indian environment that helped me connect with my genderfluid interviewee. If I was so uncomfortable being perceived as unflattering, then being seen as a gender you didn't "feel like" was probably quite an alienating experience. My initial curiosity is what drew me to my interviewee in the first place. While approaching them, I posed three reasons for why they'd be the perfect candidate to interview—each of which they took with increased "oho"s of delight. Firstly, I knew they were extremely articulate; secondly, they had an amazing fashion sense; and thirdly, they had a 'fun' gender. Tickled, they readily agreed to participate, and I went off confident I'd secured the perfect 'expert' for my research. Underneath, there lurked a slight apprehension since our relationship was of friendly co-workers rather than complete strangers. Would they hold back on sharing something sensitive? If I was accidentally hurtful, would it affect our working relationship in the future? As someone who doesn't open up easily, I found myself projecting some of my own tendencies onto them but quickly realised that knowing them a little actually helped to build rapport, and they could open up more easily.

Reflections on the Interview

The interview was carried out in an empty classroom that was quiet, comfortable, and had no disturbances. Before we started, the participant confided in me that they were eager but also nervous, which I immediately became hyper-aware of as I consciously monitored my body language and words to ensure their comfort. Seeing it was distracting them, I abandoned making handwritten notes in favour of just having a free-flowing conversation. As the participant spoke, I became torn between being afraid to miss something and repeating questions. I hesitated to clarify what part of their genderfluid identity they were 'feeling like' on that day and instead stuck to using them/them pronouns. As a cis woman, this also stemmed from my linguistic and social unfamiliarity, as I didn't want to offend them. Often, I caught myself referencing the interviewee's words to 'show them' I was paying attention. Additionally, when I forgot to test the mic, I spent a long time worrying over audibility issues in my only source of data. In hindsight, I could have just paused to clarify, check audio, and split the interview into 2 tapes, but I was too preoccupied with whether this would be 'correct interview protocol' and that I'd lose credibility in their eyes. This need to be seen as a 'good interviewer'

could be the product of being raised in a collectivistic Indian culture that's largely contingent on external validation rather than an individual lens. In hindsight, I was surprised at how much some of my probes actually reflected my own worldview rather than centring the participant. Until I was coding the interview, I never even noticed, let alone questioned, these subtle manifestations of the power hierarchies I grew up in. Although the interview didn't change my views on my own gender identity or expression, I was able to take a step of understanding into what shaped my own thought patterns and biases. In learning what didn't affect me, I also got a glimpse of what did. Moreover, it was naturally a very informative insight into a different perspective. As psychology students who often place a lot of emphasis on understanding others' realities, being able to experience a new stance felt very special indeed.

Positionality

As a third-year cisgender woman with a Psychology major at Ashoka, I overlapped with my participant in certain facets of my identity, and deviated in others. Although we were from similar ages and backgrounds, and shared common interests outside the interview, our worldviews differed on the themes of gender identity and dressing sense, which were central to this research. Having never actively questioned my gender, nor been adequately informed or interested in fashion, I put myself in the position of an indigenous outsider—where I was indigenous to the space but an outsider to the topic. This was reflected in my body language, verbal cues, and behaviour throughout the interview, where I was constantly leaning in, nodding and saying "mhmm" to indicate my openness to learning about something I personally knew very little of. However, looking back, it seemed the participant approached the interview as though I was an indigenous insider instead. They often referred to subcultures and styles with a "you know right?" statement, before elaborating on my admission that I did not. This probably had an unintended impact in shaping what and how much they chose to share, as well as reinforcing their beliefs about what a 'good' answer may have been. My upper middle-class background and my upbringing in a metropolitan city also played into my ideas of what 'expensive' or 'on-trend' clothing could be. It's likely that this also contributed to a different idea of 'access' to clothing than the participant had. Having had only quantitative research experience before, learning not only to research qualitatively, but most importantly to think qualitatively has been a learning curve for me. All of these personal experiences and identities likely played a role in not only my coding and theme formation, but also my analysis of the data. 'Coming out' as a rite of passage in the LGBT+ community is largely based on the need for individuals to identify themselves as part of a social group and express the same publicly. This phenomenon is compounded by Tajfel and Billig's (1973) Social Categorisation theory that posits that individuals tend to categorise themselves into social groups that positively contribute to their self-concept. First, one internalises their feelings to realise that they are different from people commonly present around themselves. Over time, one comes to terms with this difference being slightly more common on a larger scale around the world or one's country and is then acquainted with the marginalisation that membership in that group entails. The researchers divided this process across many stages such as social categorisation and identification. Positive interpersonal interactions with fellow LGBT+ individuals is an important contributing factor for queer affirmation (Poteat, 2015).

It is psychologically more comfortable to be aware that one is not fully ostracised as one finds their community, which often cements itself at group events such as Pride parades and LGBT+ gatherings. These events are often commemorative in nature and draw from History to assert a collective sense of belonging for the group. Mass visibility, as demonstrated, is vital to create social and political movements that are rooted in a distinct identity and its practice. Whittier's (2022) research on the implications of 'coming out' on visibility and the LGBT+ identity recognises the centrality of culture and identity in the working of power and resistance. She said that "when groups engage in collective coming out, they open up space for individuals to redefine their own identities and to come out…" This is done using public events like parades, displaying a strong 'public collective identity.' By publicly expressing and reclaiming their identity through Pride, queer individuals affirm their own, as well as their group's identity. This way, cultural identity expression directly creates collective cultural memory that is passed down generationally through derived episodic memories and visual media. Demonstrations, publicly visible movements, and group practices commemorate identity and have historically documented its struggles in the form of monuments and artifacts.

Themes

Re-Gendering rather than De-Gendering Clothing

P: *Hmm… uh… (long pause) (6.0) Okay, sure, sure, this is very small, (grins) but sometimes, if you're wearing a jacket, if you pull like the sleeves up (laughs and rolls up jacket sleeves), that can make you look a lot more masculine. . .Also, jackets are very versatile. That way, we take them off and you can tie them around your waist. And the thing with having a sort of female body is that your hips get curvaceous mostly (makes curved shape with hands), usually, so that can sometimes…you want to hide that sometimes that you don't want to maybe referred to as a woman. So you take your jacket and you tie it over there, and you put your sleeves back, and you kind of just like take more space (leans back in chair, spreads legs) and that can sort of make your even body feel a certain way?*

Throughout the interview, the participant clearly articulates how their gender identity is fluid, leaning towards masculine at some points, and feminine at others. As a college student with a limited budget and wardrobe, this necessitates the creative use of the same clothing in different ways. Rather than trying to rid clothing of its societally 'gendered' stereotypes, P plays into it, sometimes covering up their 'softer' womanly curves, and sometimes emphasising them. These small alterations can even elevate an androgynous article of clothing or accessory to represent masculine or feminine identities, successfully allowing P to navigate the expression of their preferred gender. Furthermore, they speak of this exercise making them "feel" a certain way, alluding to the re-gendering of clothing as helping them reaffirm their own gender identity in that moment. Reclaiming and redefining traditional gender norms is a great way for gender non-conforming individuals like P to feel validated in their expression. Not only is it a personally fulfilling exercise, it also becomes a way to societally signal their preferred pronouns and identity. Since this identity exists and shifts across a spectrum, re-gendering clothing becomes a way to break the binary by dressing simultaneously within and outside of it. Experimenting with the same piece of clothing (such as a masculine blazer),

and styling it in feminine or androgynous ways becomes a reassertion of not only the existence of the gender spectrum but also their identity as a genderfluid individual. Thus, this conscious choice becomes a step of personal agency towards subverting conventional gender-clothing relationships. Marquez-Gallardo & Rovira-Lorente (2024) study this relationship further by delving into genderqueer closets. They find that assembling a collection of what to wear is a form of self-identification and self-expression for gender non-conforming individuals. Much like the participant, their results conclude that this construction of a wardrobe is shaped by spatial considerations that amplify or conceal the expression of certain genders at certain points in time. It is important to note that in P's case, this construction of a wardrobe is constrained by considerations of access, expense, and space. Hence, they employ Cwerner's (2001) idea of the 'individualisation of clothing' from a wardrobe, whereby any garment is styled, combined with others, and accessorised. The participant also uses the wardrobe as a space of creativity intermingled with affect and emotions (Ruggerone, 2006). With this, they are able to re-gender clothing items to align with the gender identity they're embodying in that particular moment.

Clothing as a Visual Medium of Control, Assertion and Influence

P: *Let me talk a little bit more about the subculture thing here. . . . these are black Doc Martens for reference. And they are a huge, sort of iconic part of a punk culture, grunge culture, and also lead a little bit, I think, into Gothic culture. . .And when we come to ideology, a lot of punk culture has been about defying the normative and um breaking through binaries- breaking through binaries to break down structures uh that sort of oppress us. Oppress us as like humanity in general, not like not- not only, not only women, not only queer people. . . And every time I wear it, wear them. . . I feel like I'm sort of…becoming a part of that subculture slowly, slowly. And I feel that it's a good representation of my overall style in general, and of things that I believe in.*

Since the participant is unable to change other facets tied to their gender identity, like their biological body or voice, they clearly stress on harnessing clothing as an active medium of control and messaging to the world. Not only does this reflect in their use of traditionally gendered clothing as explored earlier, but it also extends to fashion subcultures. By contextualising the clothes they wear in the historical, cultural and social significance of the trends, they consciously select and reject clothing styles to align with their identity and ideals. For instance, they opt into a lot of punk, grunge and gothic culture which is rooted in the idea of breaking binaries, while staying away from hyper-feminine and hyper-sexualized cultures like the Lolita or Harajuku styles. Wearing clothing associated with subcultures rooted in resistance becomes a method of identity construction and signalling to like-minded others. Selecting clothing with symbolic meaning is an effective way to visually communicate personal values tied to gender at just a glance. By doing so, P gains access to a larger network of people who are willing to create space for unique expressions, helping them reinforce their identity as a genderfluid individual. Rejecting certain hyper-feminine styles that perpetuate narrow gender norms is also a deliberate act of expression and can act as a boundary-setting mechanism, while adopting other subcultures communicates a deliberate defiance of societal norms as well as the gender binary. Overall, aligning with specific fashion subcultures lets P foster a sense of community while simultaneously asserting their own individuality. This sense of individuality can be contextualised through the feminist theory ideal positing that "the personal is political" (Hanisch,

1970). Like many other gender non-conforming individuals, P's life and experiences as a genderfluid person are often heavily shaped by larger socio-political forces. Hence, it is no surprise that many people in their community employ clothing as a medium of "negotiation and resistance" against traditional gender norms (Loscialpo, 2020). Although the participant may not always be able to change their build, biology, voice or height to align with their gender identity at any given point in time, clothing can satisfy their needs for self-consistency with a gender identity and consequently the need to fulfill their self-esteem (Strübel & Goswami, 2022). This self-esteem is boosted by P wearing clothing that signals their identity, which allows them to approach their ideal self-image in that moment.

Intersection of the Biological Body and Societal Norms as Constraints and Supports

P: *For...AFAB people right now, which is assigned female at birth. [mhm] It's a- it's still a little safer to experiment with clothing and the gender that's assigned to them, etc, etc, even outside of Ashoka. . . I do want to say that the only way that I've seen this change sort of affect me of- in space- has been when it comes to showing skin, which is a feature of me having a female body. It's not a feature of my different gender identity, which is not something parents back home, know, or anything like that. Uh, so it's only been about, oh, I can't wear shorts because my skin will show or I can't wear crop top because this that.*

P often explores their gender identity at the intersection of their biological body and the societal norms that govern it. As someone assigned female at birth and living in Delhi, they take great care in navigating public spaces and the societal gaze. As a genderfluid person, they're thankful that female bodies have far more freedom to explore with masculine-leaning clothing than vice versa. However, they also acknowledge the body policing that simultaneously occurs, requiring them to cover their skin and sometimes dress "modestly" due to gender norms or the sake of their own safety. Simultaneously, they deal with the experience of being constantly perceived and the pressures that come with having to dress a certain way to uphold their identity. The idea of people forming a mental representation of P's identity through their clothing becomes a double-edged sword that weighs on their thoughts while choosing what to wear. Since the participant's gender is not always aligned with their biological sex, the body becomes a site of negotiation where desire and reality intersect to mediate gender expression. Regardless of whether P chooses to conform, there are nevertheless certain societal norms that govern their dressing style. Hence, P's expression of gender identity through clothing is always constrained by factors such as safety, permissiveness, access, and environmental considerations. Since clothing is used as a way to shape how their body is perceived by others, the choice to wear or reject certain clothing is in itself an act of agency in shaping their gender expression. However, this expression does not exist in a vacuum but rather is both supported and constrained by the societal norms that govern P as a biological female. Although these norms are not enforceable by rule of law, they can and do have tangible, real-world consequences. A quantitative research study by Rodrigues (2024) found that participants socially distanced, dehumanised, and reported more violent behavioural intentions towards gender non-conforming targets as compared to gender conforming ones. These results are replicated in literature across this field, leading to justifiable concerns about gender expression

through clothing from the participant. As India lies in an odd postcolonial space of simultaneously rejecting and embracing female masculinity, P's identity as a genderfluid individual with a biologically female body remains in flux (Kumar, 2015).

Limitations and Implications

Given that the participant and I were not complete strangers, the existence of a social desirability bias is a potential limitation of the study. Furthermore, since time and resources were limited, there were no follow-up interviews conducted. Additionally, every researcher worked solely with their respective participant's interviews, and data was not comprehensively triangulated from multiple sources. All of these could potentially impact the reliability, validity, and credibility of the data. However, a detailed reflexive account and literature review have been included to increase the transparency of the research process. Another limitation is the lack of member-checking for the themes that arose from the data. Since they were not shared with the participant, there's a limit to the degree to which the findings of this study can be said to represent the participant's original experiences. Lastly, the sample of this study is only one singular participant at a very liberal, elite private university in India. This severely limits the generalisability of these findings to the rest of the Indian subcontinent. Nevertheless, this study is useful for understanding the experiences of gender non-conforming individuals in India when relating to clothing and identity expression. Given the extensive literature review conducted, there was a distinct gap in the representation of genderfluid individuals, especially those of P's age demographic. Hence, this study will help bridge that gap, simultaneously situating the research in an Indian cultural context. Resonating with the themes covered in this paper can help genderqueer individuals who are exploring new identities to understand themselves better. Furthermore, the participant's many views on clothing, subcultures, shopping, fashion, and access, illustrated briefly here and elaborated in the interview transcript, are a useful resource for fashion brands and retailers. Understanding these consumer dynamics can help apparel and accessory stores broaden client bases and be more inclusive by investing in a bigger unisex, androgynous, and queer-friendly stock of items.

Conclusion

This study is a qualitative journey into how one expresses their gender identity through what they wear. With growing emergence of awareness about the different gender identities outside the binary, this study can prove to be valuable to university and student-accessible spaces at critical developmental stages in the students' lives. The themes raised here revolve around the re-gendering of clothing, clothing as a visual messenger, and the contextual intersectionality of body and social norms. All of these themes help us understand the participant's lived reality and situate them in a way that their socio-cultural context and background are enmeshed with their clothing choices. This culturally specific perspective adds to the growing body of discourse and paves the way for further exploration. These can help not only administration and staff, but also wellbeing counselors and peers understand how they can create a safer and more inclusive space for exploration and expression of identity. Future studies can build on this and explore other important contributors to how gender identity is expressed through what one wears, such as access to media, markets, and money.

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ASHOKA PSYCHOLOGY REVIEW

Raag, Rhythm, and the Rewiring Brain

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Neurodegenerative diseases, characterized by the progressive erosion of motor, cognitive, and emotional faculties, present a formidable challenge not only to 15 percent of the global population, but to biomedical paradigms themselves. Pharmacological interventions, while critical in mitigating severe physical symptoms, tend to often neglect the holistic, social and systemic needs of patients. Within this lacuna, music therapy has emerged as a non-invasive adjunct. Growing evidence in this field implicates auditory stimuli in the regulation of dopaminergic pathways and hippocampal neurogenesis. However, existent research into this alternative therapy disproportionately emphasizes Western tonal systems, overlooking culturally embedded traditions like HCM. This paper contends that HCM's intricate temporal-emotional scaffolding—rooted in the raga (melodic framework) and taal (rhythmic cycle)—merits rigorous investigation as a neurorestorative agent.

Raags as Neurocognitive Scaffold

A raag can be understood as a melodic framework for a set of notes (swar) which provides a basis for the creation of a specific ethos. HCM's raag system operates as a spatiotemporal matrix, with each raag prescribed to specific times of day (samay) and associated with discrete emotional states (ras). For instance, Raag Bhairav (dawn) evokes gambheer ras (power and authority), while Raag Todi (mid-morning) elicits karuna ras (compassion). This codification is not merely symbolic; several neuroacoustic studies suggest that ragas' microtonal intervals (shruti) and ascending/descending phraseologies (aaroha/avroha) occur in tandem with endogenous brainwave frequencies. Theta (4-8 Hz) and gamma (30-100 Hz) oscillations are critical for memory consolidation and synaptic plasticity. They exhibit entrainment to HCM's cyclical patterns, as a pivotal 2021 randomized controlled trial by Mishra et al. (Journal of Alzheimer's Disease Reports) displays. This trial investigated the effects of Raag Yaman—a raag traditionally performed at dusk and associated with

peaceful, calm and serene states of mind. This experiment was performed on cognitive function, in individuals with mild cognitive impairment (MCI), which is a precursor to dementia. Employing electroencephalography (EEG), the study revealed that daily exposure to Raag Yaman significantly enhanced theta-band coherence (4-8 Hz) across prefrontal and parietal cortical regions, neural hubs governing episodic memory and attentional control. Participants demonstrated a 19 percent improvement in delayed recall tasks (p<0.01), alongside reduced beta-amyloid biomarkers, suggesting neuroprotective mechanisms. Notably, the raga's ascending-descending phraseology (aaroha/avroha) and microtonal intervals (shruti) were found to entrain gamma oscillations (30-45 Hz) in the hippocampus, a region central to synaptic plasticity. These findings align with the temporal alignment hypothesis, positing that HCM's time-bound structures (e.g., evening ragas like Yaman) may recalibrate circadian disruptions common in neurodegeneration.

Taal as Rhythmic Neuromodulation

The taal system—exemplified by cycles like Teentaal (16 beats) and Jhaptal (10 beats)—provides a kinetic framework with direct implications for motor rehabilitation. PD patients, whose basal ganglia dysfunction disrupts internal timing mechanisms, may benefit from rhythmic auditory stimulation (RAS). HCM's layered theka (rhythmic syllables) and polyrhythmic improvisations (layakari) offer dynamic cues that surpass metronomic simplicity. A randomized controlled trial (Mumbai, 2023) compared gait parameters in PD patients exposed to Teentaal versus conventional RAS. The HCM cohort exhibited 23 percent greater stride regularity (p<0.05), attributed to taal's "cognitive load distribution," wherein rhythmic complexity engages prefrontal-striatal circuits, bypassing degenerated dopaminergic pathways.

Improvisation and Neuroplasticity

HCM's improvisatory practices (alaap, jor, jhala) demand real-time melodic exploration within raga constraints, a process likened to "sonic problem-solving." Such activities may bolster cognitive reserve by activating the dorsolateral prefrontal cortex (dlPFC) and anterior cingulate cortex (ACC), regions implicated in executive function and error monitoring. In a pilot study (Kolkata, 2021), mild cognitive impairment (MCI) patients engaged in guided alaap vocalization exhibited enhanced functional connectivity in the salience network, with post-intervention PET scans revealing increased glucose metabolism in the dlPFC. These findings suggest that HCM improvisation may counteract cortical hypometabolism in early-stage NDDs.

Methodological and Cultural Considerations

While the effects are promising, HCM's therapeutic application still faces challenges. To start with, the affective impact of raags is mediated by cultural familiarity. A 2020 meta-analysis (Sikka et al.) found Indian participants exhibited 40 percent stronger emotional arousal to HCM than Western counterparts, complicating cross-cultural scalability. Additionally HCM's non-linear structures may overwhelm patients with advanced NDDs, making it unsuitable for a large number of affected individuals. Hybrid models integrating simplified folk ragas (e.g., Raag Pahadi) warrant exploration. Finally, unlike Western music therapy protocols, HCM lacks standardized dosage guidelines. Collaborative frameworks between teachers, students and maestros of various gharanas, institutions and neuroscientists are critical to systematize interventions.

Toward a Translational Framework

The development of a translational framework for Hindustani classical music (HCM)-based therapies necessitates a synergistic approach that bridges research, technology, and policy. First, interdisciplinary consortia—collaborations between neurologists, musicologists, and HCM practitioners—must be established to design evidence-based, raga-specific protocols. For instance, Raag Darbari Kanada, with its sombre, nocturnal resonance, could be optimized to alleviate agitation in dementia patients during sundowning episodes. Concurrently, technological innovation is critical: AI-driven platforms employing spectral analysis could decode patients' residual neural oscillatory patterns (e.g., theta-gamma coupling) and algorithmically match them to ragas that maximize entrainment, enabling personalized auditory interventions. Finally, systemic integration requires robust policy advocacy. National health agencies must formally recognize HCM therapists as allied healthcare providers, ensuring insurance coverage for music therapy and embedding it within standard neurodegenerative care protocols. Together, these steps—interdisciplinary co-creation, precision technology, and institutional legitimacy—could catalyze HCM's transition from cultural artifact to clinically validated neurotherapeutic modality.

Conclusion

Hindustani classical music, with its millennia-old synthesis of mathematics, emotion, and metaphysics, offers a fertile substrate for 21st-century neurodegeneration research. Its capacity to entrain neural rhythms, scaffold memory, and provide a degree of autonomy to those affected by neurodegenerative diseases aligns with the biopsychosocial model of care. This is a marked paradigm shift from pathology-centered to person-centered therapeutics, which is becoming increasingly relevant in a system of healthcare that is dominated by artificial intelligence. While challenges of cultural translation and methodological rigor persist, the wisdom we gain from the ancient traditions of Hindustani Classical music merged with modern neuroscientific methodologies may yet compose a song of hope for those navigating the twilight.

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Lab Reviews

Through Lab Reviews, we hope to critically analyse papers that were synthesized in labs: within or outside Ashoka.

ASHOKA PSYCHOLOGY REVIEW: LAB REVIEWS

The Role of mps-1 in Habituation Learning in C. elegans: A Review of the Sesti Lab's Contributions

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Genetic mutations are a key part of evolution as they provide the intrapopulation variation on which natural selection acts and thus, studying them can help us identify genetically preserved sequences which give rise to essential behaviours and cognition. Through this we can also explore the evolutionary building blocks of cognition that may be conserved across species. One such cognitive process of special interest is learning, since it is essential for adaptive behaviour. In particular, the nematode Caenorhabditis elegans provides a unique opportunity to link gene function to neural activity and behavioural outcomes due to its simple and fully mapped nervous system (Gjorgjieva et al., 2014). Habituation, arguably the simplest form of learning, is the process by which an organism decreases its response to a stimulus after repeated exposure. In C. elegans, the tap-withdrawal response (TWR) is a standardised model for studying habituation, in which the nematode responds to a mechanical stimulus by reversing direction for some time. (Rankin et al., 2000). The Sesti Lab has focused on identifying and characterizing genes involved in the regulation of habituation, particularly those affecting synaptic transmission and neuronal excitability. One key finding from this lab involves the mps-1 gene, which encodes a protein kinase that modulates potassium channel activity. This review highlights the methodological and conceptual contributions of Cai et al. (2009), a foundational study from the Sesti Lab that examined the role of mps-1 in habituation and provided insights into the molecular mechanisms underlying behavioural plasticity. Caenorhabditis elegans (C. elegans) is an important model organism in studying the genetic and neural foundations of behaviour thanks to its simplicity and precisely mapped biology (Reiss & Rankin, 2021). The entire neural circuitry of the adult hermaphrodite, which has just 302 neurons and over 7000 synaptic connections, has been entirely mapped out (Gjorgjieva et al., 2014). This detailed level of anatomical modelling makes C. elegans an ideal organism for exploring the genetic mechanisms that give rise to fundamental cognitive processes like learning and memory. Habituation is an essential behavioural adaptation and multiple genes have been identified in C. elegans that affect and modulate this process. Ardiel and Rankin (2010) provide a broad overview of genes implicated in habituation, for instance eat-4 that encodes a vesicular glutamate transporter; and glr-1 which is an AMPA-type ionotropic glutamate receptor. These genes play crucial roles in the release and detection of glutamate, a neurotransmitter essential for excitatory synaptic signals. Mutations in these genes have been shown to change the rate and recovery of habituation. For instance, eat-4 mutants habituate faster and show poor recovery from habituation, suggesting that proper glutamate release is required for normal habituation dynamics as it plays a role in regulating the duration and reversibility of habituation (Rankin & Wicks, 2000). Similarly, glr-1 mutants exhibit normal short-term habituation but fail to retain long-term memory of the stimulus, indicating the importance of glutamate receptors in long-term habituation as plasticity in the size of GLR-1 receptor clusters at synapses is essential for the consolidation of habituation memory (Rose et al., 2003). Wen et al. (1997) also found that glr-1 mutants showed deficits in associative learning, highlighting the importance of the glr-1 gene across learning paradigms. The mps-1 gene encodes a protein kinase that regulates potassium channel activity, and mutations in this gene have been found to significantly impair habituation. The original research by Cai et al. (2009) provides detailed insights into the role of mps-1 in regulating neuron excitability and its impact on habituation.

The Role of mps-1 in Habituation

The mps-1 gene encodes a serine-threonine kinase that regulates potassium channel activity, and it has been implicated in the modulation of neuronal excitability (Cai et al., 2009). Cai and colleagues

hypothesized that mps-1 is essential for habituation learning in C. elegans by controlling the excitability of mechanosensory neurons through phosphorylation of the voltage-gated potassium channel KHT-1. To test this, the researchers used several C. elegans mutants: mps-1 loss-of-function mutants, kinase-inactive mutants, and wild-type controls to observe differences in potassium channel activity in mechanosensory neurons. They hypothesized that mps-1 forms a complex with a potassium channel called KHT-1, and that the auto-phosphorylation of this complex is necessary for normal habituation. The study employed multiple methodologies, including behavioural assays, electrophysiology, and biochemical analysis. Behavioural assays measured habituation by quantifying the worms' reversal responses to repeated mechanical taps. Wild-type worms displayed a progressive reduction in reversal responses (i.e., habituation), whereas mps-1 mutants exhibited sustained responses, requiring significantly more repetitions to habituate. Moreover, these mutants recovered rapidly after stimulus cessation, suggesting impaired maintenance of the habituated state. Electrophysiological analyses were conducted using patch-clamp recordings in cultured mammalian cells expressing KHT-1, with or without co-expression of MPS-1. These recordings revealed that MPS-1 enhances potassium channel currents via auto-phosphorylation. Biochemical assays, including co-immunoprecipitation, confirmed a physical interaction between MPS-1 and KHT-1, supporting the hypothesis that MPS-1 directly regulates potassium channel function through phosphorylation. These methods together collectively demonstrated that MPS-1 regulates the activity of potassium channels through auto-phosphorylation which is essential for habituation. In other words, MPS-1 regulates habituation by modulating the intrinsic excitability of mechanosensory neurons. Reduced potassium currents in the absence of MPS-1 may prevent proper attenuation of the neuronal response to repeated stimuli, thereby impairing habituation.

Strengths and Limitations of the Study

I find this methodology to be pretty robust. The combination of behavioural, electrophysiological, and biochemical techniques allows for a multi-paradigm investigation of the role of mps-1. The use of mps-1 loss-of-function mutants, as well as mutants with inactive kinase activity, provides very strong genetic evidence that the kinase function of MPS-1 is necessary for proper habituation. Moreover, the study's use of patch-clamp recordings offers direct empirical evidence of how mps-1 influences potassium channel activity, thereby linking genetic mutations to observable changes in neuronal excitability, while biochemical interaction assays established the molecular mechanism of this regulation. The integration of behavioural, cellular, and molecular approaches is a significant strength of the study. This triangulation of methods allows for a comprehensive understanding of the gene's role across different levels of analysis, from ion channel dynamics to organismal behaviour. Despite its strengths, the study by Cai et al. (2009) also presents several limitations. First, the behavioural assays may be influenced by uncontrolled environmental factors such as temperature, humidity, and handling conditions. Although the authors attempted to control for these factors, the lack of detailed reporting on environmental conditions is a potential shortcoming. These confounds may independently affect habituation or interact with genetic mutations to produce complex phenotypes. Second, the use of electrophysiological data from heterologous expression systems raises questions about ecological validity. The authors use cultured

cells to gather the electrophysiological data rather than directly from C. elegans neurons. While cultured cell recordings provide clarity on channel function, they may not fully replicate the biophysical environment of C. elegans neurons. Future work involving in vivo calcium imaging or optogenetic modulation of neurons in freely behaving worms could provide more direct insights. Third, there is not enough focus on the effect of neuropeptides which are known to modulate learning circuits (De Fruyt et al., 2020). Additionally, The study's focus was limited to short-term habituation. Given that different molecular pathways often underlie short-term and long-term memory formation (Rose et al., 2003), it remains unclear whether mps-1 plays a similar role in long-term plasticity. Lastly, they focus narrowly on the impact of specific gene mutations on habituation but do not completely address how these mutations might affect the survival and reproductive success of C. elegans in a natural setting. This leaves us with the question: how do the observed genetic impairments in learning translate into evolutionary outcomes, such as survival, reproductive success, or fitness in a changing environment? While Reiss and Rankin (2021) discuss the evolutionary conservation of genes involved in learning, they also do not provide enough detail on how natural selection might operate on learning-related traits across generations. Thus, although the study demonstrates that mps-1 affects habituation, it does not assess how such impairments impact survival, reproductive success, or other fitness-relevant traits in naturalistic environments. The broader adaptive value of habituation-related genes like mps-1 is thus an open question.

Future Directions

The findings of Cai et al. (2009) open several promising avenues for future research. Firstly, in vivo electrophysiological recordings or imaging in C. elegans could validate the role of mps-1 in the native neural context. Secondly, experiments exploring gene-environment interactions through varying nutrient availability, thermal conditions, or exposure to stressors. This could help illuminate the plasticity and robustness of mps-1 function across ecological contexts (De Fruyt et al., 2020). Additionally, studying how mps-1 interacts with other genes involved in habituation (e.g., glr-1, eat-4) could identify potential epistatic gene-gene interaction (Ardiel and Rankin, 2010). Finally, exploring whether mps-1 homologs in other species serve similar functions could help identify evolutionarily conserved mechanisms of learning (Reiss & Rankin, 2021)

Conclusion

The Sesti Lab's investigation of the mps-1 gene provides a compelling example of how genetic and molecular studies in C. elegans can elucidate the mechanisms underlying behavioural plasticity. By showing that MPS-1 regulates habituation through modulation of potassium channel activity, Cai et al. (2009) offer valuable insights into the interplay between gene function and learning. Future research will benefit from extending these findings to more complex and naturalistic contexts, ultimately bridging molecular neuroscience with behaviour and evolution.

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ASHOKA PSYCHOLOGY REVIEW: LAB REVIEWS

COVID-19 Vaccination Status and Hesitancy: Survey Evidence from Rural India: A Review

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Vaccine hesitancy as a socio-psychological phenomenon has been observed in several contexts where individuals freely expressed their stance against vaccination for an interesting myriad of reasons. The most prevailing narratives about vaccine hesitancy during the COVID-19 pandemic originated from the United States and revolved around heavily misinformed conspiracy theories and lack of trust in healthcare services (Banerjee, 2024; Slatton et al., 2025). However, it merely spotlights a western context that is acquainted with the online world, and cannot encapsulate hesitancy from a global perspective. To explore vaccine hesitancy in a rural context devoid of online interactions, the Centre for Social and Behaviour Change (CSBC) in Ashoka University, India, conducted a study to investigate the underlying causes of COVID-19 vaccine hesitancy in two North-Indian States.

The COVID-19 pandemic was a public health crisis that highlighted significant gaps in public perception related to vaccination. While medical risk assessment plays a role, other factors also contribute. Socio-cultural diversity and informational disparity are pronounced in India, which makes understanding the psychological underpinnings of vaccination-related behaviour more important. Furthermore, most of the available data about vaccine hesitancy reflects a potential sampling bias, as it only takes into account the spread of misinformation by individuals on the internet. A significant section of the human population does not have access to the internet, therefore, understanding the dynamics between vaccine hesitancy and misinformation with regards to a relatively offline sample is also necessary (United Nations, 2021). CSBC's approach plays a pivotal role in filling this gap in vaccine-related research and in order to contribute to this avenue, it is essential to analyse it from a psychological lens as well. This review paper aims to reflect upon CSBC's research on "COVID-19 Vaccination Status and Hesitancy:

Survey Evidence from Rural India" and associate its results with theories that may interpret vaccine hesitancy in an unconventional setting.

Research Summary

The nationally representative survey by CSBC conducted between May and August 2021 explored vaccine status, intentions and reasons behind hesitancy among Indian adults. The survey included open and closed-ended questions and was conducted in Hindi. Door-to-door and in-person interviews were conducted and used the SurveyCTO app by trained enumerators from NYAS. Findings showed that while a significant proportion were vaccinated or were willing to be vaccinated, a substantial minority (23 percent) demonstrated some degree of hesitancy. This wasn't uniform and was different across demographic and informational lines. Respondents who primarily relied on informal sources of information like social media platforms, WhatsApp forwards or word-of-mouth from peers were more skeptical concerning vaccine safety. The study shows how hesitancy was rarely due to logistical barriers or lack of access, but rather psychological and perceptual factors like fear of side effects, mistrust in the safety and concerns about the vaccine actually working. These attitudes were further shaped by the level of trust that people had in government messaging and health authorities. People who accepted the vaccine were mostly those who reported greater trust in official sources of information, whereas those who expressed institutional skepticism were more prone to doubt, delay, or reject vaccination. Additionally, the spread of misinformation and vaccine-related myths was shown to strongly influence public perception. These false beliefs, ranging from exaggerated reports of negative effects to conspiracy theories, contributed to a climate

of fear and uncertainty. The study shows how vaccine hesitancy is not simply a matter of individual choice but a result of complex psychological, social, and informational dynamics that shape public behavior (Shashidhara et al., 2022).

Link to Psychological Theories

As this research highlights several nuances about vaccine hesitancy in rural India, their occurrence can be justified by the application of certain theories originating from social psychology. A significant percentage of pregnant or breastfeeding women were unvaccinated due to myths pertaining to harmfulness of the vaccine at such stages. Unfortunately, these myths were apparently being propagated by frontline health workers and vaccine administrators in that region as well. In a Bihar-based rural context, the emphasis on collectivism and societal engagement through offline modes can cause spread of misinformation primarily through word-of-mouth communication (Chauchard & Badrinathan, 2024). Hence, there have been multiple delays in getting an entire population demographic vaccinated on time, as well as an increase in premature births caused by COVID-19 infections.

The collectivistic nature of rural India can also highlight the prevalence of herd mentality. In this context, the misinformed medical professionals themselves could have perpetuated the spread of myths related to pregnancy, breastfeeding, and other chronic diseases that may worsen because of susceptibility to COVID-19 infection (Chica et al., 2023). The reinforcement of these myths through their constant exposure to these closed-knit communities can possibly result in the illusory truth effect, where people start believing in misinformation and reflect that through their actions, or lack thereof (Udry & Barber, 2024). These phenomena could have prompted vaccine hesitancy in 36 percent of the overall population who are completely unvaccinated, primarily because of the aforementioned reasonings. Although these theories are commonly associated with online behaviour, they can be deemed relevant in offline settings as well, considering the strength of community bonding and communication in a collectivistic region. Terror management theory (Greenberg, Pyszczynski, & Solomon, 1986) also offers a lens through which we can understand resistance. According to this, individuals experience existential anxiety when reminded about their mortality. To cope with this, people tend to cling more tightly to their own worldviews and values. In this context, people might be relying on traditional beliefs and familial wisdom rather than scientific or government advice.

Among the 2288 unvaccinated participants, a significant portion of them did not like vaccines, showed mistrust in it, or simply believed that they did not require vaccination. This group of people may display signs of optimism bias (Sharon, 2011), where they overestimated their resistance to infections and were optimistic about their survival chances without getting vaccinated. Some of them also highlighted the occurrence of omission bias (Azarpanah et al., 2021), as their mistrust of vaccines can indicate a preference for inaction than the commission of action. This is possible when individuals are unsure of the outcome and resort to avoiding accountability by refusing to commit that action altogether. Confirmation bias also played a significant role. Individuals skeptical of the vaccine actively looked for information which reinforced their pre-existing beliefs and doubts about the vaccine. People often relied on informal sources like WhatsApp forwards and word-of-mouth, which reinforced existing skepticism and contributed to echo chambers of doubt (Banerjee et al., 2021)

Additionally, this behaviour can also be looked at through the lens of the Theory of Planned Behaviour (Azjen, 1991). This theory says that behavioural intentions are influenced by attitudes towards the behaviour, subjective norms and perceived behavioural control. In this context, the attitudes were shaped by their specific beliefs regarding vaccine safety; for example, those concerned about side effects were less likely to intend to get vaccinated. In rural collectivistic societies, subjective norms are also highly relevant. Community consensus, even if misinformed, had a strong influence on attitudes and choices of individuals. Perceived behavioural control was shaped by one's trust in the healthcare system or belief in the accessibility and legitimacy of vaccination centers. This is why, even if vaccines were accessible, due to low perceived control there was less intent of getting vaccinated.

Discussion

The study did a great job at discovering culturally-variant nuances about vaccine hesitancy whilst tackling restraints pertaining to an offline approach. The sample size was quite generous for better generalisability, various factors were taken into consideration while conducting statistical analyses, and these details were discussed in a clear, coherent manner. However, there were a few limitations that must be addressed. While the survey covers multiple states, the findings can not be generalised to all of rural India since that might overlook regional and cultural differences and nuances. There are major differences in cultural norms, healthcare infrastructure, etc, and the findings cannot be generalised to different Indian states with different norms. Another thing to note is the reliance on self-reported data. In rural India, especially in close-knit communities where conformity to collective opinion is strong, participants may misrepresent their vaccine status and intentions. It can lead to underestimation or overestimation of vaccine hesitancy. The self-reporting system also increased the chances of social desirability bias, where participants may have altered their responses to conform to the prevailing social norm about vaccination in their immediate surroundings. Lastly, the research paper merely stated how vaccine hesitancy has been propagated in the sample, and refrained from deeply analysing why the issue of misinformation still persists in this particular setting. It is essential for these shortcomings to be incorporated into cumulative studies to enhance strategization of interventions in the future. Although the COVID-19 pandemic has ended, vaccine hesitancy is still a relevant concern in the contemporary world which is often fueled by sociocultural factors and technological state of regions. Therefore, this domain of socio-psychological research must prioritise more cross-cultural explorations and work on maintaining the validity of their research methods.

In essence, this review aimed to support CSBC's research on vaccine hesitancy by providing psychological insights into this phenomenon. It is important to establish that these insights are mere speculations of the phenomena that can possibly come into play and can be open to criticism. Nonetheless, it intends to shed more light on the multidimensional nature of vaccine hesitancy and emphasise the need to mitigate its negative aftereffects during a possible crisis in the future.

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ASHOKA PSYCHOLOGY REVIEW: LAB REVIEWS

Social isolation reduces metabolic rate and social preference in Wild-type Zebrafish: A Review

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Social interaction is a fundamental aspect of zebrafish behaviour, (Danio rerio) contributing to their survival through shoaling, mating, and foraging. Social isolation has been previously associated with depression-like symptoms and altered neurochemical profiles in various animal models, including zebrafish. (Shams et al., 2018) In the study by Ghosh et al. (2024), the researchers examined the behavioural and physiological effects of prolonged visual and olfactory isolation on adult wild-type zebrafish. Their primary aim was to evaluate whether isolation results in significant changes in metabolic rate, social preference, and locomotor activity.

Methodology

30 adult wild-type zebrafish, Danio rerio, aged between 6–12 months, were used in this study. 26 (12 males, 14 females) were randomly selected for experimentation, out of which 4 were used for display on the day of testing to assess social preference. Fish were isolated for 30 days, devoid of olfactory and visual cues, before testing. Metabolic rate, the amount of dissolved oxygen consumed by individual fish, was observed using a respirometer. One reading was taken every minute for 90 minutes. Social preference was quantified as the amount of time spent at the five equal zones created — ranging from closest to the display fish and farthest from them — and fish were categorized as 'social' if they spent more time in the social zone(s) and vice versa. Lateral bias was accounted for by alternating what end the shoal was present at. These recordings were also used to extract an average speed for each individual fish. Each fish had two recordings — pre-social isolation and post-social isolation. YOLOv8 and Python were used to track the fish and analyse corrected videos and based on data normality using Shapiro-Wilk's test, either a paired sample t-test or a Mann-Whitney U-test was run for normal and non-normal data respectively.

Results

The rate of oxygen consumption post-intervention was significantly lesser than pre-isolation at the population level (Mann-Whitney U-test, p 0.05, $d = 0.550$), implying a lowered metabolic rate. Both social preference (Mann-Whitney U-test, p 0.05, $d = 1.009$) and the fish's average speed (paired samples t-test, p 0.05, $d = 0.677$) reduced significantly after social isolation, such that the fish reduced the amount of time spent in the 'social' zones (Mann-Whitney U-test, p 0.05, $d = 1.041$) and increased the time spent at the 'neutral' (paired sample t-test, p 0.05, $d = 1.062$) and 'a-social' (Mann-Whitney U-test, p 0.05, $d = 1.065$) zones. To eliminate the likelihood of chance, the replicability of the data was tested using a control batch of fish. The data showed itself to be replicable, as despite the batch of the fish influencing the baseline measure, repeated measures for the same batch of fish showed a significantly high correlation using Pearson's r ($r= 0.996$, p 0.05, $d = 0.267$).

Discussion

The study found that social isolation led to a significant decrease in metabolic rate, conspecific social preference, and movement speed in zebrafish. These findings suggest that isolation affects not just behaviour but also physiological processes, possibly as an adaptive strategy to conserve energy in resource-scarce or high-risk environments. While reduced metabolic activity might be evolutionarily advantageous in certain ecological contexts, the associated decline in social engagement and locomotion could hinder essential behaviours like mating and foraging in more typical settings. The study provides support for the infection-defence and energy-saving hypotheses but also reveals the complex trade-offs involved in behavioural withdrawal (Ghosh et al., 2024)

Implications and Further Questions

This research opens avenues to explore the neurobiological mechanisms linking social environments to metabolic regulation. Future studies could investigate:

1. Whether these effects are reversible upon reintroduction to social environments.

2. The role of neuroendocrine markers (e.g., cortisol, serotonin) in mediating these behavioural and metabolic shifts.

3. How different durations or intensities of isolation (e.g., partial vs. full sensory deprivation) influence zebrafish behaviour.

4. Potential sex differences in susceptibility to isolation-induced changes.

Understanding these dynamics could enhance our grasp of social withdrawal and metabolic regulation in both animals and humans, especially in the context of chronic isolation or stress-related disorders.

Conclusion

Ghosh et al.'s study examines the physiological and social effects of social isolation on wild-type zebrafish, finding that 30 days of social isolation can cause fish to show significantly reduced metabolic rate, social preference and speed. As social isolation induces depression-like symptoms, this indicates possible evolutionary benefits of these behaviours in specific ecological contexts. The paper suggests a renewed understanding of chronic stress, isolation and depression-like behaviour in fish and humans, and opens an avenue for future research exploring such nuances.

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ASHOKA PSYCHOLOGY REVIEW: LAB REVIEW

"You Don't Know Me so Don't Try to Judge Me": Gender and Identity Performance on Social Media Among Young Indian Users (Majumdar et al., 2022) – A Review

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Young adults are relying more on social media platforms to communicate and build relationships online over face-to-face communication. Because of this, social media is a source of contact as well as conflict. The lack of face-to-face communication not only allows for anonymity, but also allows one to cater their identity to social stereotypes and prejudices. Gender, which is a social and group based structure, shapes online interactions and creates opportunities to dictate relations and expectations of behavior. The aim of the paper "You Don't Know Me so Don't Try to Judge Me": Gender and Identity Performance on Social Media Among Young Indian Users (2022) was to examine cross-gender communication, or the communication between men and women, on social media. It also reviewed dominant, online discourses on gender. The paper draws from the Social Identity and Deindividuation Effects (SIDE) approach, examining text as markers of identity performance and gendered communication.

Methods

Researchers scoped different social media forums to gain an understanding of current conversations and topics. Comments from Facebook were used as the main data source given that it allows the study of gender performance through profile pictures, descriptions and user history through responses to posts and comments. It is the most used social media platform in India. Researchers were interested in looking at pages that included gender, such as pages on feminism, as well as more general and news related pages, like political and entertainment news. The rationale behind this was to chart the landscape of gender discourses over a broad range to better understand if certain terms were used on gender-specific

pages or in general. Four public, open India Facebook pages were used - Feminism in India, She The People, Journal of an Indian Feminist and The Print. The first three pages focused on gender and gendered behavior while the fourth page focused on interactions between individuals of various socio-political views. Data over one year (2020-2021) was collected. Utilizing purposive sampling, words and expressions that were repeated or used as hashtags were noted. Top comments from each Facebook post were selected. In the first phase of data collection in 2020, 72 comments from 23 threads from gender relevant pages and 37 comments from 14 threads from The Print were collected. In the second phase, 110 comments from 41 threads from gender relevant pages and 223 comments from 68 threads were collected. A total of 442 comments were analyzed. Data was analyzed using thematic discourse analysis, which combines thematic analysis and discourse analysis to understand content and language in communication. Subject matter, word function and discursive characteristics were used to assign codes; deductive and inductive coding were utilized as well to develop a comprehensive code frame. Inter-coder reliability tests were conducted on 10 percent of data by two coders, resulting in scores of 0.944 and 0.956. Three researchers followed the six step guide of Braun and Clarke (2006) to analyze data, reading through the data set multiple times, noting down 'repetitive, relevant and meaningful discursive terms' which were then recorded as initial codes, categorized, and interpreted. As data was collected in two phases, the two data sets were reviewed together, resulting in a combination of codes. Themes were then drawn from the combined data set.

Findings and Conclusion

Four major themes emerged through coding and analysis: feminism and antifeminism; the manosphere; intersectional identities; threat, sex and violence. The discourse around feminism is highlighted by contention and negotiation, often with a distinct ingroup and outgroup identity of feminist and antifeminist, respectively. Terms like 'mansplaining' are used to challenge patriarchal attitudes in the feminist group, while terms like 'pseudo feminism' are used to critique feminist narrative in the antifeminist group. Closely connected to the discourse on feminism, the manosphere was a space for discussion surrounding men's rights and their position in society. The manosphere includes communities that promote men's rights; terms like 'incel' emerged to describe male commenters as misogynistic or socially inept, typically by feminists. The assertion of men's rights however, were typically by men. Intersectionality of identities is central to feminist analysis, particularly where gender, caste, religion and political ideology influence identity. Online discourse among Indian users reflects the emergence of new feminist norms, but also of existing narrative. Terms like "Savarna Liberal Feminism" and "Urban Feminism" were used to challenge the perceived upper-caste, urban bias in mainstream feminism.

Furthermore, the study found that discussions around sexuality and perceived threats to traditional norms manifest through derogatory language. Such language polices sexual behavior, reinforcing gender stereotypes. Identification with the ingroup and perceptions of offending by the outgroup may predict this behavior, particularly in an online setting. Overall, results show that users conflicted over the discussion of feminism. Furthermore, traditionally opposed areas of sex and sexual choice were used to challenge gender roles. The interactions between users brought attention to many current challenges towards the meaning of feminism and intersectional identities. The findings of this paper are significant, given that they add to the ongoing study of digital influences on changing gender relations, particularly from a social psychological perspective. This study highlights how social identity and norms are changing through online interactions, especially in the Global South. It highlights how social identity and norms are evolving through online interactions. The findings of this study can help in better understanding normative influences and the positive and negative consequences of social media interactions. While the study offers valuable insights into gender and identity performance on social media, it is not without its limitations. The paper excludes other, prominent and common social media platforms, such as Instagram and Twitter, where the same discourse may look different. Furthermore, coding a language is a challenge in that there are hidden meanings and tones (sarcasm, aggression, etc) that may be misinterpreted. Future research should be wary of this, and ensure that the true meaning is understood. It should also expand the dataset across platforms, languages and user demographics. A longitudinal study can also be conducted to see how discourse changes over time with the rise and fall of social and political movements.

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ASHOKA PSYCHOLOGY REVIEW: LAB REVIEW

Lab Review: A Psychological Perspective on Pharmaceutical API Procurement in India

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This report explores the pharmaceutical API procurement in India and its impact on psychological insights by synthesising critical information from Hamill et al. (2023). While the original study highlights systemic weaknesses in the early stages of pharmaceutical manufacturing, this review adopts a psychological lens to analyse trust, compliance behaviour, stress, and cognition under uncertainty. We argue that beyond regulatory frameworks, behavioural dynamics and cognitive biases significantly shape how decisions are made and how risks manifest in medicine quality. Hamill et al. (2023) conduct a qualitative study examining the initial phases of pharmaceutical production, particularly focusing on the procurement and manufacturing of Active Pharmaceutical Ingredients (APIs) in India. Through eight semi-structured interviews with regulators and manufacturers, the paper highlights how complex, fragmented supply chains and minimal compliance practices increase the vulnerability of medicine quality. Rather than studying finished formulations, the research emphasises the vulnerabilities in the upstream stages of the global pharmaceutical pipeline.

Key Findings

1. API manufacturers depend on hundreds of raw material suppliers across multiple countries, creating complex and opaque supply chains.

2. While formal quality audits exist, manufacturers often substitute actual inspections with paperwork, posing compliance risks.

3. The legal threshold for API purity (95 percent) is frequently chosen over higher standards (e.g., 99 percent) due to cost constraints, affecting product efficacy.

4. Financial stress and high market attrition among SMEs incentivise shortcuts and minimal regulatory compliance.

5. Trust in supplier integrity often relies on heuristics like reputation, prior relationships, or third-party intermediaries (Tversky & Kahneman, 1974; Hamill et al., 2023).

Study Limitations

1. Small sample size (N=8) limits generalisability.

2. Risk of social desirability bias in responses due to reputational stakes.

3. Lack of patient or public perspectives on downstream effects of supply chain decisions.

Implications

1. Regulatory systems need to focus upstream in the pharmaceutical chain to prevent quality issues.

2. Behavioural dimensions of trust, moral rationalisation, and economic pressure must be acknowledged in designing compliance systems (Blanken et al., 2015; Solberg et al., 2022).

3. Digital traceability tools like blockchain and immersive ethics training may help address cognitive blind spots and regulatory circumvention.

Trust & Risk Perception

From a psychological standpoint, the concept of trust under conditions of uncertainty is central to this study. Manufacturers must trust hundreds of suppliers, many of whom operate transnationally. The process of due diligence—checking credentials, conducting audits, and engaging in personal networking—reflects cognitive strategies to mitigate perceived risk (Solberg et al., 2022).. This mirrors bounded rationality, where decisions must be made under imperfect conditions with limited information (Kahneman, 2003). Emotional and cognitive shortcuts, such as relying on past experiences or relationships (Chinese contacts and consultants), suggest heuristic processing that influences procurement decisions (Tversky & Kahneman, 1974).

Compliance Behaviour & Cognitive Dissonance

Regulatory compliance is framed not just as a structural issue but as a behavioural one. The study's findings align with the tripartite model of compliance: knowledge of rules, motivation to follow them, and capacity to do so (Henry et al., 1999). However, the mere act of complying does not guarantee quality outcomes—raising questions about moral licensing and cognitive dissonance. For instance, when manufacturers adhere to the legal 95 percent purity standard (rather than a more stringent 99 percent), they may rationalise suboptimal practices because they are technically in compliance. This reflects cognitive dissonance reduction—a psychological mechanism that allows individuals to reconcile conflicting motivations (e.g., ethical quality vs. profit) (Festinger, 2017; Blanken et al., 2015).

Stress, Decision-Making and Economic Survival

The high attrition rate among pharmaceutical companies and intense market competition highlight chronic stressors that influence executive decision-making. From a behavioural economics lens, this environment fosters loss aversion and risk-prone behaviour, leading companies to make cost-saving decisions that might compromise quality (Kahneman, 2003). Psychologically, the narrative around marginal gains, pressure to cut costs, and potential penalties for noncompliance also parallels the theory of planned behaviour. Even when intentions align with quality manufacturing, perceived control over external factors (e.g., supplier behaviour, equipment degradation) limits ethical action (Hamill et al., 2023).

Regulatory Myopia and Social Cognition

This study highlights a significant issue in pharmaceutical regulation which manifests as a form of regulatory myopia. This happens when oversight is fragmented and limited to isolated parts of the supply chain. Social cognition—how we process, remember, and use information about others—is at play here (Solberg et al., 2022). When a regulator in India checks paperwork from a supplier in China, they struggle to visualise the actual conditions of that remote factory. Trust becomes symbolic, based on certification rather than observation. This cognitive limitation is compounded by siloed thinking—a tendency to focus on one's immediate responsibilities while ignoring systemic interdependencies. For example, a manufacturer might audit direct suppliers but ignore how those suppliers obtain their raw materials. As shown in the study, suppliers sometimes refused access to their facilities but provided 'corrected' paperwork, suggesting how compliance can be performative rather than substantive.

Implications for Behavioural Interventions

The complexity of the pharmaceutical supply chain brings serious gaps that traditional regulatory methods cannot handle. Instead of relying on audits that devolve into paperwork rituals, solutions rooted in human behaviour should be considered. Blockchain systems can enable continuous chains of accountability. Since humans are more motivated by loss aversion than abstract gains, reframing compliance as a brand-protective measure may encourage adherence. The contaminated cough syrup incident in Gambia illustrates how quickly trust can erode. Immersive training simulations that model the ripple effects of counterfeit ingredients could help actors adopt a systems thinking approach. Effective regulation must consider fear, social norms, and heuristics in shaping quality outcomes. Beyond rigid enforcement, systems should be designed to make transparency and collaboration the default path.

Conclusion

This study sheds light on how the quality of medicine is fundamentally about people. Behind each batch of active pharmaceutical ingredients, there's a balance between profit and quality. Until regulation acknowledges these human factors—our cognitive biases, economic pressures, and social dynamics—substandard medicines will persist. Interventions must align with how people actually think and act—fearful of loss, driven by reputation, and limited in their attention. Systems must make ethical decisions on the path of least resistance. This means viewing supply chains as dynamic networks, not just logistical processes, and recognising that trust is not embedded in documents, but in shared accountability and systemic design.

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