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A Narrative Review on The Impact of Genomic Research on Personal and Group Identity

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Abstract: Genomic research is increasingly intersecting with questions of personal and group identity. This narrative review synthesizes open-access, peer-reviewed literature to examine how genomic information influences individual identity (health self-concept, ancestry, disability) and group identity (racial, ethnic, national, social classifications). Key findings indicate that personal genomic data (e.g. direct-to-consumer ancestry tests) can reshape individuals' self-perception of heritage and health, though reactions vary widely. Group identities, especially concepts of race and ethnicity, are both challenged and reinforced by genomic research. While genetic evidence undermines simplistic racial categories, the use of such categories in research can inadvertently reify them. Disability studies document tensions between genomic interventions and identity in the disabled community, suggesting concerns that reducing genetic conditions may devalue those identities. Major debates emerge around genomic essentialism versus social constructs of identity, data privacy and the ethics of defining group membership via DNA. Across domains, identity outcomes hinge not on DNA per se but on how genomic data are interpreted within socio-historical frames. Thus, further interdisciplinary research is needed to address these dynamics and inform policies that respect both the scientific and social dimensions of identity.

Keywords: Genomic research; Personal identity; Group identity; Ancestry testing; Race; Disability; Ethics.

1. Introduction

Genomic research, from Olson's (1993) "Human Genome Project" to large-scale DNA sequencing like Biesecker et al.'s (2009) ClinSeq project has revolutionized contemporary understanding of human variation. As genomic data have become more accessible, they increasingly intersect with questions of identity at both personal and group levels. According to Urban (2020), personal identity refers to one's self-concept, including aspects like health status, ancestry, or disability, whereas group identity encompasses identification with racial, ethnic, national, or other social groups (Shaw et al., 2024). Scholars across disciplines have begun examining how genomic information influences these identities. For example, direct-to-consumer genetic testing services now allow individuals to learn about genetic ancestry and health risks, potentially altering their self-perception (Schwartz-Marin et al., 2025; Shaw et al., 2024). Concurrently, genomic studies of populations have reignited discussions about human categories such as race, ethnicity and nationality (Kelly & Pathak, 2018). Based on these major research trends, It is thus of clear research importance to explore these developments with focus on empirical findings and theoretical debates about genomics and identity.

The impetus for this review lies in the growing body of evidence that genomic data can shape identity in profound ways. On the individual level, people receiving genomic information, whether about disease, risk or ancestry often report changes in how they view themselves (Rubanovich et al., 2021). According to Shaw et al. (2024), some find empowerment in discovering genetic roots or health insights, integrating this data into their personal narratives, while others experience confusion or conflict when genomic results challenge long-held family stories or ethnic identities. On the group level, population genomics has complicated traditional notions of race and ethnicity. Genomic analyses show that self-identified racial groups do not have neat genetic boundaries, for instance, self-reported African Americans can vary from nearly 100% African ancestry to majority European ancestry according to Mersha & Abebe's (2015) study. Such findings challenge biological concepts of race even as medical research and society continue to use racial/ethnic categories. In parallel, historically marginalized groups (e.g. indigenous peoples and disability communities) are voicing perspectives on genomic research, emphasizing that identity and membership are not determined by DNA alone (Blanchard et al., 2019). The current situation is thus one of dynamic dialogue between genomic science and social identity, with broad implications for healthcare, policy and ethics.

While there is growing research on genomics and identity, it spans multiple fields (genetics, sociology, anthropology, bioethics) with limited integration. Prior reviews have often focused on specific aspects, for example, the use of race in biomedical research (Mersha & Abebe, 2015) or the psychological impact of direct-to-consumer tests without providing a comprehensive narrative across personal and group identity dimensions (Rubanovich et al., 2021). Therefore, clear research needs to synthesize insights from diverse studies to understand common themes and conflicting viewpoints is identified. In particular, questions remain about how individuals reconcile genomic information with pre-existing personal or cultural identities and how communities respond to genomic representations of their group. Through addressing both individual (health, ancestry, disability) and collective (race, ethnicity, nation) identity facets, this review aims to fill a gap in holistic understanding of genomics' societal impact. The key objectives of this study include (1) examining how receiving genomic information (e.g. ancestry results, genetic diagnoses) affects personal identity and life choices; (2) evaluating the influence of genomics on concepts of group identity, particularly concerning race and ethnicity;

(3) identifying major debates or ethical issues (such as genomic essentialism, data privacy, identity politics) that arise in the literature; and (4) highlighting areas of agreement and disagreement among researchers about genomics' role in identity construction.

2. Research Methods

This narrative review surveyed open-access, peer-reviewed literature across multiple disciplines. Sources were identified via academic databases and search engines using keywords related to genomics and identity (e.g. "genetics AND identity", "ancestry testing AND identity", "genomics AND race", "genetics AND disability"). Inclusion was limited to empirical studies and substantive reviews available in English and published in scholarly journals. Given the broad scope, the review includes a mix of qualitative, quantitative and mixed methods studies. Qualitative approaches are prominent in exploring personal and group identity impacts. For example, sociological studies have used in-depth interviews and focus groups to capture how individuals interpret genomic information in the context of their lives (Urban, 2021; Blanchard et al., 2021). On the quantitative side, survey-based research has been used to measure identity-related outcomes at scale. For example, this includes Rubanovich et al.'s (2020) longitudinal survey of over 300 individuals who received DNA ancestry results, assessing changes in identity perceptions and behaviours. Additionally, some studies use population genetic methods to illustrate the relationship (or lack thereof) between genetic population structure and social identities (e.g. comparing self-identified ethnicity with genetic ancestry proportions). Such studies are quantitative, analyzing genomic datasets to draw conclusions about group differences or diversity (Mersha & Abebe, 2015). Rather than a systematic meta-analysis, a narrative synthesis was employed due to the conceptual and methodological diversity of sources. Key themes (e.g. "genomics and race", "ancestry testing and personal identity", "genomics and disability identity", "identity politics and ethics") were identified and literature was organized accordingly. Within each theme, findings from different studies were compared to identify consensus, divergence and representative examples. Attention was paid to the context of each study, for instance, whether participants were early adopters of genome sequencing, members of a specific community or general consumers, as these contexts influence how identity impacts manifest. Through triangulating multiple sources, the review enhances validity and breadth in understanding the phenomena.

3. Personal Identity in The Genomic Era

3.1. Genomic information and self-concept

A recurring finding is that receiving personal genomic information can trigger reflection and shifts in one's self-concept. Early adopters of direct-to-consumer genomics approached their results with a mix of optimism and scepticism, using the data to inform health decisions without overestimating its accuracy (McGowan et al., 2010). Recent empirical work shows that a notable minority of individuals do alter their identity narratives post-testing. In a longitudinal survey by Rubanovich et al. (2021), about 21% of participants reported that DNA ancestry results "reshaped" their personal identity. Many more (around 40%) said the results changed their sense of their cultural roots, as these identity shifts often involve a new understanding of one's heritage or biogeographical origins. For instance, an individual who discovers unexpected ancestry may start to identify with a new ethnic group or country of origin, or conversely, feel less connected to a previously assumed identity (Rubanovich et al., 2021). An open-access survey of 1,016 family history researchers worldwide by Shaw et al. 2024 concluded that DNA testing can both expand and disrupt identity notions, with many respondents describing shifts in how they view themselves and their connections to broader human history. Some reported that confirming an Indigenous lineage, for example, gave them "a new view of themselves and their place in history", while others experienced identity fragmentation e.g., learning of an unknown biological parent led one respondent to lament "my whole identity was a lie" (Shaw et al., 2024). However, the literature also emphasizes variability as a majority of consumers do not drastically change their personal identity after genomic testing. In Rubanovich et al.'s (2021). study, nearly 80% did not feel their core identity was reshaped by ancestry results (many found results interesting but not identity-defining). Interviews support this view whereby individuals often incorporate genomic information selectively, fitting it into pre-existing narratives about who they are (Shaw et al., 2024). Blanchard et al.'s (2021) study similarly found that people use "genetic options", they may embrace certain genetic ancestry findings that resonate with them and ignore others, thus exercising agency in identity formation.

3.2. Health identities and genetic risk

Genomic research in healthcare (such as genome sequencing for diagnosing rare diseases or polygenic risk scores for common diseases) also shapes personal identity, particularly one's identity as a patient or a person at risk, whereby genomic diagnoses can provide validation and closure, as described in a qualitative study by Urban (2020). One mother, after sequencing revealed a genetic cause for her daughter's psychiatric condition, said it "awakened awareness" and legitimized the illness as "part of [her daughter's] identity". For that family, the genomic result relieved them of guilt (no longer seeing themselves as "failures in parenting") and enabled them to construct a patient identity around a recognized medical condition rather than moral blame. In such cases, genetics can reframe personal identity from being "sick" due to unknown causes to being someone with a specific genetic condition, which can be both empowering and stigmatizing. In another study of individuals undergoing whole-genome sequencing found participants negotiated between deterministic views ("my genes define me") and non-deterministic views ("I am more than my genes"). Urban (2020) identified two contrasting "identity concepts" in lay attitudes: one seeing genomic data as revealing the true self and hence guarding it closely, the other seeing genomic data as relative and not determining one's essence. Interestingly, the same individuals could switch between these views in different contexts, indicating that people grapple with the extent to which genomic information becomes part of their identity.

3.3. Ancestry testing and personal narratives

Ancestry testing is a focal domain for personal identity shifts as research by Shaw et al. (2024) reported that DNA tests often prompted people to rewrite family narratives.

Respondents described stronger connection to humanity at large, 20% said their results made them see themselves as "citizens of the world," diminishing the importance of race or nationality. One participant reflected, "it made me realize how much humanity is not about race," after seeing their mixed ancestry. These findings align with other studies indicating that genetic ancestry results can encourage a more global or inclusive identity, as people recognize their heritage is geographically and genetically diverse. At the same time, some individuals use ancestry data to reinforce existing identities or even cultural stereotypes. For example, a respondent in the same survey, who discovered royal ancestors, felt validated: "I feel like I am on an even footing with these kings and queens… I am a leader and my children are leaders". This exemplifies how genetic information can be interpreted in line with personal aspirations or biases, here reinforcing a leadership identity by appeal to noble lineage. The literature documents such selective affirmation: some test-takers emphasize aspects of results that boost pride or a desired identity (like descent from famous figures) and may downplay parts that do not fit their self-image (Shaw et al., 2024). There are also cases of identity distress: e.g., individuals who find out their social father is not their genetic father can experience an identity crisis or "genealogical disorientation".

It is acknowledged that ancestry genomics emerges as a powerful tool with diverse potentials, while it can broaden one's sense of self and connectedness, it can also unsettle and fragment one's identity, depending on the person and the nature of the revelations (Mersha & Abebe, 2015). Figures 1 and 2 below (from Mersha & Abebe 2015, p3) illustrate the complexity underlying straightforward notions of identity like "African American" or "Latino." Figure 1 maps the European ancestry percentage in various self-identified African American communities across the U.S., ranging from 3.5% in one group (Gullah Sea Islanders) to 35% in Seattle. Such genomic variation means two people both identifying as African American could have vastly different genetic backgrounds. Figure 2 shows the distribution of Native American vs. African ancestry in Mexicans and Puerto Ricans: on average Mexicans have more Native American ancestry and less African ancestry than Puerto Ricans. Yet socially both groups might be labeled "Latino." These empirical data reinforce that personal identity categories (like race/ethnicity) often poorly reflect genomic ancestry, a theme that plays out in how individuals assimilate or resist genomic information about themselves. Some people, upon seeing such data, may choose to adjust their personal identity labels (for instance, an African American learning of significant European ancestry might embrace a mixed or biracial identity). Others may consciously separate genetic facts from identity, maintaining their chosen identity affiliation regardless of genomic evidence.

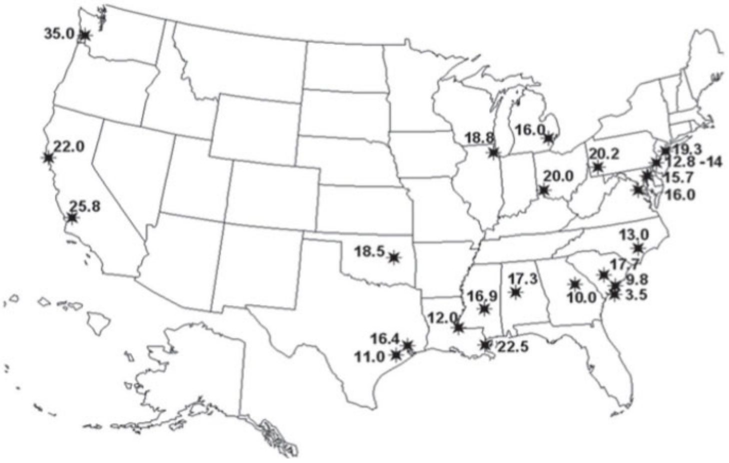

Figure 1. Map showing estimate of % of European contribution to several African American communities throughout the US (Mersha & Abebe, 2015, p3)

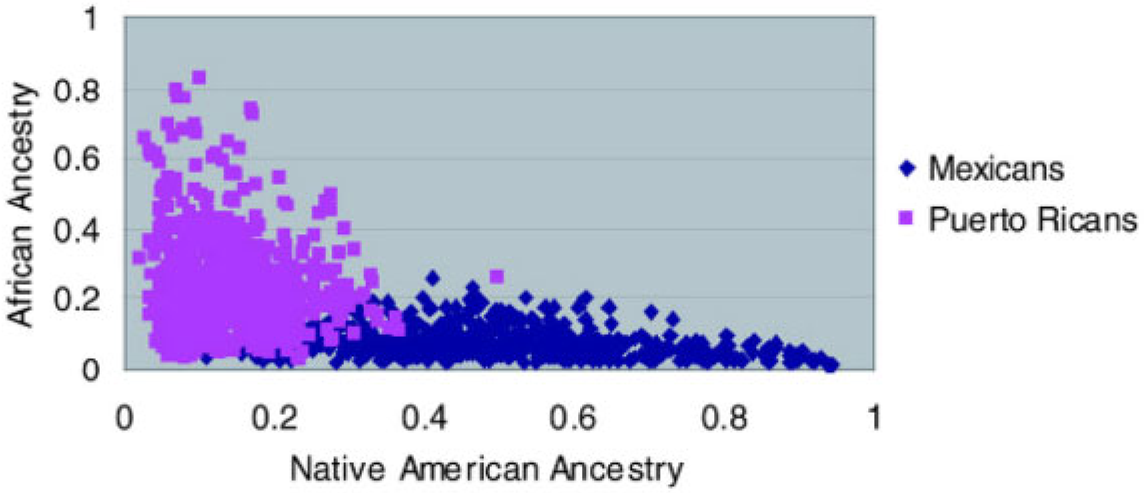

Figure 2. Ancestry proportions of Mexicans vs. Puerto Ricans (Mersha & Abebe, 2015, p3)

4. Group identity: Race, ethnicity and population genomics

4.1. Race and genomic science

A key issue in group identity is how genomic research has affected the concept of race. The consensus in genetics is that racial categories are imprecise proxies for genetic variation, humans are 99.9% genetically identical and much of the 0.1% variation does not neatly partition by traditional racial lines (Mersha & Abebe, 2015). Studies repeatedly show more genetic diversity within any given race than between races as Mersha & Abebe (2015) found that self-identified race often disagrees with genetic ancestry data: e.g., some African Americans carry mostly European DNA and some European Americans have African or Native American admixture. They recommend using "ancestry" to describe genetic variation, reserving "race" for the social contexts of health disparities. Despite this scientific understanding, the use of race in research and medicine persists, leading to a paradox: genomics has the tools to move beyond race, yet in practice racial classifications have been "revived" in some genomic studies. A cross-disciplinary study by Schwartz-Marín et al. (2025) observes that contemporary initiatives in genomics, even those aiming for diversity sometimes end up reinforcing old racial frameworks. For example, large biobank projects often categorize participants by broad racial/ethnic labels (European, African, Asian, etc.), which can map onto historical race concepts as critics argue this can reify race as biological, contrary to the intention of most geneticists. At the same time, genomics has provided evidence to debunk racial essentialism.

One striking statistic is found in Abdellaoui et al.'s (2023) study on 15 years of discovery, as roughly 86% of participants in genome-wide association studies (GWAS) were of European ancestry. This Eurocentric bias in genomic research has been highlighted as a problem but it also suggests that results derived largely from European datasets may not generalize, supporting Schwartz-Marín et al.'s (2025) view that racial labels (African American, Asian, etc.) do not capture the genetic heterogeneity of those groups. Initiatives are underway to increase representation of non-European populations in genomic research, which could both improve scientific equity and complicate simplistic racial categorizations by revealing subtler population substructures (Mersha & Abebe, 2015). The literature often uses case examples for instance, the HapMap and 1000 Genomes projects showed that Africans are the most genetically diverse group and that there is no single European or Asian genetic profile but rather many clusters reflecting geography and history (Peng et al., 2017; Gurdasani et al., 2015). Such findings have prompted some scholars to call for abandoning "race" in genetics altogether, in favor of ancestry or ethnicity descriptors. Others like Mersha & Abebe (2015) and William & Cooper (2019) contend that completely removing race is premature, especially in clinical settings where health disparities along racial lines are stark, instead, they advocate clearer distinction between when race is used as a social variable (e.g. racism-related stress) versus when genetic ancestry is relevant.

4.2. Public perceptions and racial identity

It is often questioned in literature on how genomic research affect racial or ethnic group identity among the public. The evidence is mixed and sometimes contradictory. On one hand, ancestry testing can lead people to embrace a more complex ethnic identity, for example, someone who thought themselves "just British" might discover Mediterranean or African genetic heritage and subsequently identify as mixed or cosmopolitan (Lever et al., 2001). A study by Fujimura et al. (2014) found some individuals change their race/ethnicity self-reports on surveys after ancestry testing (e.g. adding new categories). On the other hand, some test takers hold fast to pre-existing identities, interpreting results through the lens of their prior beliefs. Identity politics can also play a role: there have been cases of white supremacists taking DNA tests and then rejecting or rationalizing any findings of non-white ancestry to maintain a "pure" identity (Eriksson & Manica, 2012). While such extreme cases are not the norm, they highlight that identity outcomes depend on social context and personal values more than on the data itself. Moreover, Schwartz-Marín et al.'s (2025) stressed that genomic information can be appropriated to support almost any racial narrative as inclusive or exclusive. For instance, in some Latin American countries, genetic discourse has been used to promote a national mixed-race identity ("mestizaje"), whereas in others it has reignited debates about indigenous authenticity and rights.

4.3. Race, medicine and identity

In biomedical contexts, the intersection of genomics and racial identity is especially pronounced in discussions of "race-based medicine." The FDA approval of BiDil (a heart failure drug marketed specifically for African Americans) is often cited as an example of genetics and identity entangling in practice (Hawkins, 2010). Though BiDil's racial indication was controversial (since race was a proxy for unspecified genetic/environmental factors), it illustrates how group identity categories can be reinforced by medical genomics (Brody & Hunt, 2006). Many geneticists prefer moving toward precision medicine that uses individual genetic profiles rather than race. Yet, for patients, racial or ethnic identity can still shape how they interpret and act on genomic risk information. A study in genetics in medicine (Turbitt et al., 2019) found that individuals with a strong ethnic identity were more likely to value genomic results and intend to learn them. This suggests that people who deeply identify with their ethnic group may view genomic data as a way to benefit their community or validate their background. In contrast, those with weaker ethnic ties showed less interest (Turbitt et al., 2019). Thus, personal identification with a group can mediate engagement with genomics. In turn, the outcomes of genomic research (like finding group-specific risk factors) can influence how groups see themselves, for example, if a genetic variant is associated with an ethnic group's heritage, that might become part of the group's narrative (as seen with the "Thrifty gene" hypothesis in some indigenous communities and the ensuing identity implications (Hay, 2021; Poudrier, 2016)).

4.4. Beyond Race: ethnicity, nationality and indigeneity

Genomic research also impacts other forms of group identity. Ethnicity (often a cultural identity) may be informed by genetic ancestry, but not determined by it (Roth & Ivemark, 2018). For many, ethnic identity is inherited through family culture and community belonging, genomic tests sometimes add a new dimension such as revealing hidden facets of one's ethnic lineage (e.g. Jewish ancestry, indigenous roots). Studies like Shaw et al. (2024) report participants reconceptualizing their national or ethnic affiliations after DNA testing, some speaking of feeling more connected to countries their ancestors came from, others seeing national identity as "problematic" after learning how mixed their backgrounds are. One respondent concluded that national identity "has become redundant as they locate themselves in a global landscape," expressing that xenophobia is senseless if everyone is genetically interlinked. Indigenous communities present a special case as any indigenous groups define their identity and membership by cultural criteria and lineage, not by genetic markers. Genomic studies of indigenous populations (often conducted by outside researchers) have sometimes clashed with indigenous values. A salient example involves the notion of indigenous genomic sovereignty, as some Native American communities resist genomic ancestry testing because it could undermine their own legal and cultural definitions of belonging (Blanchard et al., 2017). Blanchard et al.'s (2019) latter study conducted focus groups with Native American participants in Oklahoma and found a strong theme of "we don't need a swab to prove who we are." Participants articulated indigeneity as based on lived experience, community ties and tradition, distinct from any genetic notion of ancestry.

They largely rejected the idea that a DNA test could tell them anything about being indigenous that they didn't already know through their culture. At the same time, they acknowledged that genetic tests might be useful for certain purposes (tracing unknown relatives or health risks) but insisted on keeping those results in their proper place, not allowing them to overrule tribal identity criteria (Blanchard et al., 2019). This perspective exemplifies how a group can assert control over identity definitions in the face of genomic data, essentially prioritizing social genealogy over molecular genealogy. Another dimension is identity within diasporas and transnational groups (Abel & Schramm, 2020), as African American and AfroCaribbean communities, for instance, have used genomics as a tool for reconnecting with African ancestral origins (as seen in the popularity of genetic genealogy for African diaspora). This can foster a new kind of group identity that transcends current national borders, people might form networks or affinity groups based on shared genetic lineage (e.g., descendants of a particular African ethnic group identified via DNA). However, Dasgupta et al. (2024) warn that this could create essentialist narratives if not approached carefully, implying that DNA equals culture.

5. Genomics, Disability and Identity Politics

5.1. Genetic testing and disability identity

For individuals with disabilities (especially genetic or inherited conditions), genomic research brings unique identity challenges. On one hand, getting a genetic diagnosis can be a validating experience, it provides a label and explanation that can become part of one's identity ("I have XYZ syndrome") and can connect one with a community of others with the condition (Curry et al., 2021). On the other hand, the rise of prenatal genetic testing and gene editing raises fears in disability communities about the erosion of their group identity (Knight & Miller, 2023). Moreover, Andrey et al. (2022) argue that aggressive "genetic prevention" of certain conditions (through selective abortion, pre-implantation genetic diagnosis, or future gene editing) sends a message that those lives are undesirable. This is encapsulated in the "expressivist objection": that eliminating a genetic condition implicitly devalues all people living with that condition. Boardman (2020) found that a majority of genetically disabled adults in her studies feel it would be a "loss to society" to have fewer people with their condition. In Boardman & Clark's (2022) survey, 64% of people with genetic conditions agreed it would be a loss if their numbers dwindled and nearly 68% felt that genetic screening could prevent individuals who would have had fulfilling lives from being born. These sentiments reflect a positive disability identity, pride and value in their existence, that comes into tension with genomic technologies aimed at reducing the prevalence of those conditions.

5.2. Identity politics in gene editing

With the advent of CRISPR gene editing, disability identity politics is entering new arenas. Some ethicists from disability communities have argued for a moratorium or cautious approach to editing embryonic genomes, at least for non-lethal conditions, until society carefully considers the message it sends (Pacesa et al., 2024; Wang & Doudna, 2023). In 2018, when genome-edited babies were born in China (targeted against an HIV-related gene), Isa (2021) argued that although the immediate target wasn't a disability, the incident opened the door to editing traits and raised the spectre of eugenics. Boardman (2020) also suggested that while gene editing might sidestep some critiques of older methods (since it "edits" rather than aborts an embryo), it still embodies a view that certain genetic traits are so undesirable that they must be corrected, a view largely formed without input from those living with the traits. Boardman's (2020) qualitative study revealed ambivalence among disabled participants as they often desire cures or improvements in health, yet resent implications that their lives are not worth living or that they shouldn't have been born. This finding is particularly important as it's possible to wish for better treatments (or even not to have a condition in the abstract) while still affirming the value of people with the condition. Thus, disability communities emphasize nothing about us without us, urging that their identity and voice be central in genomic policy decisions as proposed by Boardman (2020).

5.3. Identity, genomics and ethics in areas of privacy and data

Another salient theme at the identity intersection is genomic privacy, since genomic data is uniquely identifying and linked to family, it raises concerns about surveillance and discrimination that relate to identity security (Ahn, 2015). Urban's (2021) interview study revealed that some participants feared that making their genomic data public could lead to "permanent discrediting and damage to identity." They worried about loss of control, e.g. an insurer or employer learning one's genomic risks, or authorities using DNA to profile groups. This led them to emphasize data ownership and sovereignty, an identity protective stance where one's genome is seen as personal property not to be accessed without consent. Interestingly, participants distinguished between research contexts as they were more willing to share data with public institutions than private companies, reflecting a trust differential tied to group identities (public-interest science vs. profit-driven entities). Ethicists debate whether genomic data should be considered personal property or a shared resource, some, like the German Ethics Council argue against treating DNA data as traditional property, preferring concepts like "data sovereignty" that allow individuals control without implying absolute ownership (Urban, 2021). This debate is fundamentally about identity too, participants in Urban's (2021) study voiced a feeling that revealing the genome is like making one's "previously hidden identity-relevant information" transparent. In terms of policies, frameworks like GINA (Genetic Information Non-discrimination Act in the US) present clear attempts to protect genetic identity from misuse (Slaughter, 2013). The ethical principle of identifiability is also widely debated, since an individual's DNA can identify their relatives, sharing genomic data has implications for family members' identities and privacy (Wiss et al, 2015). This has led to complex identity negotiations in families e.g., when one person in a family wants to know their genomic information while another prefers not to know (such situations arise with BRCA mutations for instance). Culturally, the concept of genetic privacy is also variable as Hudson et al. (2020) found that some indigenous cultures consider DNA part of collective tribal identity, warranting community-level consent for research, not just individual consent.

6. Conclusion

To conclude, empirical genomic research exerts a multifaceted impact on personal and group identity. On the personal level, many individuals incorporate genomic information such as health-related genetic risks or ancestry composition into their self-identity, but the extent of this incorporation varies widely. Some experience profound shifts in how they view their heritage, family, or health prospects (about one in five ancestry test-takers in studies reported an identity change), whereas others treat genomic data as merely informational with little effect on their core identity. Personal identities were often expanded by genomics (e.g. discovering new ancestral roots leading to a more complex self-concept) but could also be disrupted (e.g. uncovering family secrets causing identity confusion). On the group level, genomic research has both challenged and reinforced traditional identities. It challenges them by revealing the fluidity and overlap of genetic lineages across racial/ethnic groups, supporting the view that categories like race have social meaning but weak genetic basis. Concurrently, the practice of classifying DNA donors by race/ethnicity in research and consumer ancestry reports tends to reinforce those categories in public discourse. There is evidence of a growing popular awareness that race is a social construct "not in the genes," especially among individuals whose tests show mixed ancestry. Yet, racial and ethnic identities remain powerful social realities and genomics has not erased them. Instead, we see new identities emerging (such as "51% Scottish, 30% Polish, 19% East Asian" as a personal identity profile) and traditional identities adapting (for instance, some ethnic groups using genomic evidence to bolster political claims to heritage, others rejecting DNA criteria for membership) as per Blanchard et al's (2019) findings.

In the context of disability, genomic research has amplified ethical and identity debates. Disabled persons and their families largely value their lives and identities irrespective of genetic "flaws," cautioning that genomic interventions should not cast those identities as undesirable. This reflects a broader theme: genomic knowledge is empowering when it is used to understand and support individuals and communities, but disempowering if used to marginalize or exclude them. Identity thus serves as a critical lens for evaluating genomic applications, a perspective that demands inclusion of stakeholder voices (patients, indigenous groups, minority communities) in the conversation. The findings of this review acknowledges that genomics is not a biomedical endeavour but a profoundly social phenomenon whose effects reverberate through healthcare, policy, social cohesion and research conduct. In clinical settings, genetic test results can reshape self-concept and life choices, so healthcare professionals must integrate counselling that attends to personal meaning as much as medical risk. For example, that a patient learning of a BRCA variant may ask how this remakes their identity and relationships. At the policy level, the entwining of DNA data with categories such as race, ethnicity and disability highlights why anti-discrimination statutes (e.g. GINA) and clear guidance on ancestry variables are essential: although race is widely recognised as a social construct, research and practice still risk re-entrenching it unless ancestry-based alternatives and inclusive recruitment strategies are adopted. Societally, genomic information can foster solidarity by revealing shared human ancestry and challenging racist narratives, yet it can equally fuel new forms of exclusion or lineage elitism, therefore public education must pair messages of common genetic heritage with respect for cultural identities to mitigate extremist misappropriations.

7. Limitations and Implications for Future Studies

This narrative review and the broader literature it surveys faces three principal constraints. First, the bulk of empirical evidence on genomic influences over personal identity derives from self-selected cohorts such as early adopters of direct-to-consumer testing or dedicated genealogy hobbyists; these participants, typically older, highly educated and disproportionately of European descent, may not reflect responses that would emerge in younger or more ethnically diverse populations. Second, most studies rely on self-report metrics of "identity change", a construct that remains inherently subjective, what one participant deems transformative another may consider inconsequential, so longer-term ethnographic work is needed to track how people weave genomic findings into life narratives over time. Finally, the concept of identity itself is measured unevenly across studies, ranging from single-item survey prompts to rich qualitative narratives and cultural variability remains under-represented as the literature is dominated by North American and European contexts with only limited input from Indigenous or Latin American perspectives and scant evidence from Asia, Africa or the Pacific, leaving significant geographic gaps for future scholarship.

Thus, futures studies should prioritise avenues including longitudinal designs that follow individuals and families through repeated disclosures of health and ancestry data to gauge whether initial surprise stabilises into routine self-understanding, intervention trials that test whether tailored education or counselling on genetic diversity and social identity can foster healthier integration of results and comparative studies in non-Western settings to explore how communal or religious frameworks mediate genomic interpretation. Additional work should examine identity formation among youth, who encounter genetics through school curricula, media coverage and entertainment, to determine whether shared-humanity narratives reduce the salience of nationality and race or whether new essentialisms emerge. Finally, systematic analyses of policy debates, online communities and social media, illustrated by discussions around forensic genealogy cases such as the Golden State Killer can reveal how privacy, security and identity interests are balanced in public discourse, informing more in-depth understanding of regulation and engagement strategies.

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