Macrothink Institute™

Journal of Sociological Research
ISSN 1948-5468
2025, Vol. 16, No. 2

Dignity, Transhuman Technologies and the Reconstruction of the Physical Self

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Received: May 8, 2025 Accepted: June 19, 2025 Published: July 20, 2025

doi:10.5296/jsr.v16i2.22843 URL: https://doi.org/10.5296/jsr.v16i2.22843

Abstract

The paper aims to investigate, through a theoretical-critical methodology based on qualitative analysis. Disability, historically conceived as a clinical condition, is now recognized as a social construct shaped by cultural norms and environmental barriers. Therefore, reinterpreting the paradigm of the "social model of disability," disability does not stem so much from physical decline as from social organization that tends to exclude or devalue physical diversity. The introduction of transhuman technologies, such as artificial intelligence, neural prosthetics, and brain-computer interfaces, is redefining the concept of disability and body enhancement, blurring the boundaries between what is natural and what is artificial. These innovations offer extraordinary opportunities to overcome physical limitations, but they also raise ethical and sociological questions related to the dignity, autonomy, and inclusion of people with disabilities. Although transhuman technologies can promote empowerment, they also risk amplifying pre-existing inequalities, reinforcing forms of exclusion based on economic access or an ideal of technologically assisted "ability." This study explores how such technologies influence the construction of dignity and social inclusion for people with disabilities, analyzing their impact on social recognition, participation, and identity construction. Through a critical sociological perspective, the work investigates the challenges and opportunities arising from the interaction between technological innovation, social justice, and disability, offering an analysis of disability as an intersectional social construct that interacts with the dynamics of power, access, and recognition.

Keywords: dignity, disability, social model, self, disability paradox

1. Introduction

Disability, traditionally understood as a clinical or functional condition, is now widely recognised as a social construct, shaped by cultural norms, normative expectations and environmental barriers. According to the so-called social model of disability, it is not so much physical impairment that leads to exclusion, but rather the organisation of society that does not provide for, welcome or value bodily diversity (Oliver, 1990; Shakespeare, 2006). From this perspective, disability emerges not as an intrinsic characteristic of the individual, but as a relational product, dependent on power dynamics, symbolic representations and institutional structures that define who is "normal" and who is "other" (Goffman, 1963). In this regard, as pointed out by Albrecht and Devlieger, the "Disability Paradox" could also occur, highlighted as the phenomenon whereby many people with severe disabilities admit to experiencing a high quality of life despite their objectively severe physical conditions (Albrecht & Devlieger, 1999). This paradox challenges the common perception, especially among healthcare professionals and non-disabled people, that disability automatically implies severe suffering or unhappiness. In fact, the analysis conducted by van Loon, Hoogendijk, van den Hout & Huisman in 2023 highlights how the Disability Paradox manifests itself more frequently in negative affect (Russo, 2013). The latter concept refers to emotions or moods that are generally associated with experiences of psychological distress, such as sadness, anger, anxiety or depression. Negative affect is an indicator of unpleasant and stressful emotions that can be caused by various factors, including physical or functional decline. In the same study, it was found that a determining factor associated with a higher probability of experiencing the Disability Paradox was the sense of control over one's life, known as "mastery", which we will return to later. Therefore, within this framework, the issue of the dignity of people with disabilities emerges as a critical issue. Dignity is understood as social recognition, the possibility of self-determination and full participation in collective life (Honneth, 1996) and is often compromised by forms of material and symbolic marginalisation. However, the emergence of transhuman technologies, including artificial intelligence, neural, sensory and intelligent prostheses, is progressively redefining the traditional boundaries between ability and disability, as well as between the biological body and the technological body. These innovations are not limited to compensating for functional loss, but aim to overcome the biological limits of the human body, introducing a new paradigm of "enhancement" that challenges normative notions of normality, autonomy and identity. Intelligent prostheses, for example, are no longer mere mechanical tools, but integrated and adaptive extensions of the bodily self, capable of learning, interacting and adapting to human behaviour through integration with machine learning and neural feedback systems (Rainey, 2020; Clarke, 2014). This transformation involves not only the subjective experience of people with disabilities, but also social representations of the "abled" body and disability itself. The line between what is considered "natural" and "artificial" is becoming increasingly blurred, leading to a renegotiation of the concepts of authenticity, bodily integrity and agency. The individual equipped with transhuman technologies thus enters a new dimension of hybrid subjectivity, often described through the cyborg paradigm (Haraway, 1991), which raises crucial ethical and sociological questions: who has access to these technologies? Which bodies are legitimised as "enhanced" and which remain marginalised?

Without critical reflection, there is a risk that transhuman technologies, instead of emancipating, will reproduce pre-existing inequalities, creating new forms of exclusion based on economic capacity or conformity to an ideal of technologically assisted ability (Wolbring, 2012).

Such innovations raise radical questions: can these technologies restore dignity to people with disabilities, or do they risk reproducing new forms of exclusion, stigmatisation or forced normalisation? This study aims to investigate, from a sociological perspective, how transhuman technologies influence the construction of dignity and social inclusion for people with physical disabilities. In particular, it aims to explore whether and how the introduction of advanced technological devices can change the way in which these subjectivities are perceived, treated and self-represented in society. The present work adopts a theoretical-critical approach, grounded in a qualitative analysis of secondary literature from disability studies, body sociology, and critical technology theory. The text does not present original empirical data, but rather offers a problem-oriented interpretation of existing scholarship, with an intersectional and normative lens. The objective of this study is to critically examine the cultural, ethical and political implications of transhuman technologies in relation to disability and dignity. Through the integration of theoretical approaches from body sociology, disability studies and critical technology theory, this work aims to offer a problematised and critical reading of the transhuman as a possible tool for emancipation or, conversely, for reinforcing existing inequalities. The sociological relevance of this analysis lies in the need to understand how technological changes are never neutral, but deeply intertwined with power relations, cultural expectations and processes of subjectivation. In the era of integration between human and post-human, it becomes crucial to ask who can really access "enhanced dignity" and under what conditions.

2. A Sociological Analysis of Dignity in Disability

In the social sciences, disability is no longer seen just as a biological condition or deficiency, but as an intersectional social and cultural construct. This concept has become established with the gradual affirmation of the social paradigm of disability, which interprets disability as the result of the interaction between an individual's physical or mental characteristics and the social, environmental and communicative barriers that limit their participation in social life (Oliver, 1990; Shakespeare, 2006).

From this perspective, the dignity of persons with disabilities cannot be understood as an innate or isolated quality, but emerges as the outcome of processes of social, cultural and political recognition. Axel Honneth (1996), in his theory of recognition, proposes that individual identity is constituted and maintained through three forms of recognition: love, law and social esteem. Particularly relevant in the case of people with disabilities is the dimension of social esteem, i.e. the recognition of the unique value of the individual as a member of the community. Failure to activate this recognition produces forms of symbolic and psychological injustice that erode personal dignity.

Therefore, the dialogue between Honneth and Nancy Fraser in 2003 further broadened the perspective, emphasising the dialectic between recognition and redistribution. Disability, as a social category, is often subject to a double regime of exclusion: on the one hand, cultural devaluation, which produces stigma and inferiority; on the other, material exclusion, which manifests itself in a lack of access to resources, services, employment and housing opportunities. As described by Barnes and Mercer in 2010, dignity is denied not only on a purely symbolic level, but also on a structural level, making it urgent to engage in sociological reflection that considers living conditions, institutional practices and media representations as interconnected factors in the production of disabling injustice (Barnes & Mercer, 2010; Fraser, 2009).

Among the most powerful mechanisms of dignity denial is stigma, a central concept in the work of Erving Goffman (1963). Stigma is defined as a process of discrediting that transforms an individual from a whole and normal person into a marked, anomalous, deficient person. Disability is thus interpreted not so much in objective terms as through a system of socially coded signs that construct difference as deviance. From this perspective, the disabled body becomes “other” than the norm, the object of stares, pity or exclusion. This process of stigmatisation is often internalised by the disabled person, with profound consequences for self-perception, identity and social integration (Hughes, 2009; Thomas, 1999).

Institutions, the media and language play a decisive role in these processes, as they are the tools through which social representations of disability are constructed and reproduced. Educational, health and welfare institutions, if not oriented towards an inclusive logic, tend to treat disability in terms of deficiency and dependence, reinforcing the image of the disabled person as passive and non-autonomous. The media, for their part, frequently convey polarised narratives: on the one hand, the figure of the “disabled superhero”, capable of extraordinary feats despite their limitations; on the other, the pitiful victim, the object of compassion or charity. Both of these representations, despite their apparent positivity, exclude the complexity and normality of disabled life (Garland-Thomson, 2002).

Language, as a symbolic device, also contributes to the construction of disability as “physical deviance”. Expressions such as “confined to a wheelchair”, “invalid” or “handicapped” carry with them a medicalising and reductive view of the disabled body, reinforcing the association between disability and lack. The choice of inclusive and respectful language is therefore not a purely formal matter, but represents a political act of recognition and restoration of dignity (Linton, 2006).

In this context, it is essential to adopt an intersectional perspective in order to fully understand the dynamics of exclusion and resistance experienced by disabled people. Intersectionality, a concept introduced by Kimberlé Crenshaw (1989), highlights how different dimensions of identity (gender, class, ethnicity, sexual orientation, physical ability) intersect to produce unique experiences of oppression or privilege. In the case of disability, intersections with gender and race reveal specific forms of discrimination. Disabled women, for example, often experience double silencing: excluded from mainstream discourses on feminism and marginalised within disability narratives (Morris, 1991). Similarly, disabled people belonging to ethnic minorities face additional linguistic, cultural and institutional barriers that exacerbate their social exclusion.

A telling example of intersectionality in disability is the inequalities in access to healthcare services: international studies show that black women with disabilities are more likely to experience discrimination in medical treatment, with negative effects on their health and well-being (Erevelles & Minear, 2010). Furthermore, poverty further exacerbates the conditions of people with disabilities, limiting their access to assistive technologies, vocational training and opportunities for active participation in society.

Ultimately, dignity in disability is a complex social construct that requires a comprehensive and critical sociological approach. It depends on practices of symbolic recognition, effective redistributive policies and a profound transformation of cultural representations. Only through structural and cultural change can persons with disabilities be guaranteed the full exercise of their subjectivity and citizenship.

3. The Redefinition of the Body and subjectivity Through Transhuman Technologies and Disability

What has been described so far is important for understanding how the advent of transhuman technologies represents a radical change in the conception of the body, human capabilities and the boundaries between nature and artifice. In fact, especially in the context of disability, these technologies not only introduce new possibilities for functional compensation, but also stimulate critical reflection on the very nature of subjectivity, autonomy and human dignity. Therefore, starting from the concept of transhumanism, i.e. the cultural and philosophical movement that promotes the use of science and technology to improve human capabilities, it is possible to analyse the attempt to overcome traditional concepts of normality and deficit, paving the way for a post-humanist rethinking of disability (Bostrom, 2005; Fukuyama, 2002; Fukuyama, 2004).

Transhuman technologies, in their current state, also include artificial intelligence (AI), bionic and neural prostheses, intelligent sensory implants, brain-computer interfaces (BCIs) and predictive algorithms used in rehabilitation. All these devices do not merely restore a lost function, but often amplify it, subverting the binary distinction between ‘able’ and ‘disabled’. The disabled person thus becomes the protagonist of a new form of hybrid corporeality, in which technologies are not mere external tools, but constituent parts of the bodily and identity self (Haraway, 1991).

Prosthetics, in particular, cease to be understood as substitutes for what is missing and assert themselves as technologies of empowerment. Under certain conditions and situations, bionic prosthetics can even exceed the limits of traditional human physiology, allowing us to redefine not only what a body is capable of doing, but also what we mean by body and, consequently, by human being. This perspective has been explored for several years since the early 1990s. In fact, authors such as Katherine Hayles (1999) and Donna Haraway (1991) have emphasised that the posthuman body is already a reality, especially within devices that integrate nature and technology in a continuous and dynamic way.

Brain-computer interfaces (BCIs), for example, allow paralysed people to control external devices or communicate through thought. These technologies, still in the experimental stage, raise crucial questions about the concept of ethics and morality, but above all about autonomy, understood not only as physical capacity, but as intentional and conscious control of one's actions. These interfaces challenge the traditional dependence on biological corporeality, proposing new forms of machine-mediated agency (Birbaumer & Cohen, 2007), what Perniola defined as a ‘cosal object’, which we could understand here as an element that can be manipulated at will and capable of adapting to the people who use it.

At the same time, artificial intelligence applied to disability is transforming care, education and diagnostic practices. AI systems are used in fall risk prediction, cognitive rehabilitation, automatic sign language reading and even in the development of personalised digital assistants. However, as Lupton argues, these tools are helping to redefine people's autonomy and dependence, offering continuous and adaptive support to their needs, but also introducing new forms of control and surveillance (Lupton, 2016).

While transhuman technologies seem to restore dignity and autonomy to people with disabilities, significant risks emerge related to medicalisation, unequal access and standardisation of bodily experience. A significant risk is that of so-called ‘technological ableism’, i.e. the implicit idea that the value of a disabled person depends on their ability to approach the norm through technology (Goodley, 2014). If not critically analysed, this view risks perpetuating an ableist hierarchy in new forms, masked by technological neutrality.

The relationship between technology and disability is therefore ambivalent. On the one hand, as Garland-Thomson (2005a) points out, technology can be a tool for making disabled identity visible and empowering it. On the other hand, it can also be a means of forced normalisation, pushing towards a model of performative and productive corporeality, marginalising those who do not fit these standards. The risk is that transhumanism will become a new frontier of exclusion if it is not accompanied by ethical and social reflection.

The contemporary challenge is therefore to combine technological innovation and social justice so that transhuman technologies are developed according to the principles of equity, accessibility and participation. Public policies must support the research and development of open and adaptable assistive technologies, designed in collaboration with disabled communities. Furthermore, it is essential to promote a ‘user-centred’ approach that recognises the diversity of bodies and subjectivities, avoiding the temptation of technological standardisation.

In this context, experiences of resistance and reappropriation of technology by disabled people themselves are emerging. Indeed, the crip technologists movement and the design for disability approach, both very recent concepts and part of crip theory, highlight the capacity of people with disabilities to be innovators and creators of technologies, rather than mere recipients and passive users. These practices exemplify an emancipatory vision of the relationship between disability and technology, in which disabled subjectivity is not defined by deficiency, but by competence, creativity and the ability to transform the material and symbolic world. In this context, experiences of resistance and reappropriation of technology by disabled people themselves are increasingly documented. These practices are not merely functional; they are political acts of technological citizenship that challenge the paternalistic logic of mainstream assistive tech development. Rather than positioning disabled people as passive recipients of devices designed by non-disabled engineers, these movements affirm their role as epistemic authorities. This is to say that disabled people are subjects with situated knowledge about their own bodies, desires, and environmental interactions. This paradigm shift is characterised by the emergence of crip technologists, a term that has gained prominence within the fields of crip theory and disability justice. This term refers to disabled individuals who proactively engage in the modification, design and reimagination of technologies from a position of personal experience and expertise. Crip theory, which is rooted in the reclaiming of the derogatory term "crip," draws from queer and feminist theory in order to disrupt normative assumptions about the body, ability, and productivity (Hamraie & Fritsch, 2019). Crip technologists extend this critique into the realm of technology, refusing the idea that disabled bodies must be "fixed" or optimized. Instead, they adopt a stance of embracing disability as a generative position, perceiving it as a wellspring of creativity, innovation, and resistance. This approach aligns with design for disability, a participatory framework that insists on disabled people as co-creators, not merely end-users. In contradistinction to conventional user-centred design, which frequently engages disabled participants only in subsequent phases, design for disability centres their agency from the outset, encompassing problem framing, ideation, prototyping and evaluation (Costanza-Chock, 2020). This is not merely a procedural shift; it is a redistribution of epistemic power, recognising that disabled people possess crip knowledge – a form of expertise born from navigating inaccessible worlds (Kafer, 2021). Recent scholarship has documented how crip technologists engage in tactical and subversive practices, including the modification of commercial devices, the construction of open-source prosthetics, and the creation of crip-centric digital platforms that foster community and solidarity (Mauldin, 2016). For instance, disabled makers have redesigned gaming controllers, voice assistants and 3D-printed limbs to reflect their aesthetic, cultural and functional preferences, rejecting the sterile, hyper-medicalised design of mainstream assistive technology (Shew, 2020). These interventions are not merely concerned with access; they encompass aspects of pleasure, identity and autonomy. Furthermore, these practices are inherently intersectional. Disabled people of colour, queer and trans people, and those from the Global South often face compounded barriers to technological access and design education. Nevertheless, they also offer critical insights that enrich the field. Initiatives such as the Disability Justice Collective, Crip Camp, and the #DisabilityVisibility campaign have established spaces conducive to the nurturing and celebration of intersectional crip innovation (Piepzna-Samarasinha, 2021). In these spaces, technology becomes a tool of collective liberation, rather than serving the purpose of individual assimilation. Crip technologists also resist the commodification of disability within the tech industry. This is because assistive devices are often developed for profit rather than to meet community needs. They advocate for open-source, low-cost, and community-based innovations, challenging patent regimes and privatized accessibility (Ben-Moshe, 2023). By adopting this approach, they seek to reposition technology as a commons, a shared resource intended to benefit the collective rather than the select few. Consequently, transhuman technologies are not only redefining the boundaries of disability and dignity; they are also being reimagined from below, by those who have historically been excluded from technological futures. In this theoretical framework, the disabled body is posited as a laboratory of crip ingenuity, a site of experimentation, refusal, and world-making (Johnson, Chandler, Jones & East, 2024). However, it is important to note that this potential can only be fully realised if accompanied by structural transformation. This structural transformation must not only include inclusion in design, but also a radical rethinking of the values that govern technology. These values must shift from cure and control to care, creativity, and collective justice.

In short, transhuman technologies are a powerful catalyst for redefining the boundaries of disability, corporeality and dignity. They open up radical scenarios in which the disabled body is no longer a place of deficiency, but a privileged place of experimentation, resistance and transformation. However, this potential can only be fully realised if accompanied by a critical sociological commitment, capable of questioning technological devices in their material and symbolic effects and orienting their use towards inclusion, recognition and justice.

4. Ethics, Access and Social Justice in Transhumanism

The growing use of transhuman technologies, particularly neural prostheses, artificial intelligence, exoskeletons and brain-computer interfaces, is radically transforming the experience of disability. However, this technological revolution is not without critical implications, particularly in relation to ethics, equity of access and social justice. These tools not only alter individual physiology, but also redefine the cultural boundaries of normality, the body and subjectivity. While transhuman innovations offer extraordinary opportunities to overcome functional limitations and improve quality of life, they also risk reinforcing new forms of social exclusion if they are not governed by shared principles of equity and participation. One of the central issues in contemporary debate concerns the ethics of human enhancement. In particular, the question arises as to whether and to what extent such technologies should be considered as tools for “cure” or “improvement”. For people with disabilities, the line between therapy and enhancement is often blurred: a cochlear implant, an exoskeleton or an artificial retina can restore lost functions, but also introduce abilities that transcend those of the ordinary human body. According to Michael Sandel (2007), the ideal of enhancement risks eroding the sense of acceptance and solidarity towards the human condition in its vulnerability, replacing it with a logic of performance and competition. In this scenario, disabled people could be seen no longer as subjects to be included, but as entities to be “optimised” according to technical rather than relational criteria. In this context, it becomes essential to rethink the very concept of autonomy. Autonomy, understood in relational terms (Mackenzie & Stoljar, 2000), is not based on absolute independence, but on networks of support, recognition and co-construction of the self. Transhuman technologies must therefore be designed not to replace the body, but to amplify the relational and symbolic possibilities of the disabled subject. In this sense, the direct involvement of disabled people in decision-making and design processes becomes a necessary condition for avoiding paternalistic and technocratic drifts. The co-design and participatory design approach, already adopted in many social and technological innovation practices, represents a virtuous model capable of translating people's real needs into ethically sustainable solutions. The second point worth dwelling on is that of accessibility, both to the resources for purchasing these devices and to the devices themselves. Transhuman technologies, however promising, are often expensive, complex and located in highly specialised contexts. This raises crucial questions about distributive justice and the risk of a new biotechnological inequality. Who has access to neural implants, personalised AI interfaces or advanced exoskeletons? Who decides who is entitled to them? And, above all, what are the priority criteria for the distribution of these resources? From a Rawlsian perspective (Rawls, 1971), a just society should orient its policies in such a way as to favour the most disadvantaged. If access to transhuman technologies is determined exclusively by the market, then pre-existing inequalities are accentuated, transforming disability into a multiplier of exclusion. Inequalities in access are also exacerbated by territorial and geopolitical factors. In many areas of the world, inadequate healthcare infrastructure or the absence of inclusive regulations makes the adoption of complex technological devices virtually impossible. In this context, disability intersects with other dimensions of oppression, such as poverty, race, gender and migration status, generating particularly profound configurations of exclusion. It is here that the paradigm of intersectionality proves crucial to understanding how technologies can have different effects depending on the social positions occupied by individuals (Crenshaw, 1989). For example, a disabled woman living in a rural context in the Global South faces not only economic barriers to the use of transhuman technologies, but also cultural, institutional and linguistic barriers. Alongside the issue of access, there is the question of the symbolic meaning of transhuman technologies. The introduction of devices that "correct" or "overcome" disability can reinforce an ableist view of society, according to which the disabled body is either not seen as a body (or even a person) or is seen as imperfect, deficient or even obsolete. Instead of embracing functional diversity as an integral part of the human condition, there is a risk of conveying the idea that normality comes through the adoption of technology. As Garland-Thomson (2005b) observes, the challenge is to build a culture of disability that recognises the value of difference and rejects the normative paradigm of efficiency. Technology, then, should not be a tool for conformity, but a means of plural expression of bodily identity. This risk is particularly evident in the way the media represent disability and transhumanism. Media narratives often tend to glorify the figure of the "disabled cyborg" as a lone hero who, thanks to technology, overcomes their limitations and regains their dignity. However, such representations, while positive in appearance, can contribute to constructing new forms of stigma towards those who do not have access to technology or who choose not to use it. The implicit message is that the dignity of disabled people depends on their ability to adapt to the enhanced model, rather than on their unconditional membership of the human community. A further problematic aspect concerns the opacity of technologies and the lack of transparency in algorithmic decision-making processes. The use of artificial intelligence in the field of assistance or diagnosis can lead to the implicit exclusion of disabled people from control and verification mechanisms. If an algorithm decides the priority of access to a therapy or suggests a rehabilitation plan without the possibility of understanding or contesting it by the user, there is a risk of delegitimising the lived experience of disability and reducing the subject to an object of intervention. It is therefore necessary to develop participatory governance of AI, promoting its inclusiveness and recognising the right to understand and challenge automated decisions. In this regard, case studies offer a useful tool for concretely analysing the implications of disabled transhumanism. Robotic exoskeletons, for example, represent one of the most promising technologies for the mobility of people with paralysis. However, longitudinal studies have shown that their psychological impact is ambivalent: while they allow for greater physical autonomy, they also generate anxiety, a sense of alienation from one’s own body and frustration related to limitations of use (Donovan-Hall et al., 2021). Similarly, the use of predictive algorithms in neurological rehabilitation has improved the effectiveness of treatments, but has also shown the risk of reinforcing implicit biases related to the gender, age or ethnic origin of patients (Obermeyer et al., 2019). Finally, the central issue remains that of the democratic governance of technologies. If transhumanism is to be a tool for emancipation and not exclusion, institutional mechanisms must be put in place to ensure the effective participation of disabled people in political, economic and scientific decision-making. It is not just a matter of involving users in product testing, i.e. beta testers, but of recognising their epistemic citizenship, i.e. their ability to contribute to the production of legitimate knowledge. This implies a paradigm shift, in which disability is no longer seen as an object of technological intervention, but as an active subject of social innovation. Disabled transhumanism, therefore, is not a simple application of technology to the body, but a complex and ambivalent process that touches the very roots of our social coexistence. The challenge is not only to invent new devices, but to imagine a shared future in which the disabled body is fully recognised in its plurality, vulnerability and transformative power. It is in this perspective that ethics, access and social justice become the fundamental conditions for a real restoration of dignity.

5. Conclusions

In conclusion, it is important to emphasise that the debate on transhumanism and disability is certainly a field undergoing constant transformation and enrichment, which has strengthened and expanded in recent years, raising crucial questions about the relationship between technology, identity and social justice. Technological innovations, including advanced prosthetics, artificial intelligence and exoskeletons, offer enormous opportunities to improve the quality of life of people with disabilities, helping to redefine the boundaries between physical abilities and human potential. However, these same technologies, if not accompanied by careful ethical reflection, risk accentuating existing social inequalities and reinforcing an exclusive view of the human body. Furthermore, one of the most relevant aspects that emerges from this analysis is the centrality of the concept of human and social dignity. Dignity cannot be understood solely as an abstract right, but rather as a process that must be recognised at the social, cultural and political levels. The dignity of people with disabilities does not depend on the adoption of advanced technologies, but on the recognition of their ability to be active members of society, regardless of their physical abilities. In this sense, transhumanism should be seen not as an attempt to eliminate disability, but as an opportunity to reinvent the human body so that functional diversity is fully integrated and celebrated. As analysed several times in the section on disability and dignity, social constructions of disability and forms of marginalisation are influenced by a combination of factors, including stigma, language and intersectionality. For these reasons, disability cannot be analysed in isolation, but must be considered in the context of gender, class, race and socioeconomic status inequalities. Only by proceeding in this way will it be possible to reinterpret disability from an inclusive perspective, because although transhuman technologies have the potential for inclusion, they can also contribute to new forms of exclusion if not addressed with an integrated and critical view of power dynamics. This is precisely what happened with the advent of the Internet and then artificial intelligence, in which two historical phases can be identified that are entirely analogous to each other: the first, that of the dream of physical, moral and emotional freedom; the second, that of the bitter discovery of finding oneself in an even more constrained, controlled and labelling environment. But this can also be seen in other areas, such as access to technological innovations, which is still characterised by a wide gap between countries and social groups, exacerbating existing inequalities. Furthermore, the concept of the ethics of enhancement and the distinction between therapies and enhancement must be explored not only from a scientific point of view, but also from a political and structural perspective. Reflection on these issues highlights the need for ethical and philosophical reflection on the relationship between technological improvement and human identity. Although the concept and idea of enhancement may represent an opportunity to improve the quality of life of people with disabilities, there is a need for clear regulation on the principles of social justice that prevent the introduction of biological and technological inequalities. Therefore, technologies must be designed in an inclusive manner, with the involvement of people with disabilities at every stage of the design process, in order to avoid paternalistic or condescending solutions and, above all, partial solutions. Furthermore, the risk of a society that considers enhancement a moral imperative must be countered with a more humanistic vision that values diversity and autonomy, because overdoing this ideology could mean increasing compassion. All of this leads us to consider accessibility and social justice as two major macro-issues that currently weigh heavily on the entire disability and post-human sector in these analyses. Technologically assisted disability cannot be the prerogative of a few, but must be accessible to all, regardless of economic, geographical and social position. Although difficult to achieve, as can be seen with Internet access, which is still not available to everyone, it is important to emphasise this aspect. It is essential that public policies and technological innovations move towards a model of distributive justice, in which access to technology is not determined by the market, but by principles of equity and solidarity. Policies must be able to overcome the material, political and cultural barriers that prevent people with disabilities from benefiting from these tools. The integration of the intersectional dimension, which considers the interaction between disability and other forms of oppression, is essential to develop solutions that respond to the real needs of different groups of people with disabilities. Finally, the question of the symbolic meaning of transhuman technologies is crucial to prevent the enhancement of the human body from reducing disability to a condition to be overcome, rather than a different mode of existence. Society must reflect on how to represent disability in an inclusive way, recognising that dignity does not depend on conformity to a standardised model of normality. In this scenario, the media and popular culture have a key role to play in representing disability as one of the many expressions of the human condition, not as a form of deficit to be corrected. In conclusion, transhumanism presents both opportunities and challenges, but it is necessary to grasp its nuances in order to offer new meaning to the complex social structure in the context of disability. While it offers extraordinary possibilities for inclusion and empowerment, it also requires careful reflection on the risks of inequality, stigmatisation and loss of value of diversity. To ensure that transhumanism does not become a tool of exclusion, it is essential to develop democratic and participatory governance of technologies that recognises the rights and voices of people with disabilities. Only in this way will it be possible to create a future in which disability is no longer seen as a limitation, but as a fundamental element of human plurality and an inclusive society. The challenge is not only about technological innovation, but also about building a society that, thanks to technology, is truly capable of recognising and valuing each individual in their entirety, strength and vulnerability.

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Authors contributions

Dr. VA and Dr. LN were responsible for study design and revising. Dr. VA and Dr. LN was responsible for data collection. Dr. VA and Dr. LN drafted the manuscript and revised it. All authors read and approved the final manuscript. The introduction was written by Dr. VA and Dr. LN. Dr. VA authoring the sections titled "Ethics, access, and social justice in transhumanism" and "Conclusions". Dr. LN contributions encompassed "A sociological analysis of dignity in disability" and "The redefinition of the body and subjectivity through transhuman technologies and disability".

Funding

No founding for this paper.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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