



Commodification of biomaterials and data when funding is contingent to transfer in biobank research

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Abstract

It is common practice for biobanks and biobank researchers to seek funding from agencies that are independent of the biobank that often stipulate conditions requiring researchers to grant access and share biomaterials and data as part of the agreement, in particular, in international collaborative health research. As yet, to the author's knowledge, there has been no study conducted to examine whether these conditions could result in the commercialization of biomaterials and data and whether such practice is considered ethical. This paper therefore seeks to answer the question of whether such sharing of biomaterials and data for biobank research in exchange for funding from sponsors and funders in collaborative health research is ethically justified. The central idea of this paper is based on an argument against commodification of the body and its parts, which includes biomaterials and data and holds that it is ethically wrong to commodify humans and their body parts. The arguments against commodification of biomaterials and data explored are the Kantian approach argument as it relates to interference of commodification with human dignity which is linked to a diminished sense of personhood, an argument against commodification that is based on a dilution of altruism and lastly the communitarian approach anti-commodification argument which emphasizes a social responsibility to the common good. Arguments in support of commodification based on liberal individualism and consequentialism are also discussed.

Keywords Commodification · Biomaterials and data · Biobank research

Introduction

Commodification is “the practice of treating things as property that can be bought, sold or rented” (Resnik 1998, pg. 388), that is as commodities (Resnik 1998). In simple terms commodifying things amounts to a sale. In the context of this paper, commodification of biomaterials and data (interchangeably referred to as materials herein) refers to the extent to which materials become commodities of trade and are transferred for money. Based on this definition, commodification and commercialization will be used interchangeably. One way to tackle the issue of biobank sustainability is to take advantage of the potential financial value of biobank

samples and data. This however presents ethico-legal challenges most notably through an argument that places commercial value and the interests of private companies as well as governments that provide funding against the aims of the public good and values of biobanks (Turner et al. 2013). The position being developed in this paper is that it is ethically unacceptable to exchange biomaterials and data for money (funding) because there ought to be restrictions imposed on what can be treated as commodities, not only based on social and political reasons but also due to moral reasoning (Resnik 1998). The issue of commodification of the body and its parts, interchangeably referred to as commodification of the body, has been widely debated (Matas 2006; De Castro 2003; Kishore 2005; Etzioni 2002; Kyriazi 2001; Sandel 2013).

Arguments in support of commodification of the body and its parts include that of liberal individualism which gives individuals the liberty and freedom to decide whether or not they would want to sell their organs (Kyriazi 2001); and consequentialism. One of the arguments against commodification of body parts is that there ought to be limits on what

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can be sold or bought as commodities and that some things such as body organs “are so valuable, priceless or sacred that they should never be allowed into the marketplace” (De Castro, 2003, pg. 1). This argument is based on the Kantian position which is that of the premise that kidneys, livers, brain, heart and eyes are an integral part of the functioning of human beings and should not be sold because selling of such integral body parts denies people human dignity (De Castro 2003). In this paper, the historical background and current context with regard to sharing of biomaterials and data in exchange for funding in international collaborative research is briefly introduced, mainstream versus alternative viewpoints are considered and issues arising from the topic at hand are discussed. Arguments against and in support of commodification of biomaterials and data are also discussed.

Historical background and current context pertaining to sharing of biomaterials and data in exchange for funding in international collaborative research

Although the idea of biobanking is not new, the history of actual biobanks is relatively new and dates back to about 30 years.⁷ Biobanking has developed so drastically that it was among the 10 world changing ideas in 2009 as published by Time magazine (Time 2019). The development of biobanks over the years gave rise to ethico-legal controversies that have led to mainstream and alternative viewpoints on issues such as biomaterial and data sharing. Adding to such controversies is the development of genomic and biobank research initiatives in Africa that include the Human Heredity and Health in Africa (H3Africa) Consortium and Bridging Biomedical research across Africa and Europe (B3Africa) initiatives (Munung 2017). These initiatives have promised to transform the way researchers typically conduct international health research in Africa through claims of fostering equitable research collaborations. This has been met with criticism by African researchers involved in similar types of collaborations with fears of being exploited by their counterparts from high income countries (HICs), for example exploitation by not being included in benefit sharing. H3Africa is a consortium that is involved in research and funding for research of genomic and environmental determinants of disease with the aim of health improvement in African populations (H3Africa 2021). The consortium developed a proposal requiring for samples collected in H3Africa projects to be shared for secondary use by one of its repositories (De Vries 2015). This proposal created considerable controversy and suspicion that this was a way in which H3Africa research was making African samples available for researchers elsewhere. H3Africa then developed a policy framework to address such fears (De Vries 2015).

Commercialization of biobank resources

It is common practice for biobanks and biobank researchers in countries such as South Africa (SA) to seek funding from agencies that are independent of the biobank and researchers are often required to share biomaterials and data as part of the agreement, in particular, in international collaborative research. The commercialization of biobank resources presents policy challenges for research participants, scientists and funders (Caulfield 2014). In the context of this paper, biobank resources that can be commercialized include samples and their associated data as well as research results.

The debate on commercialization of biobank resources is based on whether scientific progress is best achieved by awarding of patent rights or avoiding open access of samples and data (Hall et al. 2010). The African continent is known to have the highest level of human genetic variation in the world, attributed to a range of factors, including: variation in the environment, diet and disease exposure, among others (Campbell and Tishkoff 2010). Genetic variation makes African samples the most sought-after type of samples and this creates room for exploitation by outsiders that seek to fulfil their own interests. As articulated by Steinsbekk et al., commercialization of human organs and biological materials is perceived as a threat to human dignity, worth and personhood (Steinsbekk et al. 2011). This violation of human dignity reduces human beings to mere objects or commodities. When legally binding ethico-regulatory frameworks are in place to protect participant dignity, trust could be built up between researchers and participants. In addition, there is clear evidence of biopiracy as a result of exploitation in international and local collaborative research activities on the African continent (Sathar et al., 2013). Biopiracy is the act of acquiring genetic material for academic and commercial purposes without fair redress to those from whom the samples and data were obtained (Abayomi et al. 2013). Some infamous cases have been reported, such as the Hoodia case in which the SA San people challenged a patent registered by a SA research and development organisation, the Council for Scientific and Industrial Research (CSIR) (CSIR 2021) in 2001. The San claimed traditional knowledge rights of the hoodia plant due to them guiding the CSIR in the knowledge of this plant as an appetite suppressant. It was only after the dispute that an agreement for benefit sharing was signed between the two parties in 2003 that the San were provided with 6% of future royalties. As a result of an awareness of exploitation of research participants, the San leaders of SA recognized the need to partner with researchers to develop the San Code of Ethics to protect the San people from unethical research practices with particular focus

on collaborations that entail an imbalance of knowledge, power and resources (Global Code 2021). The code of ethics provides for the inclusion of not only the local communities and participants, but also the inclusion of local researchers throughout the research process if possible, providing for local researchers to be granted ownership of data, intellectual property and publication authorship. Another case was that of the herb, *pelargonium sidoides*, which had been used by Xhosa people in the Eastern Cape (SA) for many years, where the knowledge and access of the plant was transferred to a European pharmaceutical company. Although the company shared in the benefits of the initial patent with the primary knowledge holders (the Xhosa people), there were however a number of other patent applications in relation to the *pelargonium* that did not include the primary knowledge holders, and this was challenged by a number of Xhosa groups (Chennells and Steenkamp 2018).

It is not only the African continent which is faced with the dilemma of funders of research being keen on the commercial exploitation of samples and data, but also in other parts of the world such as the United Kingdom (UK) where there are questions raised as to whether scientists are trustworthy and whether research ought to be more stringently regulated (Petersen 2005). In light of the preceding discussion, the notion of mandated data and sample sharing by funders and biopiracy reports prompt the need for addressing the concerns on commercialization through regulatory means. The discussion on biomaterial and data sharing is necessary as a backdrop to illustrate the associated ethical issues that arise when biomaterials and data are commodified in health research.

Debates on biomaterial and data sharing

There are two broad notions with respect to sharing of biobank samples and data in international collaborations. They are: (1) those concerning exploitation of African researchers and research participants or those from whom biobank samples have been collected by researchers or funders from high income countries (De Vries 2014) and (2) those concerning a move towards harmonization of biobanks as justification of sharing of biobank samples and data (Artene 2013).

Exploitation of African researchers through inappropriate benefit sharing

The genetic diversity of African populations is at the centre of the controversy around sample and data mining (Moodley and Singh, 2016). As a result of this genetic diversity, African biomaterials have been in demand internationally with

a unidirectional move of biomaterials out of the continent raising concerns about exploitation of vulnerable populations and countries. Parties involved in collaborative scientific activities should agree on sharing of financial and non-financial benefits arising from biomaterials and associated data (ISBER 2018). The recommendation by the International Society for Biobanks and Environmental Repositories' (ISBER) Best Practices is that biobanks should be guided by national, regional as well as international guidelines on benefit sharing and sample access before sample collection commences. Equitable benefitting and ownership issues arising from biomaterials and associated data use including intellectual property rights should be part of benefit sharing. Legislation pertaining to copyright, patents and intellectual property may differ among various countries.

In biobank research collaborations, stakeholders for benefit sharing include the donors, researchers, non-participating individuals suffering from the disease or condition that is being studied as well as the society at large (Hoeyer 2012). The argument in benefit sharing with a focus on overall public health ethics approach is that the knowledge generated should not be viewed as contributing to an individual but to the common good (Hoeyer 2012). Even though profit-oriented research has the potential to erode public trust, the profit motive could be beneficial in supporting biobank infrastructure. The aspect of infrastructure support is a good reason to discuss monetary sharing of benefits. Sharing of benefits can be in the form of access to healthcare, financial benefit, technology transfer and building capacity, knowledge dissemination as well as access to research results (Slabbert and Pepper 2010).

Developing countries often have the highest disease burdens and the largest target sample populations with an array of infrastructural deficiencies (Mohammadi 2018). There is a need to go beyond the promises in documented frameworks addressing equitable genomic and biobank research collaborations through exploring how benefit sharing goals can be achieved. African researchers fear being exploited by their partners in HICs and these fears have primarily been based on past exploitation of African researchers (Munung 2017). The fear is fuelled by a lack of resources by African researchers in comparison to HIC researchers, resulting in concerns of them being marginalized, coupled with impediments when pursuing an African research agenda.

Vulnerable populations in the context of genetic diversity and the potential for exploitation

As an illustrative point in this section, genomic research is referred to because much of biobank activities involve research in this context. Concerns raised on a genomic study conducted on Chinese villagers called the "genetic harvest" (Zhao and Zhang 2018, pg. 73) resulted in investigations

that revealed violations of research ethics principles of this vulnerable group. This was due to the low economic status of the research participants, lack of capital by the research institutes and loopholes in the Chinese ethico-legal framework (Zhao and Zhang 2018). While the Chinese institutes of research and members of personnel gained the advantage of working with renowned international research institutes, the research participants only received a meal free of charge and an insignificant reimbursement amount that was far less (less than a tenth) of what was promised, job leave and travel allowances. The research participants were subjected to other ethical violations. These include participants not being informed that they were being enrolled into the study but were misled into believing that they were being provided with “free physical examinations” (Zhao and Zhang 2018, pg. 74). Other research ethics violations included differences in what was approved versus how the research was conducted, for example, recruitment of more than eight times (16, 686) the number of approved participants which was 2000 samples, and different apparatus being used as compared to that which was approved. It is evident from this case that it is not only ethical aspects related to re-imbursements that can result in abuse/exploitation. Cross-border transfer of biomaterials presents a challenge for low and middle income countries (LMICs) since a large number of these countries have inadequate or no regulatory frameworks in that regard (Chen and Pang 2015).

Many research participants across the African continent are considered to be vulnerable because of poverty, low research literacy and obstruction of access to healthcare (De Vries 2014). Common risks of biobank research are social and dignitary harms particularly when research findings reveal genotypes that are associated with susceptibility to certain diseases resulting in discrimination, which is widely feared resulting in stigma and discrimination (Dhai 2015). Dignitary violations occur when personal and religious values are violated. In 2015, the SA health insurer, Discovery, announced that it would offer genetic testing for its members at 250USD (approximately ZAR 3400, 00) in collaboration with Craig Venter’s company, Human Longevity Inc. (Staunton 2016) This might appear innovative and futuristic, however, there are considerable problems that require guarding against for the protection of potential donors. Moreover, there was the promise of genetic testing in the name of providing healthcare but the initiative was apparently for the purpose of creating a large research database in a different country. This was an exploitation of the deficiencies in the SA regulatory framework on the storage, use and export of biomaterials. Typically, biobank participants donate samples altruistically for the common good and what would make them vulnerable in addition to the issues mentioned would also be exposure to unsolicited findings without actionable clinical and psychological benefit (Ommen et al. 2015).

Biobank networks and harmonization

In recent years, a number of initiatives aimed at developing biobank networks and harmonization for regionally and globally standardized protocols have emerged (Ommen et al. 2015). One such initiative is the Pan-European Biobanking and BioMolecular resource Research Infrastructure-European Research Infrastructure Consortium (BBMRI-ERIC). Biobank networks that have been identified include (Shickle 2009); (1) storage networks, (2) “bring and share” (Shickle et al., 2010, pg. 124) networks, (3) catalogue networks, (4) partnership networks, (5) contribution networks and (6) expertise networks. Ethico-legal challenges have resulted in ineffective biobank networking. The view in support of biobank networks is that of the benefit of a wider network of samples and data (Artene et al. 2013). In support of this argument, there have been claims that even big institutions cannot collect enough samples on their own to produce statistically significant sample sizes, hence the need for biobank networks (Asslaber and Zatloukal 2007). There is, however, an acknowledgement of far reaching social and ethico-legal implications of such networks as a result of heterogeneity of existing ethico-legal frameworks among the collaborators.

Several studies illustrate variations among the legal and ethical norms governing biobanks in different jurisdictions (Kinkorová 2016). Although harmonization of biobank Standard Operating Procedures (SOPs), best practices and governance is an essential tool for sharing of biobank samples and data, the concept is context specific and relates to the compatibility of methods and approaches to facilitate synergy (Harris et al. 2012; Zawati et al. 2015). The major hurdle with harmonizing legislation is due to the extent of variation that exists between different government systems. In addition, the adoption of best practice guidelines that have been developed by international organizations have rarely been co-ordinated (Vaught and Lockhart 2012). This has resulted in confusion over which practices are appropriate for biobanks and biobank networks.

Morality of bodily commodification

Morality is ‘how we ought to live’ and why (Rachels 2003a, b, c). Having said this, however, there are different conceptions of what it means to live morally. In order for commodification to occur, different commodities are exchanged in different quantities, for example coats cannot be exchanged for coats (Timmermans and Almeling 2009). This means that in order for bodily materials to be rendered commodities, they ought to be transferred to recipients for money or other similar goods, e.g., gold. Commodities are alienable while market inalienability often represents an attempt to prevent commodification or at least expresses an aspiration

for non-commodification through probing limits to commodification (Radin 1996). There is no universally accepted definition for market inalienability but there is a notable definition by Radin, in which she considers inalienability to be that which means “insaleability” (Radin, 1987, pg. 1850) (Radin 1987). Part of the problem of commodifying that which ought not to be commodified is that commodification or alienability is the route to objectification which is treating as an object something which is more than an object. The notion of objectification links to both the Kantian approach that when we objectify humans, we are treating them as a means to fulfil certain ends and that objectification through commodification diminishes aspects of personhood through engendering inferior understanding and conceptualization of what a person is (Greasley 2015; Radin 1996). Diluting altruism is a third view which has been used in arguments against commodification and this concept is based on the idea that the practice of free donations is undermined by commodification (Wilkinson 2003). This background information forms the basis for arguments against and for commodification of the body and its parts.

Arguments against commodification of the body and its parts

Some of the concepts used in the arguments against commercialization of the human body debate, which include organ sale, are mostly around donor coercion, commodification and objectification of body parts as well as donor exploitation and harm (Wilkinson 2003). These concepts have been incorporated in the anti-commodification arguments used in this paper with regard to biomaterials and data. Commentators against selling of organs, particularly kidneys argue that selling of organs amounts to exploitation of the poor where the poor are perceived to be coerced by their particular circumstances to sell their organs (Goyal et al. 2002). The main views against commodification of the body and its parts are that of (1) interfering with human dignity through treating people as “a means to an end” (Rachels, 2003a, b, c, pg. 130) and the relationship of this interference of human dignity with diminished personhood; (2) diluting altruism; and (3) social responsibility to donate organs without expecting monetary gain.

The Kantian approach of interference with human dignity and diminished personhood

The Kantian approach confers “an intrinsic worth” or dignity to humans which makes them valuable “above all price” (Rachels, 2003a, b, c, pg. 130) (Beauchamp and Childress 1994). By virtue of the interference of commodification with human dignity, this argument is linked to a diminished sense

of personhood that is perceived to be the result of such commodification. This is because the notion of personhood is based on the concept that for an entity to possess personhood, it ought to be human with full moral status which in turn entails a right to dignity and respect (Wilkinson 2003). The concept of diminished personhood is based on the idea that body tissues have an intimate connection with personhood and that such commodification elicits social harm in the sense that it is abhorrent to equate personhood with property that can be commodified (Stanford Encyclopaedia of Philosophy 2021). According to Immanuel Kant’s idea of human dignity, human beings should never be treated as a “means to an end” (Rachels, 2003a, b, c, pg. 130) but rather “an end in themselves” (Rachels, 2003a, b, c, pg. 132) (Beauchamp and Childress 1994). Human dignity confers an intrinsic worth to humans which makes them valuable “above all price” (Rachels, 2003a, b, c, pg. 130). This directly translates into the idea that humans cannot be commodified because no price would be suitable for their worth. Whatever has a price, something else can be put in its place as its equivalent, while that which is above all price with no equivalent has dignity. Based on this notion, dignity is afforded something with an inner worth and an end in itself (Kant 2002). Based on the translation of commodification as referring to turning of people into objects of trade or commodities, the notion of commodification equates to slavery which strips people of their basic rights because the claim is that there is objectification of human beings in the same way that there is objectification of body parts (Andorno 2017). From the Kantian perspective, human bodies can never be used as a means but should rather always be considered as an end outside all markets – meaning, selling or buying of any part of the body is strictly forbidden as it erodes the sanctity and dignity of human life (Bauzon 2015) and hence cannot be seen as satisfying the requirements for Kant’s categorical imperative which is that one must “act only in accordance with that maxim which one can at the same time will to become a universal law” (Rachels, 2003a, b, c, pg. 131) (Rachels 2003a, b, c); i.e., accepting universal acceptability of a plan or action. Human beings should never be assigned market value and treated as commodities because they have absolute market value (Resnik 1998). Assigning market value to human beings and any part of the body pre-empts a sale and is ethically unacceptable. In the context of sharing of biomaterials and data in exchange for funding, those who donate biobank samples can never be used as a means to fulfil the funders’ interests but rather an end in themselves because they have an inner worth and dignity. This means that materials can only be collected from humans for the benefit of such individuals or for the benefit of society in order to fulfil the requirement of these individuals being an end in themselves rather than a means to fulfil others’ (in this case funders’) interests.

Diminished personhood that occurs with bodily commodification relates to human dignity or worth by virtue of its definition that incorporates a right for human beings to dignity and respect. Personhood is granted to an entity with consideration that (1) it is a human being (2) with full moral status (Tooley 2009). Full moral status entails a right to life and a right to respect and dignity (Wilkinson 2003). Moreover, commodification insists on objectification, transforming people and their bodies from human form into objects of economic desire (Tooley 2009). Objectification generally signifies dehumanization because it silences or even displaces the self from the social world (Timmermans and Almeling 2009). In preventing such objectification through commodification, maintaining a spirit of altruistic donations is crucial.

Dilution of altruism by commodification

Altruistic actions are those that are performed purely for the sole benefit of the recipient without expecting anything in return (Mihaela et al. 2020). In ethics literature, altruistic organ donation is widely accepted as a virtue as well as in religious practices such as Jewish law which regards saving human lives as an absolute value (Kunin 2005). However, the Jewish teachings prohibit saving another person's life at the expense of sacrificing one's own life. Those who are in favour of altruistic organ donation have an expectation that family members should donate an organ and consider refusal to be a great shame. Other prominent religions such as Islam and Christianity also regard altruism as an important principle and generally do not object to organ donations particularly of an altruistic nature, however there are nuances in the latter that are compounded by the refusal of blood transfusions in the Jehovah's Witnesses doctrine (Oliver 2011).

Despite the insistence of altruistic organ donations and the ban of organ sales, interchangeably bodily commodification herein, it is evident from the discussion above that illegal organ sales are thriving in different parts of the world. The major concern with the argument against commodification based on a dilution of altruism is that if payment is allowed, virtually all voluntary donations will cease because all donors will expect payments for their donations (Wilkinson 2003). This could equally apply to "sale" of biomaterials and data in health research.

A social responsibility to donate organs that is based on communitarianism: Community-based theory

Communitarian theory considers everything that is fundamental in ethics as that having communal values, co-operative virtues and the common good (Dhai and

McQuiod-Mason 2011). Communitarians would not consider individual rights in the issue of organ donation but rather which communal values and relationships are present or absent for the common good. Some ethicists such as Stuart Mill, however, emphasized the need for a discussion on what constitutes a 'good' for the community (Dhai and McQuiod-Mason 2011). The communitarian approach in the context of organ donation is of the idea that people should donate organs as a social responsibility and as something that a good person should do (Etzioni 2002). Reference in this instance is not to altruism as critics of altruism have pointed out that altruism is an insufficient motive because despite the appeals to donate organs on this basis, the outcomes are still not desirable. The notion of communitarianism rather reflects the core elements of moral culture, which is a combination of societal pressure to do what is right with persuasion from other community members and an inner pressure to do what is right (Etzioni 2002).

Arguments in support of bodily commodification

Proponents of organ sales argue that the seller has a right to decide on the fate of his or her body parts and that taking away this option harms the seller financially (Goyal et al. 2012). This argument relates to liberty and freedom to choose what is right for oneself including the right to sell one's organs if people so wish. Such liberty has been linked to alienability in the context of human commodification which forms part of the argument that supports commodification with consequentialism (utilitarianism) as a basis. This argument holds that it is for good reasons for people to be paid for their organs because of the best consequences for all due to more organs being made available to potential recipients. This would be a contribution to the greater good and overall well-being of society and which would be evidenced by increased life expectancies and improved quality of life for recipients (Goyal et al. 2002). Those who support organ sales do so mainly, based on the idea of a regulated system for organ sales. The main argument in favour of a regulated system for the sale of organs is that financial incentives are likely to increase donations, resulting in fewer deaths of transplant candidates on waiting lists (Matas 2006). Such a system could work through establishing national criteria for tests and results required for donor evaluation. The distinction between a regulated and an unregulated system is important because in the latter system, the seller contracts with the buyer (often through a broker) to purchase an organ. The implications of an unregulated system, is that, only the rich would be eligible to buy kidneys, with "little oversight of donor evaluation, with no long-term donor follow-up and no protection for either the buyer or the seller" (Matas, 2006,

pg. 1130) (Matas 2006). On the other hand, when it comes to biomaterials and data in the context of human research, it would be the poor that would sell at the expense of their dignity for the benefit, in the main for the rich, as research participants include SA's most vulnerable population groups. As already alluded to previously, the moral reasoning in support of bodily commodification is based on liberal individualism and consequentialism.

Liberal individualism: Rights based theory

One interpretation of liberal individualism is that people own themselves and as such, individuals have a right to sell their organs, donate them for any reason they may choose and that any alternative contrary to this would equate to some form of slavery (Kyriazi 2001). The view behind this argument is that which considers basic economic justice, which in this context is compensation of donors for their resources (biomaterials and data). In addition, the argument holds that it is within an individual's rights to sell his or her body parts if they so wish as long as this does not violate another person's rights. Although the vital role of rights in protecting individuals from societal intrusions cannot be disputed, the idea however that rights are important in ethics has been resisted by some ethical theories (Beauchamp 2003). This is because individual rights are often in conflict with communal or institutional interests. Rights generally give us a claim based on a system of rules to affirm, demand or insist upon what is due to us. A distinction between moral and legal rights is made.

Moral versus legal rights

While legal rights are justified by legal claims, moral rights are justified by moral claims hence there is sometimes a conflict between laws and morality. Not everything that is legal is moral and vice versa (Sulmasy and Sugarman 2010). Laws can also be immoral. A typical example is that of the apartheid laws in SA that were based on segregation of persons by their racial groups during the pre-democratic era prior to 1994. In the current scenario of sales of body parts, even though morality confers a right for people to sell their organs and bio-specimens through liberal individualism, this right would not be applicable legally in a society where the legal system does not confer such a right. The United Nations (UN) and European Union (EU) have instructed their member States to prohibit sales of body parts (Satz 2008). This means that sale of organs and biomaterials in the vast majority of countries in the world, including SA, is illegal. According to the law, individuals have a right to donate but not a right to sell their organs in these countries. In countries where organ trade is legal, different business models exist for organ trade ranging from high profit benefits

to a remuneration model where only donor expenses such as travel and lodging are covered during the process of organ donation (Israni 2005).

Consequentialism

The theory of consequentialism, also known as utilitarianism "requires that whenever we have a choice between actions, we ought to choose one which has the best overall consequences for all concerned" (Rachels, 2003a, b, c, pg. 92) (Rachels 2003a, b, c). Conveyed differently, morality requires that "in deciding what to do, we ought to ask ourselves what course of action would produce the greatest amount of happiness for all those who will be affected" (Rachels, 2003a, b, c, pg. 93). Based on this idea, incentivizing donations of body parts for the donor would mean that the consequences would be favourable not only for the recipients of those parts, e.g. kidney transplants in the form of overall well-being and increased life expectancies but also the best consequences for financial benefit for the donors. According to utilitarianism, the right conduct is the one that engenders the most good and in defining what is good, utilitarians define "good" as one and one thing only, namely happiness (Rachels 2003a, b, c). Moreover, those in support of this argument claim that subjecting a good such as organ donation to market exchange does not change its meaning or value (Sandel 2013). However, "if economics was to serve as a guide on which markets serve the public good and where they do not belong, it should relinquish the claim to be a value-neutral science but should reconnect with its origins in moral philosophy" (Sandel, 2013, pg. 138–139). Critics of utilitarianism rebuke the theory based on the idea that consequences should not be the only thing that matters, for example, when a person lies and justifies it with 'good' consequences. In the same breath, "good consequences" should not be the only thing that matter to a point where means and ethical principles are violated and compromised towards achieving a solution.

Conclusion

This paper has considered arguments against commodification of the body and its parts which is represented by bodily commodification arguments to illustrate the point on arguments against and for commodification of biomaterials and data. In support of arguments against commodification, is that of interference of commodification with human dignity and the association with diminished personhood as it relates to human dignity as well as a dilution of altruism which is undermined by commodification. These moral concerns as well as consequences of commodification which include exploitation of the poor that are coerced by their financial

circumstances as well as bioviolence and unethical practices provide the best reasons for not allowing bodily commodification. Arguments that support bodily commodification are centred around firstly, the notion that people have a right and liberty to decide what to do with their lives, including a right to decide to sell their body parts if they so wish. Secondly, allowing people to sell their body parts would result in adequate available amounts for treatments or research as relevant. Proponents of this view hold that this would result in a favourable situation where not only the recipients of treatments benefit but this would also result in financial benefit for those who donate. What stands out from the pro-commodification arguments is that the means to achieve bodily commodification do not matter in attaining financial benefits. This highlights the wrongness of commodification which objectifies humans through exploitation and exposure to unethical practices. The sale of human organs and biomaterials gives rise to moral challenges that demonstrate that people can never be used as a means to an end. In countering the effects of such commodification, a fundamental change in approach to the status quo where researchers are empowered through shared benefits in international collaborative research is necessary.

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Declarations

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