Occupational Concepts: An Underutilized Resource to Further Disabled People and Others Being Occupied: A Scoping Review

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Abstract: Background: Being occupied is an important factor in human well-being and ranges from paid and unpaid work to activities of daily living. Various occupational concepts that do not contain health in the phrase such as “occupational justice” are employed to engage with the social barriers people experience in being occupied. The aim of this study was to understand better to what extent the non-health occupational concepts are used in the academic literature to discuss the social barriers disabled people face in being occupied and whether these occupational concepts are used to enrich discussions in areas that impact the reality of occupation in general such as equity/equality, diversity and inclusion (EDI), science and technology governance, well-being and the impact of environmental issues. Methods: a scoping review of academic abstracts employing SCOPUS, the 70 databases of EBSCO-HOST and Web of Science was performed. Results: We found 24,104 abstracts for the 28 occupational concepts we used in general and 624 abstracts in conjunction with disability terms. Of these 28 occupational concepts, “occupational performance” was mentioned the most (in 9739 of the 24,104 and 397 of the 624 abstracts). The next concept “occupational engagement” was already present in one tenth or less. Occupational justice was present in 700 of the 24,104 and 14 of the 624 abstracts. Furthermore, within the 24,104 and 624 abstracts EDI, science and technology governance, environmental topics, and well-being measures were rarely or not mentioned. Most of the 624 abstracts originated from occupational therapy journals. Only 23 of the 624 abstracts originated from journals with “disability”, and none with “disability studies” in the title. Conclusion: Non-health occupational concepts are underutilized in discourses that focus on decreasing the social barriers to being occupied in general and in relation to disabled people, which is a missed opportunity and should be fixed.

Keywords: disabled people; people with disabilities; occupational concepts; equity; diversity and inclusion; science and technology governance; well-being; environment

1. Introduction

Being occupied is an important factor in human well-being [1–9] and humans occupy themselves with many things they do from paid and unpaid work to activities of daily living [10–12]. The World Federation of Occupational Therapists, for example, states that occupations are “everyday activities that people do as individuals, in families, and with communities to occupy time and bring meaning and purpose to life. Occupations include things people need to, want to and are expected to do” [13]. It is noted that the field of occupational science is about “enhancing understanding of the everyday occupations humans engage in within a variety of life realms” [14]. In a 2016 study, many occupational concepts were identified [15] that one could use to discuss the social barriers people experience in being occupied, such as “meaningful occupation” [16], “occupational adaptation” [17], occupational marginalization [18], “occupational being” [4,19–22], “occupational deprivation” [23–25], occupational alienation [26–30], occupational dysfunction [29,31–33],...
Many people, including disabled people, face social barriers in being occupied in ways they see as meaningful. The content of the UN Convention on the Rights of Persons with Disabilities [53] highlights systemic barriers to many occupations disabled people experience ranging from paid work and volunteer work to leisure and participation in society.

Given the World Federation of Occupational Therapy definition of occupation [13], the social barriers people encounter in being occupied are a focus of many academic fields, including disability studies, and these fields could use the non-health-focused occupational concepts to engage with the social barriers people, including disabled people, encounter in being occupied. Therefore, the aim of this study was to understand better to what extent these occupational concepts are used in the academic literature to discuss the social barriers disabled people face in being occupied and whether these occupational concepts are used to enrich discussions in areas that impact the reality of occupation in general, and in relation to disabled people, such as equity/equality, diversity and inclusion (EDI), science and technology governance, well-being, and the impact of environmental issues. To fulfil this aim, we asked first the following research question (1) How often are each of the 28 occupational concepts mentioned in academic abstracts by themselves, in conjunction with terms covering disabled people and in conjunction with the terms “patient” or “client”? Focusing on the use of the occupational concepts to discuss social barriers disabled people face in being occupied we asked (2) what is said in the abstracts that contain the 28 occupational concepts and cover disabled people about the social barriers experienced by disabled people in being occupied? Many different fields could employ the non-health-focused occupational concepts to discuss the social barriers disabled people experience in being occupied. Therefore, we asked (3) which academic fields/disciplines, as reflected in the journal name, are using the occupational concepts to discuss the social barriers disabled people face in being occupied?

Equity, diversity and inclusion; diversity, equity and inclusion; equality, diversity and inclusion and various other EDI linked phrases and EDI policy frameworks are employed to decrease the negative occupational reality of marginalized groups, including disabled people [54]. Therefore, we asked (4) how often are EDI phrases and frameworks mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people?

Science and technology advancements such as automatization, robotics, artificial intelligence and human enhancement beyond the species-typical impact occupation [55–61]. Science and technology governance and technology-focused ethics fields aim to minimize or prevent the negative social consequences of science and technology advancement (many citations to science and technology governance terms in [62]). Therefore, we asked (5) how often are science and technology governance terms and technology-based ethics fields mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people?

Increasingly, it is being recognized that environmental issues impact occupation [63–67]. Therefore, we asked (6) how often are environmental-linked terms mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people?

Being occupied is important for the well-being of humans [1–9]. Many composite measures of well-being exist, as do different types of well-being [68]. Therefore, we asked (7) how often are well-being-linked composite measures and different types of well-being mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people?
1.1. Occupational Concepts

A 2016 study identified many occupation-related concepts used to discuss the topic of occupation [15]. We wish to just expand on a few of the concepts that allow one to look at the social barriers people experience in being occupied.

“Occupational rights” is one such term [51,52]. It is argued that “occupational rights are inherent to all people as occupational beings” [69] (p. 578) and that occupational rights include, for example, the right to find meaningful occupation and occupations that have a positive effect on ones lived reality [28].

“Occupational injustice” refers to restricted access to occupational possibilities and various other occupational concepts are used to flag various ways to and consequences of restricting the access such as occupational alienation [26–30,70]; “occupational deprivation” [24,25], “occupational apartheid” [50] and “occupational marginalization” [18,28]. “Occupational injustice” is heavily influenced by one’s social position [71–73] and the UN Convention on the Rights of Persons with Disabilities [53] reveals that disabled people are in a low social position and experience many occupational injustices. Barriers to engagement in meaningful occupation are considered injustices [18,43,44].

“Occupational engagement” concerns the extent to which a person experiences a sense of meaning in occupations [74].

“Occupational identity” is defined as “a composite sense of who one is and wishes to become as an occupational being” [75] (p. 85).

“Occupational satisfaction” is about a positive view of a given occupation [76] and is seen as a positive indicator of policy decision making [77]. Occupational dysfunction is the negative view of a given occupation [29].

“Occupational imbalance” refers to populations that experience an imbalance between the labour and benefits of economic production [28] and includes the areas of un-occupied, under-occupied, and over-occupied [28]. This concept stresses that an imbalance is directly correlated to market rewards for work and a need to participate in occupations that promote health and social inclusion. Being occupied too much or too little poses a risk to well-being as it takes meaning and empowerment away from daily activities [28].

“Occupational justice” is about equitable access to meaningful occupation [47,78]. Occupational justice recognizes “unique sets of occupational needs and capacities within particular environments” [18] (p. 418) and is seen needed “as part of a fair and empowering society” [48] (p. 212) (citing [47]). The “evolving theory of occupational justice links the concept to concerns for a justice of difference: a justice that recognizes occupational rights to inclusive participation in everyday occupations for all persons in society, regardless of age, ability, gender, social class, or other differences” [49] (p. 57). Occupational justice is used to frame initiatives meant to improve the well-being of underserved and neglected populations [79–81].

1.2. Being Occupied and Disabled People

According to article 23 of the UN Universal Declaration on Human Rights, “Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment” and “Everyone, without any discrimination, has the right to equal pay for equal work” [82]. None of these conditions are met today for disabled people anywhere, as evident in the action items required by governments under “Article 27—Work and employment” of the UN Convention on the Rights of Persons with Disabilities [53]. For instance, in October 2023 the employment participation ratio gap between disabled and non disabled people 16 years and over was 43.2 points [83,84]. In 2022, 30 percent of workers with a disability were employed part time, compared with 16 percent for those with no disability in the USA [84], which makes the employment gap even bigger. Numbers are not better in other countries [85,86]. According to the United Nations Enable webpage, “80% to 90% of persons with disabilities of working age are unemployed in developing countries, whereas in industrialized countries the figure is between 50% and 70%” [87].
There is also the issue of the bad quality of jobs. For many examples of discriminations disabled people face in their jobs see [88]. According to “Statistics Canada” 35% of disabled university professors, instructors, teachers, and researchers were unfairly treated or discriminated against and 47% harassed [89] (cited in [54]). Another example of the realities of a bad quality of jobs for disabled people is provided by Meeks et al.:

“The majority of physicians with disabilities reported at least one type of mistreatment (64 percent; data not shown). Compared to nondisabled physicians, physicians with disabilities reported relatively more experiences of all types of mistreatment both from coworkers and from patients (exhibit 1). Compared with nondisabled physicians, a higher percentage of physicians with disabilities reported having received threats of physical harm from coworkers (27.6 percent versus 4.8 percent) and patients (39.9 percent versus 22.6 percent), and physicians with disabilities also more often experienced actual physical harm from coworkers (24.6 percent versus 1.8 percent) and patients (26.3 percent versus 5.3 percent). In addition, 31.3 percent of disabled physicians reported unwanted sexual advances from coworkers and 39.9 percent from patients in the previous twelve months”. [90] (p. 1398)

The pay gap is another problem for disabled people [91] as is the glass ceiling with for example only 3 out of 500 disabled women executives (so 0.6%) and 4 out of 500 disabled men executives (so 0.8%) represented in executive positions [92].

Finally, the issue of one’s occupation being made obsolete is another challenge that has been extensively discussed in relation to robotics and automatization and the general population but not in relation to disabled people [93]. Being occupied is also a challenge in relation to sport, recreation and leisure [94–109] (see also Article 30 Participation in cultural life, recreation, leisure, and sport of the CRPD [53]) and in issues such as visiting people [110].

Many problems in the occupation of daily life disabled people experience are evident in many CRPD articles [53]. Furthermore, disabled people have to engage with problematic occupations of daily life such as discrimination admin [111] and the systemic disablism they experience impacts all their occupations and leads to disability burnout, as in disablism burnout:

“Understandably these facts of disability oppression can take a toll on the morale of persons with disabilities. 37 After struggling with employment bias, poverty, blocked access to the community and its resources, unaccommodating and selective health services, lack of accessible and affordable housing, penalizing welfare policies, and lack of accessible transportation, some may experience what is known in the disability community as “disability burn-out”. This term refers to emotional despair engendered by thwarted opportunities and blocked goals. It is aggravated and intensified by years of exposure to disability prejudice and devaluation. In fact, a frequently repeated theme in research interviews with persons with disabilities and illnesses is, “I can live with my physical condition but I’m tired of struggling against the way I’m treated”. 38” . [112] (p. 180) (cited in [113])

1.3. Equity, Diversity, and Inclusion (EDI) and Occupation

Being occupied is an important factor in human well-being [1–9]. Disabled people are noted to encounter many barriers in all areas of being occupied, as evident by the UN Convention on the rights of people with disabilities [53]. Many EDI-related phrases and EDI policy frameworks are used to flag and improve the negative workplace situation of marginalized people, including disabled people [54]. EDI is about occupations. For example, there are male-dominated occupations that pose EDI challenges [114]. How-
ever, it is noted that problems exist as to how disabled people are engaged with in EDI discussions [54].

All the occupational concepts mentioned before could enrich the EDI discourse, to make the case for EDI in the workplace in general and in relation to disabled people. These concepts could make the case to move EDI beyond paid work, to other forms of work such as non-paid work occupation. It is well known that women, for example, experience inequality in unpaid work [115–118] as do other marginalized groups [119–121]. Volunteer work also shows EDI problems [122–128]. Activities of daily living such as leisure also encounter EDI issues [129]. Furthermore, problems marginalized groups experience in their occupation of daily activities due to systemic discrimination [111,113] could be used to feed into the EDI activities at the workplace.

As such, we investigated the use of occupational concepts in conjunction with 12 EDI phrases and 5 EDI policy frameworks in general and in relation to disabled people.

1.4. Governance of Sciences and Technologies and Occupation

Technologies impact occupation in many ways whether occupation is paid or unpaid, or another daily activity.

As to the occupation of paid work, advancements in science and technology are reported to impact wage structure [130], wage distribution [131,132], wage premiums [133], employment structure [134], employment dynamics [135–137], unemployment in developing countries [138] and earning levels [139].

Beyond paid, formal employment occupation, advancements in science and technology also impact being occupied with housework [140] and the societal perception of housework as a valued occupation [141–144], and leisure and volunteering [145,146], to just name a few areas.

Many have written about the impact of automatization, robotics, artificial intelligence and human enhancement beyond the species-typical on paid work [55–61,147–163] and the needs to address the impact of science and technology advancements on leisure and boredom [164].

Many scientific and technological advancements pose social issues that impact the daily activities of many. That is why science and technology governance and technology-focused ethics fields have emerged [62] to prevent or decrease these negative consequences.

Given the impact of advancements of science and technology on the very area of occupation in all its facets, the governance and ethics fields could use the occupational concepts to engage with the impact of science and technology on occupation.

As such, we investigated whether the occupational concepts were mentioned in conjunction with science and technology governance concepts and technology-focused ethics fields, in general and in relation to disabled people.

1.5. Environmental Issues and Occupation

Increasingly, studies note the impact of environmental issues on occupation such as the “legal plight of workers in the United States, who will likely face discrimination as they search for work outside their home states” [63], and one study notes “one of these areas is the employment and working conditions of employees. Many jobs are threatened by extreme weather events, and global warming has a significant impact on labour productivity and income distribution. Job losses are expected in the future in many occupational sectors, such as agriculture and tourism in countries that are more exposed to global warming” [64] (p. 121). Others note gender equality [65], the poverty of women [66] and unpaid work [67].

As such, we investigated whether environmental issues and concepts are used in conjunction with occupational concepts in general and in relation to disabled people.
1.6. Well-Being and Occupation

Being occupied is an important factor in human well-being [1–9]. Many composite measures of well-being and the type of well being exist [68]. As such, we investigated how often well-being-linked composite measures and different types of well-being are mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people.

2. Materials and Methods

2.1. Study Design

Scoping studies are used to investigate the state of research on a given topic [165,166]. Our scoping study focused on the extent of academic research that has been conducted on the use of occupational concepts to discuss the issue of being occupied using a manifest coding and qualitative thematic analysis approach. We selected the occupational concepts based on our prior work [15,61]. Our study followed a modified version of the scoping review outlined by [167].

2.2. Theoretical Frameworks and Lenses

We interpret our findings through various lenses and theoretical frameworks. One lens is making use of the very meaning of the occupational concepts. Another lens is the field of disability studies, which investigates the lived experience of disabled people [168,169]. And a third is the field of ability-based studies (three strands: ability expectation and ableism studies [170–172], studies in ableism [173–175] and critical studies of ableism [176,177]), which focus on the investigation of ability-based expectations, judgments, norms, and conflicts [178] and disablism, the systemic discrimination based on not measuring up to irrelevant ability norms [179].

The very activity of being occupied is closely related to ability-based expectations, judgments, norms, and conflicts. The Convention on the Rights of Persons with Disabilities [53] flags many barriers to various forms of being occupied ranging from employment, leisure, recreation, sport, participation in society in the “civil, political, economic, social and cultural spheres”, education, all aspects of life, and “non-governmental organizations and associations concerned with the public and political life of the country, and in the activities and administration of political parties” [53]. The ability to be occupied is seen as an essential [180,181]. The very discussions taking place under EDI are in essence about which abilities expected at the workplace are relevant or based on ability privilege [54]. The very discussions around cyborgs, automatization, artificial intelligence and robotic for example are about old abilities needed for a given occupation becoming obsolete (ability obsolescence [172,182]) and new abilities needed for existing occupations and new abilities generating new ways of being occupied. As such, how one thinks about occupations and being occupied is impacted by many ability-based concepts [172] generated in the three strands of ability-based studies, such internalized ableism [183] and internalized disablism [184–187] and many ability-based concepts [172]. These ability-based concepts can be used to interrogate occupation together with the occupational concepts. Abilities do not only impact disabled people being occupied but everyone, not only because everyone is ability-judged but also because abilities are often used to justify negative ism’s such as racism or sexism [170,171,183,188–191], which in turn impact the ability to be occupied.

2.3. Identification of Research Questions

The aim of this study was to better understand the academic engagement with non-health focused occupational concepts in relation to disabled people in general and in relation to well-being, EDI, environmental issues and science and technology governance in general and in conjunction with disabled people.

To fulfill this aim, the following research questions were answered in this study: (1) how often are each of the 28 occupational concepts mentioned in academic abstracts by themselves, in conjunction with terms covering disabled people and in conjunction
with the terms “patient” or “client”? (2) what is said in the abstracts that contain the 28 occupational concepts and cover disabled people about the social barriers experienced by disabled people in being occupied? (3) which academic fields/disciplines as reflected in the journal name are using the occupational concepts to discuss the social barriers disabled people face in being occupied? (4) how often are EDI phrases and frameworks mention in conjunction with occupational concepts in general and in conjunction with terms covering disabled people? (5) how often are science and technology governance terms and technology-based ethics fields mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people? (6) how often are environmental-linked terms mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people? (7) how often are well-being-linked composite measures and different types of well-being mentioned in conjunction with occupational concepts in general and in conjunction with terms covering disabled people?

2.4. Data Sources and Data Collection Strategy and Inclusion/Exclusion Criteria

On 6 June 2023, we searched the 70 academic databases of EBSCO-HOST and the academic databases Scopus, which includes Medline and Web of Science, with no time restrictions to obtain content relevant to answer our research questions. The databases contain many journals with disability including “disability studies” or occupation* in the title and contain many journals covering EDI, science and technology governance and technology-based ethics, environmental issues and well-being. As to inclusion criteria, scholarly peer-reviewed journals were included in the EBSCO-HOST search and reviews, peer-reviewed articles, conference papers, and editorials in Scopus and the Web of Science search was set to all document types. As to exclusion criteria, data not fitting the search strategies and the research questions posed and the data that were not in English were excluded.

In search strategy 1 we searched for the following occupational concepts in the abstracts (“meaningful occupation” OR “occupational adaptation” OR “occupational aspect” OR “occupational balance” OR “occupational behavior” OR “occupational behavior” OR “occupational being” OR “occupational deprivation” OR “occupational disruption” OR “occupational engagement” OR “occupational experience” OR “occupational identity” OR “occupational injustice” OR “occupational integrity” OR “occupational issues” OR “occupational justice” OR “occupational participation” OR “occupational pattern” OR “occupational performance” OR “occupational potential” OR “occupational rights” OR “occupational satisfaction” OR “occupational science” OR “occupational self” OR “occupational system” OR “occupational terminology” OR “occupational value” OR “social occupation” OR “occupational apartheid”), obtaining 24,104 academic abstracts which we used then as a source to search for the presence of different keywords linked to research questions 1, 3–7.

In search strategy 2, we searched the academic abstracts containing the occupational concepts from strategy one for the following disability terms (adhd OR “Attention deficit” OR autism OR “Autism spectrum disorder” OR deaf OR disabled OR “Disabled people” OR dyslexia OR “Hearing impairment” OR “Learning disability” OR “learning impairment” OR “Neurodiv” OR “People with disabilities” OR “Physical disability” OR “Speech impairment” OR “Visual impairment” OR wheelchair OR “intellectual disability” OR “cognitive impairment” OR “developmental disability”), obtaining 1431 abstracts which we downloaded using the citation export function of the databases we searched and the import function of Endnote 9 software. As for the 1431 abstracts that contained the occupational concepts and the disability terms, we used the Endnote 9 software to eliminate duplicates of the abstracts obtained. The final 624 abstracts were exported as one WORD Office file from the Endnote 9 software and transformed into one PDF file.

The PDF was used for the quantitative and qualitative analysis covering all research questions.
2.5. Data Analysis

To answer the research questions, we used two approaches. We used a manifest coding and a qualitative content analysis approach to answer question 2 and manifest coding only to answer questions 1, 3–7.

For the quantitative analysis, the 624 abstracts were searched by both authors of this study independently using the advanced search function in the Adobe Acrobat PRO software (version 2023) for how many abstracts contained the various terms linked to EDI, environmental topics, well-being and science and technology we searched for. The two authors then compared the numbers for each keyword (peer debriefing). No differences were found between the authors.

For the qualitative analysis of the 624 abstracts, we decided to use 10 of the occupational concepts ("Meaningful occupation", "Occupational deprivation", "Occupational Self", "Occupational Identity", "Occupational Justice", "Occupational Injustice", "Occupational right*", "Occupational adaptation", "Occupational being" and "Occupational apartheid", ("Occupational oppression" which would also fit our aim had no hits) that we believe mostly cover content that engages with the social barriers disabled people experience in being occupied. Reading all the abstract for example, we found that most of the abstracts that contained the term "occupational performance" were covering the level of functioning of the disabled person or just mentioned the concept and as such were not focused on the social barriers and therefore, we did not use occupational performance for the qualitative analysis.

Then, for the 10 occupational concepts chosen, both authors of the study used the comment function in Adobe Acrobat Software for the coding procedure to independently ascertain first whether the abstracts linked to each of these 10 occupational concepts covered social barriers to occupation experienced by disabled people. We performed peer debriefing between the two authors to compare our results. Differences as to which abstract was seen as not relevant were few and the few differences were resolved through discussion between the two authors. For the selected relevant abstracts, the two authors then independently identified what was said in relation to the social barriers. The clustering of themes into upper-level themes was rarely conducted as we often had so few abstracts that we simply wrote out each theme. Peer debriefing between the two authors of the study was performed to compare the themes.

For our online search-based quantitative analysis of the presence of occupational concepts in academic abstracts by themselves, in conjunction with the terms “patient*” or “client*” and in conjunction with various terms linked to EDI, environmental topics, well-being and science and technology, both authors performed the online search accessing the three academic databases through the university library. Each number given by the search engine of each of the three databases obtained by both authors was recorded and the results of the numbers obtained was compared to make sure that both authors received the same numbers from the search engines. No difference in numbers were observed between the two authors of the study. It should be noted that the numbers recorded are a maximum as duplicates due to some abstracts being listed in more than one database were not identified and eliminated. As such, the real hit numbers for many terms will be lower.

2.6. Trustworthiness Measures

Trustworthiness measures include confirmability, credibility, dependability, and transferability [192–194]. Peer debriefing was employed as already outlined. As for transferability, we give all the details needed so others can decide whether they want to apply our search approaches on other data sources or whether they want to use other occupational concepts or other disability terms and whether they want to perform more in-depth analysis of terms based on the hit counts.
3. Results

Within Section 3.1, we report first on how many of the 624 abstracts mentioned each of the occupational concepts (Appendix A: Table A1, Section 3.1.1) and how many of the 24,104 online abstracts mentioned the occupational concepts we investigated alone and together with the terms “patient*” or “client” (online abstract database searches) (Appendix A: Table A1) (Section 3.1.1). Then, we present how many of the 624 abstracts contained each of the disability terms we used for our search (Appendix A: Table A2) (Section 3.1.1). After that, we present how many of the 24,104 abstracts that contained at least one of the 28 occupational concepts (online search) and how many of the 624 abstracts (that contained in addition one of the disability terms) mentioned terms depicting EDI phrases and policy framework, terms used for groups covered under EDI, the concept of intersectionality and international conventions and declarations covering social groups covered within EDI (Appendix A: Table A3) (Section 3.1.2), specific technologies, science and technology governance terms and ethics fields (Appendix A: Table A4) (Section 3.1.3), environmental issue-related terms (Appendix A: Table A5) (Section 3.1.4), and terms and measures of well-being (Appendix A: Table A6) (Section 3.1.5).

The quantitative results of hits reflecting the number of abstracts in Tables A1–A6 in short were the following: (a) of the 28 occupational concepts, “occupational performance” was mentioned the most in the 624 abstracts and the online searches of the 28 occupational concepts by themselves and together with the terms “patient*” or “client” (Section 3.1.1). The second one had already one tenth or less hits. (b) Within the 624 abstracts, autism was the ‘disability’ mentioned the most, and “neurodiv*” was mentioned only in five abstracts. (c) The term patient was the second highest one mentioned in the 624 abstracts without it even being a search term. Finally, (d) very few to no of the 624 and 24,104 abstracts covered the 28 occupational concepts in conjunction with the keywords used to look at equity/equality, diversity and inclusion (EDI), science and technology governance, well-being, and the impact of environmental issues (Sections 3.1.2–3.1.5).

As to the frequency of abstracts in journals (Section 3.3) the majority of the 624 abstracts came from occupational therapy journals and not one from a journal containing disability studies in the title.

3.1. Quantitative Numbers

3.1.1. Occupational Concepts Mentioned Alone or Together with All the Disability Terms or the Term “Patient” or “Client” (Research Question 1)

Table A1 provides the number of abstracts that contained each of the 28 occupational concepts (a) by itself in online abstracts or (b) in the 624 abstracts we downloaded; (c) online abstracts containing the term “patient*”; and (d) online abstracts that contained the term “client”. The occupational concept mentioned the most was “occupational performance” with the next one being mentioned already in ten-times less abstracts.

In Table A2 (Appendix A), we show which disability terms were mentioned in how many of the 624 abstracts downloaded. The term patient was the second highest without even having been a search term and autism was the highest. Deaf people and blind people were little covered and the term “neurodiv*” was rarely mentioned.

3.1.2. Occupational Concepts and EDI in General and in Conjunction with the Disability Terms (Research Question 4)

As to Table A3 (Appendix A), none of the 12 EDI phrases and 5 EDI policy frameworks generated any hits. Intersectionality as a term had only two hits in general and one hit related to disabled people. As to EDI-deserving groups, only gender/women had a substantial numbers of hits, and other terms used for EDI-covered groups were rarely mentioned and even less so in the abstracts containing the disability search terms. Interestingly, the term patient*” had again the most hits. As to international human rights documents covering various groups that fall under the category of EDI-deserving groups and that could be used to help EDI arguments, only the “Convention on the Rights of
Persons with Disabilities” (CRPD) was mentioned ten times in general and two times in the abstracts containing the disability terms. None of the other international human rights documents were mentioned once.

3.1.3. Occupational Concepts and Science and Technology Governance in General and in Conjunction with the Disability Terms (Research Question 5)

The results of Table A4 (Appendix A) show that occupational concepts were mentioned to some extent together with generic terms such “Technolog*”, “Technology for” and Assistive technology. Emerging technologies such as artificial intelligence and quantum technologies received few to no hits. Science and technology governance terms and technology-focused ethics fields generated mostly no hits.

3.1.4. Occupational Concepts and Environmental Terms in General and in Conjunction with the Disability Terms (Research Question 6)

Table A5 (Appendix A) showed that environment-linked concepts were rarely to not present in general and even less in conjunction with the disability terms. Indeed, of all the terms sustainability was the only one mentioned in the 624 abstracts (two times). Sustainability was mentioned in 129 of the 24,104 abstracts. “Climate change” and “environmental issues” were mentioned in 10 of the 24,104 abstracts and not in the 624 abstracts. The other terms such as “UN Framework Convention on Climate Change” and “environmental activism” had no hits.

3.1.5. Occupational Concepts and Well-Being Measure Terms in General and in Conjunction with the Disability Terms (Research Question 7)

As to well-being, only the generic term “well being” or “occupational well being” was present in a substantial number of the 24,104 abstracts. In conjunction with the disability terms (624 abstracts), the generic term well-being was present in some abstracts, with “occupational wellbeing” only being present in one abstract. Other specific well-being concepts were rarely or not present in the 24,104 online abstracts and the 624 abstracts (Table A6 Appendix A). As to the 21 composite measures of well-being (Table A6, Appendix A), only ten were mentioned in the 24,104 abstracts, with the highest being 45 abstracts for “determinants of health” out of 24,104 abstracts. At the same time, only the terms “Community based rehabilitation”, “Satisfaction with life scale” and “Community rehabilitation” had hits (three abstracts or below) in the 624 abstracts, with “determinants of health” not having any hits (Table A6 Appendix A).

3.2. Qualitative Analysis of 10 Occupational Concepts Linked to Social Barriers to Being Occupied and Disabled People (Research Question 2)

The initial abstracts we obtained using strategy 2 were 1431 abstracts. After using the Endnote 9 software to eliminate the duplicates due to some abstracts showing up in more than one database, we ended up with 624 abstracts we used for the qualitative analysis.

Table 1 summarizes the first round of reading of the abstracts mentioning occupational concepts we judged would focus predominantly on the social barriers to being occupied disabled people experience and as such would be having qualitative content fitting our research question. In the first round of reading, we flagged which abstracts we saw as relevant. For the 10 occupational concepts, we show the actual number of abstracts that mentioned the concepts and the number of relevant abstracts.
Table 1. Number of abstracts mentioning a given occupational concept in the 624 abstracts and number of abstracts mentioning them in a relevant way so engage with the social barrier to being occupied, experienced by disabled people.

<table>
<thead>
<tr>
<th>Occupational Concept</th>
<th>Mentioned in the 624 Abstracts</th>
<th>Relevant Abstracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaningful occupation</td>
<td>28</td>
<td>21</td>
</tr>
<tr>
<td>Occupational deprivation</td>
<td>9</td>
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<td>Occupational Self</td>
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<tr>
<td>Occupational Injustice</td>
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<td>10</td>
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<tr>
<td>Occupational right*</td>
<td>5</td>
<td>3</td>
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<tr>
<td>Occupational adaptation</td>
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<td>Occupational being</td>
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<tr>
<td>Occupational apartheid</td>
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</table>

Table 1 shows that even using abstracts as the source for keyword searches that many abstracts still were not relevant.

3.2.1. Meaningful Occupation

As to the twenty-eight abstracts covering meaningful occupation, twenty-one had content in relation to disabled people. In four, abstracts barriers were mentioned. Two highlighted the barriers to meaningful occupation by disabled people with SCI in Tanzania [195] and of adults aging with intellectual and developmental disabilities in the USA [196]. Others mentioned barriers to social support [197] and direct funding [198]. In four abstracts, it is simply stated that meaningful occupation is important [199–202] and two that it has a positive effect [203,204].

Various occupations are seen as meaningful such as swimming [205], narrative storytelling [206], wheelchair basketball [207,208], art, games, and cooking [209], and it is argued that what is seen as a meaningful occupation can change [210] and that “children with neurodevelopmental disorders attach different meanings to their everyday activities than their typically developing peers” [211] (p. 35).

In one paper it is argued that caregivers have the ability to support autistic adults “to participate in meaningful occupation” [212] (p. 1), that multiple factors influence employment and that “interdisciplinary rehabilitation approaches and social development interventions” are useful “to address meaningful occupations in persons with SCI in South Africa” [213] (p. 1).

Social skills training is seen as one utility of meaningful occupations [209]. The availability of assistive technologies is seen as useful for meaningful occupation [214].

In one abstract, it is argued that “films can help inform public perceptions about desired and appropriate occupational participation for people with IDD to increase access to meaningful occupation” [215] (p. 20).

3.2.2. Occupational Deprivation

As to the nine abstracts containing the term “occupational deprivation”, five were relevant. Of these five, one stated “The occupational deprivation experienced by IPV survivors with disabilities can entrap women in abusive relationships, preventing them from independently supporting themselves and their children” [216] (p. 1). It is argued that exclusion is a consequence of occupational deprivation and social marginalization [217], that assistive technologies can decrease occupation deprivation [214] and that occupational imbalance leads to occupational deprivation [81]. In one study, using data from the 2015 Kessler National Employment Survey, they examined the occupational deprivation of people with disabilities in the workplace [218].
3.2.3. Occupational Self

As to the thirteen abstracts, twelve were about self-assessment or self-analysis or about self-efficiency. The one relevant study looked at the impact of assistive devices on the occupational self-imagery of disabled people, noting that the assistive device was a means to an end to achieve an occupational self-imagery goal [219].

3.2.4. Occupational Identity

As to the four relevant abstracts, one abstract covering electric wheelchair users stated “Contextual values and exploring experiences, such as possibilities to develop competences and roles, along with encountering social recognition, but also hindering regulations and adversities, influence the development of occupational identities” [220] (p. 1). The second one focused on how “cultural concepts of ability and disability have shaped all educators’ occupational identity and experience over time” [221] (p. 90). A third abstract stated “Occupational Performance History Interview—Second Version (OPHI-II) was selected because it is client-centred. It measures how a significant life event affects a person’s occupational identity, occupational competence, and interaction with the environment” [222] (p. 136). In one abstract, it is argued that a vocational rehabilitation intervention led to an improved occupational performance and occupational identity [223].

3.2.5. Occupational Justice

Of the fourteen abstracts, nine were relevant. One abstract highlighted the South African work transition program for youths with intellectual disabilities as promoting occupational justice [224]. Play is covered as an occupation of children with autism in [225], concluding “By focusing on being and not becoming, we argue for rejecting a deficit model in favour of a rights-based occupational justice perspective to emancipate play” [225] (p. 114). One noted that self advocacy skills positively impacted occupational justice [226]. One abstract addressing the concept of occupational justice for people with disabilities [81] noted the following themes of occupational injustice: “(1) barriers to entry to employment, (2) occupational alienation stemming from unemployment, (3) occupational marginalization, and (4) occupational imbalance leading to occupational deprivation. Findings highlight the importance of the workplace environment supporting people with disabilities, and the relationship between unemployment and occupational alienation” [81] (p. 125). One argued that occupational justice and rights values have to be incorporated into policy implementation [227]. Direct funding is discussed in relation to occupational justice [198]. One abstract covered a panel that focused on occupational justice where the abstract highlighted disabled people in Chile as one stakeholder [228]. In one abstract, it was stated that “according to the Science of Occupation and Occupational Justice, participation and inclusion within significative occupations is basic for the development of people and communities” [229] (p. 131) and that disabled students face problems within the university they covered as to equity and inclusion [229]. The occupational justice framework was employed to look at how service organizations look at disability and Indigenous Peoples [230].

3.2.6. Occupational Injustice

Of the eleven abstracts, ten were relevant. Three abstracts focused on the role of occupational therapists in decreasing occupational injustice related to disabled people, stating “advocacy and working for broader social change are essential for occupational therapy practitioners, given ongoing occupational injustices for people with disabilities” [231] (p. 1) and “By highlighting issues of occupational injustice, occupational therapists can advocate for and empower communities of people with disabilities who face stigma and discrimination” [232] (p. 1). And one focusing on occupational injustice experienced by female refugees with physical disabilities argued that occupational therapists can remove barriers leading to this occupational injustice [233].

Disabled refugees were mentioned in three abstracts. One study, using the occupational injustice framework, explored disabled refugees’ access to occupational participa-
tion in the context of the U.S. refugee resettlement program [234]. Focusing on female
refugees with physical disabilities [233], one study identified various barriers to obtaining
employment: (a) stigma and discrimination, (b) a restrictive traditional labor market,
(c) inaccessible and inadequate housing, (d) a lack of cohesion and information across
services, and (e) English language predominance, whereby these barriers are seen as an
exhibit of occupational injustice [233].

A lack of understanding of disabled people and their realities is outlined as one
factor leading to occupational injustice [224]. One saw people with intellectual disabilities
as at risk of experiencing occupational injustice because they might be “predisposed to
occupational alienation as a result of an inherent need for ongoing support and limited
understanding of how they express choice and engagement in occupation” [235] (p. 1).

One argued that sport for development might be a way out of occupational injustices
for those, such as disabled youth, not belonging to the privileged groups [236]. One saw a
lack of access to tourism as an occupational injustice [237], another the barriers to sexual
activity [43], and a third barriers to electronic tools for health management [238]. One saw
lack of access to meaningful occupation as an occupational injustice [43].

3.2.7. Occupational Right

Three relevant abstracts mentioned this term. In one abstract, it was argued that a lack
of access to water and sanitation for disabled people limits their ability to occupation, that
access to water and occupation is an occupational right and that the reality of non-access
is an occupational injustice, occupational deprivation and occupational apartheid [239].
The second abstract stated that the use of the concept of “occupational rights” fits with
the United Nations’ Convention on the Rights of Persons With Disabilities [240]. The third
abstracts covered direct funding in conjunction with occupational rights [198].

3.2.8. Occupational Adaptation

As to the nine occupational adaptation abstracts, four were relevant. One highlighted
missing resources to facilitate occupational adaptation [241]; a second, tools to achieve satis-
faction through occupation [242]; a third, an occupational adaptation model as useful [243];
and a fourth argued that “for the occupational adaptation and social integration of the
intellectually disabled, it is helpful to improve their work performance and interpersonal
skills” [244] (p. 1).

3.2.9. Occupational Being

Of the two, both were relevant. One argued that it is problematic that intellectually
disabled people are not given the opportunity to fulfil their potentials as occupation
beings [245]. The second one concluded that definitions of occupation do not fit young
children with autism and other developmental disabilities [246].

3.2.10. Occupational Apartheid

The one found was also relevant and linked lack of access to clean water and sanitation
to occupational apartheid and labels the lack of access as occupational injustice as it limits
the ability to engage in occupations [239].

3.3. Journals Linked to the Use of the Occupational Concepts (Research Question 3)

As to the journals where the abstracts originated from, occupational therapy journals
were the main source, whereby the occupational therapy journals were the American
Journal of Occupational Therapy (70); British Journal of Occupational Therapy (49); Scandi-
navian Journal of Occupational Therapy (30); OTJR Occupation, Participation and Health
(22); Australian Occupational Therapy Journal (22); Canadian journal of Occupational
Therapy, Occupational Therapy International (15); Occupational Therapy in Mental Health,
Occupational Therapy in Health Care (12); Indian Journal of Occupational Therapy, OT
Practice (8); Work-a Journal of Prevention Assessment & Rehabilitation, Brazilian Journal
of Occupational Therapy, Open Journal of Occupational Therapy (6); Physical and Occupational Therapy in Pediatrics, Physical & Occupational Therapy in Geriatrics (5); WFOT (3); New Zealand Journal of Occupational Therapy (2); and Irish Journal of Occupational Therapy (1).

Journals with disability-related terms in the title were Disability and Rehabilitation, 16; Journal of Autism and Developmental Disorders, 3; Journal of Intellectual Disabilities, 1; Sign Language Studies, 1; Journal of Attention Disorders, 1; and Research in Developmental Disabilities, 1.


4. Discussion

Our study found a very uneven engagement with occupational concepts in general and in conjunction with disabled people. Of the occupational concepts, “occupational performance” was the main concept, whereby the content did not engage primarily with the social barriers to being occupied. The next occupational concept was present in one-tenth or less of the articles. Occupational concepts were also rarely used in relation to EDI, science and technology governance, environmental concepts and well-being concepts and measures. Our findings also revealed that the main group of journals containing the occupational concepts were journals with occupational therapy in the title. As to journals with disability in the title, “Disability and Rehabilitation” was the only journal with more than 10 hits, with all-but-two abstracts containing the concept of “occupational performance”. No disability studies or other journals in which the social lives of disabled people are the main focus were found. Our findings indicate many opportunities (research, teaching and policymaking) to rectify the problems we found.

4.1. Occupational Concepts and Disabled People

As to the occupational concepts and disabled people, our findings are problematic. The main sources of our positive hits were from occupational therapy journals and journals with a medical/clinical focus. Therefore, it might be understandable that occupational performance was the most frequently found term, given that the term is mostly used to focus on the bodily function and that occupational performance is the main initial measure for proceeding in occupational therapy [247]. The fact that we found much less to no hits for occupational concepts that engaged with the social barriers to occupation might also be understandable, because the focus in occupational therapy is on the deficiency of the person as the cause of the occupational performance problem [247]. In one study, it was found that only 1% of the mentioned problems linked to the social environment such as inaccessible housing, as the root of the occupational performance problem [247]. In another study, it was found that only 1% of the mentioned problems linked to the social environment such as inaccessible housing, as the root of the occupational performance problem [247].

Another study quotes from McColl’s editorial “What can occupational therapy & disability studies contribute to one another?” [248] the following “occupational performance problems are mostly viewed as personal and family issues, to be addressed on an individual basis” (McColl, 2021, p. 5); and that the profession remains focused “on understanding the components of the individual responsible for occupational problems, and where possible, remediating those” (McColl, 2021, p. 5)” (cited in [249] (p. 366)).

The fact that we found our findings problematic fits with Hammell making the case that the lack of engagement with the structural causes of injustice within occupational therapy is problematic [249].

Hammell concludes

“For occupational therapy to fulfill its declared intent of working towards fulfillment of the right of all people to engage in the occupations they need to survive, define as meaningful, and that contribute positively to their own well-being and the well-being of their communities (WFOT, 2019) requires both intellectual
and practical activism. It demands a willingness to challenge the status quo of injustice; to strive towards structural competence; to decolonize the profession’s theories and models; and to commit to improving health by addressing inequities in the social and structural determinants of occupation, congruent with WFOT (2016) Minimal Standards”. [249] (p. 370)

Given the conclusion by Hammell, occupational therapy could and should move beyond the person being the problem, for which the occupational concepts that focus on the social barrier to being occupied could be very useful.

However, our findings also suggest that many other fields that engage with the topic of occupation, including disability rights-focused fields such as critical disability studies, do not use the occupational concepts and therefore could and should use the occupational concepts that focus on the social barriers to occupation to enrich the critique of the occupational reality of disabled people.

Ample studies exist that highlight what occupational opportunities ought to look like [82] and the negative reality for disabled people [53] in conjunction with paid work [84–87,91],bad job climates such as being discriminated and harassed at the job [88–90] and the glass ceiling [92]. Then, there is the issue of occupations with certain abilities being made obsolete, a topic discussed for the general population but rarely in conjunction with disabled people [93]. Being occupied is a systemic problem for disabled people covering all forms of being occupied [53,94–111]. Furthermore, the systemic disablism, the systemic discrimination, based on not measuring up to irrelevant ability norms [179] impacts all occupational opportunities and occupational realities for disabled people.

The systemic problem with being occupied, ranging from paid to non-paid work and activities of daily life, can be seen as one factor in disability burnout as in disablism burnout. As stated,

“Understandably these facts of disability oppression can take a toll on the morale of persons with disabilities. After struggling with employment bias, poverty, blocked access to the community and its resources, unaccommodating and selective health services, lack of accessible and affordable housing, penalizing welfare policies, and lack of accessible transportation, some may experience what is known in the disability community as “disability burn-out”. This term refers to emotional despair engendered by thwarted opportunities and blocked goals. It is aggravated and intensified by years of exposure to disability prejudice and devaluation. In fact, a frequently repeated theme in research interviews with persons with disabilities and illnesses is, “I can live with my physical condition but I’m tired of struggling against the way I’m treated”. [112] (p. 180) cited in [113]

The systemic disablism faced by disabled people in occupational endeavors could be critiqued using the occupational concepts that do not focus on the disabled person being the problem, such as occupational rights, apartheid, justice, injustice and deprivation to name a few. We suggest that these concepts would be of use to disability studies scholars [168,169], scholars that investigate the social aspects of being occupied in general and disability rights activists and their allies that want to spotlight the occupational injustice disabled people face in general.

But disabled people can also enrich these occupational concepts by interpreting them through ability-based concepts extensively discussed, employed and fine-tuned in ability expectation and ableism studies [170–172], studies in ableism [173–175] and critical studies of ableism [176,177]). Ability-based studies question irrelevant and arbitrary ability-based expectations and norms, and the resulting conflicts between individuals and groups. Looking at the occupational concepts through ability-based concepts reveals that many groups beyond disabled people experience the same ability-based occupational injustices, given that abilities are often used to justify negative isms such as racism, sexism and other negative uses of isms [171,183,188–191] that lead to occupational injustices.
Occupational injustice refers to restricted access to occupational possibilities and is related to concepts such as occupational alienation [26–30,70], occupational deprivation [25,250], occupational apartheid [50] and occupational marginalization [18,28,251]. Occupational injustice is heavily influenced by one’s social position [71–73], which is based on fulfilling valued abilities, something which is impacting many marginalized groups.

Ability privileges (having an ability to open the doors to experience other abilities [178]) and disablism, the systemic discrimination based on not measuring up to irrelevant ability norms [179], both could be linked to occupational rights, apartheid, justice, injustice and deprivation. Ability privileges are one factor in the lack of occupational rights, and being at the receiving end of occupational apartheid, injustice and deprivation. It was, for example, stated “A pernicious impact of ableism is its tendency to take-for-granted ability as a legitimate criterion for negative differential treatment, thereby making disability discrimination difficult to challenge for people with disabilities” [252] (p. 76). Various other ability concepts could be used to interrogate why the lack of occupational rights and justice and the reality of occupational apartheid, injustice and deprivation are so pervasive. For example, many disabled people and so-called non-disabled people internalize ableism [183] and disablism [184–187] and therefore do not even realize that a given reality is based on ability privileges. Many also have internalized disablism so that one does not even flag ability privilege causing ability inequity, an unjust or unfair (a) “distribution of access to and protection from abilities generated through human interventions” or (b) “judgment of abilities intrinsic to biological structures such as the human body” [172]. The very term accommodation is one such example. We label a wheelchair washroom an accommodation for wheelchair users but not that the very washroom is an accommodation for the human body. This is just one example of ability privilege and ability inequity.

Ability security (one is able to live a decent life with whatever set of abilities one has) and ability identity security (to be able to be at ease with one’s abilities) are two other ability-based concepts [172] one could use. Ability insecurity is one consequence of the lack of occupational rights and justice and the reality of occupational apartheid, injustice and deprivation. Ability identity insecurity is a consequence of being judged as deficient based on irrelevant ability norms, which one can see as one cause of experiencing a lack of occupational rights and justice and being on the receiving end of occupational apartheid, injustice and deprivation.

4.2. Occupational Concepts and Equity, Diversity and Inclusion

Our study found no engagement with the 12 EDI phrases and the 5 EDI policy framework in conjunction with the occupational concepts. As to the occupational concepts, this is a missed opportunity.

Many of the occupational concepts could be used to support EDI efforts in various aspects of occupation, not just in the paid workplace but also the unpaid workplace and in daily activities where marginalized groups face EDI problems [115–129]. And people involved in EDI could use occupation-based concepts as part of the critique. For example, occupational dysfunction is used to describe the “negative experience related to engaging in daily activities” [29] (p. 1) such as work, leisure, self-care, and rest [31] and is seen as a factor in the worsening of well-being [31–33]. One can make a case that occupational dysfunction is outside the paid workplace, so the lived experience impacts the occupational dysfunction at the workplace. Systemic discriminations such as racism and disablism (systemic discrimination based on the ability privileged setting irrelevant ability norms that suit them) impact daily activities and as such increase the danger of occupational dysfunction.

Occupational adaptation is described “as the process and/or outcome of the interaction between the person, occupation, and environment in response to occupational challenge” [17] (p. 26). Adaptation is by now a challenged concept with, for example, Desmond Tutu using the phrase “Adaptation apartheid” in conjunction with climate issues, indicating that the ones in power cause problems and demand the others to adapt whether
they want to or can, or not [253]. Who must adapt to challenges caused by whom is an EDI issue at the workplace. As such, adaptation apartheid is a factor in occupational apartheid, which indicates biases of offering occupations based on the persons characteristics [75,254]. That certain groups set the parameters that others must follow and so have to adapt to is at the core of EDI actions at the workplace, and with that adaptation apartheid is at the core of EDI. One could say that EDI discussions question the status of occupational adaptation. What EDI is trying to change is in essence occupational apartheid.

Another example is the concept of occupational alienation.

“Alternatively, people can become occupationally alienated if they feel ‘estranged’ from themselves because they are unable ‘to meet basic occupational needs, or use their particular capacities’ because of ‘the way society is’ and the demands it makes on them. With the ‘evolved complexity of human lifestyles, cultural values, societal rules, sophisticated technology and subsequent ecological detachment’ the prevalence and incidence of occupational imbalance, deprivation and alienation have increased”. [70] (p. 342)

Many of the social realities depicted by the occupational terms we covered could be seen to have, as one consequence, the burnout of people at work [70,113] but also in general such as life burnout [113]. For example, occupational marginalization is described as the lack of opportunity to participate in desired daily activities based on the normative standardization of expectations [28]. This normative standardization is often based on ability privilege and the setting of irrelevant ability norms. This powerlessness to shape one’s work is a key issue faced by EDI-deserving groups at the workplace.

Occupational justice is the equalization of opportunity to ensure that everyone has access to all occupations and the resources needed to engage in them [78]. EDI policies try this very thing, namely generating occupational justice for EDI-deserving groups. We propose that all the occupational concepts could be used to enrich the EDI discourse and to link the EDI discourse closer to the discourses around all kind of occupations.

4.3. Occupational Concepts and the Issue of Human Enhancement and Technologies

Expected ability norms are moving targets. The very term learning disability (with the meaning of neurological disorder [255,256] was coined due to shifting STEM (science, technology, engineering, and math) abilities expected from students [257–259], adding all of a sudden many people into the impairment, the ability deficiency, category. Indeed, if one looks at disability categories of students, for example in universities, learning disability is the second highest after mental health issues [260]. Upskilling is a term used for having to add new ability skills to one’s repertoire. The very discussions around ability obsolescence date all the way back to the appearance of the luddites [182,261,262] and ability upskilling can be investigated through the lens of occupational rights and justice, and being at the receiving end of occupational apartheid, injustice and deprivation and through concepts such as ability privilege and ability inequity.

Ability judgments in conjunction with occupation are increasingly influenced by the appearance of post/transhumans, cyborg humans, non-sentient machines and sentient machines [170,172]. The very term luddite was coined around cotton weavers that saw their abilities becoming obsolete, their ability being replaced by a machine [261,263]. One main aspect around robotics and automatization and artificial intelligence today is the issue of being replaced as workers due to ability obsolescence. People who are seen up to a given time as ability-sufficient, so ability normal, will be moved into the category of ability-deficient, so impaired and with that will join the group traditionally labelled as disabled people due to not having the abilities to compete with the abilities of the machines. There are also many discussions around the cyborgization of humans and enhancing the abilities of humans beyond the species-typical (for some older but telling references see [264,265]). However, our search only found few hits for phrases and technology products that could lead to human enhancement such as brain–computer interface, neuroenhancement and transhuman, and no hit for the terms “cyborg*” together with occupational concepts.
We suggest that the ability-based concepts mentioned before, together with occupational concepts that focus on the social problem of being occupied, could be used to enrich the technology-driven discussions around occupation on all levels, including the issue of not being occupied enough and being bored [266]. Disabled people already are at a high danger of boredom [267,268] due to occupational injustice, which also covers volunteer work and leisure activities. Free-time boredom measures have been designed [269,270] to measure the boredom experienced by many. Boredom is discussed around the issue of universal basic income [271].

We also found few to no hits with the occupational concepts in conjunction with the science and technology governance and technology-focused ethics terms, whether alone or together with disability terms. Given that these ethics and governance discussions aim to prevent social problems, this is a missed opportunity, given that many scientific and technological advancement impact being occupied in all areas from paid jobs to daily activities. It is even more of a missed opportunity that occupational concepts and the science and technology governance and technology-focused ethics discussions do not intersect to investigate the impact on the ability of disabled people of being occupied given that disabled people face so many problems in many areas of being occupied as for example evident in the UN Convention on the rights of persons with disabilities [53].

4.4. Occupational Concepts and Environmental Issues

Increasingly, studies note the impact of environmental issues on occupation [63–67]. The United Nations 2018 Flagship Report on Disability and Development: Realization of the Sustainable Development Goals by, for and with Persons with Disabilities [272] is just one report outlining many environmental issues disabled people face, all of which impact disabled people as occupational beings. Our one result linked lack of access to clean water and sanitation disabled people experience to occupational apartheid and sees it as occupational injustice as it limits the ability to engage in occupations [239].

It is argued that environmental activism impacts disabled people in the following four main ways:

“(a) potential arguments (preventing impairment) for environmental actions; (b) changing societal parameters caused by environmental activism; (c) changing societal parameters demanded by environmental activism and (d) technologies used as a solution for environmental issues (e.g., geoengineering and human enhancement to make humans resistant to climate change)” [273] (p. 3)

It is, furthermore, noted in the literature that disabled people face barriers to the occupation of being environmental activists [273–278], with a high danger of activist burnout [113,279]. However, our searches resulted in few to no hits for various environment-linked concepts with the occupational concepts we used for our searches. One could employ the occupational concepts much more to critically accompany areas such as environmental activism, environmental policy making and emergency and disaster management, preparedness and planning, to just name three areas.

Environmental activism is about ability judgments about which abilities humans are used to do, we keep and which we eliminate. Sustainable development was set up as a concept to change the ability expectations humans should have of nature. Anthropocentrism and ecocentrism have different ability expectations of nature [280]. Eco-ableism [281] and eco-ability [282–285] are two terms coined to engage with ability expectations humans have of nature.

As such, our findings indicate huge opportunities to enrich the environmental discussions by using the occupational concepts to generate data that bring the issue of occupation in a differentiated way to the table.

4.5. Occupational Concepts and Well-Being

Given that the occupational is so intricately linked to well-being [1–9], it is a missed opportunity that the occupational concept discussions do not make use of, for example, the

(Table A4).
concept of social well-being and the well-being composite measures. Given the definition of health equity [286,287], its linkage to a good life [288,289] and its linkage to well-being by covering many social determinants [290], its coverage of marginalized groups [288] and that it is seen to be about social exclusion [291], linking the occupational concepts, especially the non-health-focused ones, would enrich the health equity discourse, as being occupied impacts many determinants covered under health equity and with that many determinants needed for a good life.

4.6. Limitation

The search was limited to specific academic databases and the English language literature and to abstracts. As such, the findings are not to be generalizable to the whole academic literature, the non-academic literature, or the non-English literature. We also did not use every possible disability term. However, our findings allow conclusions to be made within the parameters of the searches.

5. Conclusions, Future Research and Implications

Our study suggests a very uneven engagement with occupational concepts in conjunction with disabled people. Of the occupational concepts, “occupational performance” was the main concept, a concept that was not used to focus on the social barriers to being occupied. The next occupational concept was present ten-times less in the literature. Occupational concepts were also rarely used in relation to EDI, science and technology governance and well-being measures. Our findings also revealed that the main group of journals containing the occupational concepts were journals with occupational therapy in the title. As to journals with disability in the title, “Disability and Rehabilitation” was the only journal with more than 10 hits, with all-but-two abstracts containing “occupational performance”. No disability studies or other journals, in which the title suggests that the social lives of disabled people are discussed, were found.

One of the implications of our study is that the research gaps must be filled so that the data generated, and the conceptual richness around occupation developed, can be used in education and in policy development. Our findings suggest many opportunities to use the rights-based occupational concepts to enrich the academic research, education, and policy making discussions around disabled people as occupational beings and the occupational discussions within EDI, science and technology governance and technology-based ethics discussions, discussions around environmental topics, and well-being discussions.

There are many possible conceptual mergers one could have such as employing a fusion of ability-based concepts together, especially with the rights-based occupational concepts. Such fusions would be useful when discussing the occupational situation of disabled people but also to discuss the ability expectation changes that change the occupational situation for the ones who are so-far labelled as non-disabled but could be defined as disabled with the meaning of impairment down the road. Using the occupational rights-focused occupational concepts could enrich the occupational lens of disability justice discussions [292,293] in general and discussions at the intersections of disability justice, racial justice and environmental justice [294].

As to concrete research projects, one could use surveys, interviews, and focus groups to ascertain the awareness and views that people involved in EDI have of occupational rights-based concepts. One could ask people involved in EDI in more detail how they would define the occupational rights-based concepts, what their thoughts are on the existing definitions, whether they see some of the concepts being used by others within the workplace and with what the consequences are for EDI. Then, one could give them text that merges ability-based concepts with the occupational concepts and ask their views. The same procedure could be applied to science and technology governance, well-being, and environment-based discussions. In all these areas, one can ask participants to give examples for any of the occupational concepts.
This procedure could also be applied to discussions that focus on marginalized groups including disabled people, include the area of intersectionality between various marginalized characteristics, and also look at the intra-sectionality of disability groups, as different disability groups are impacted in their occupational endeavor differently by a given ability-based judgment.

Allies of marginalized groups could be another target group for this research using the same procedure.

Finally, it would be interesting to use the procedure with people that focus on occupation such as trade unionists, or people pushing for recreation, because so far these groups seem not to use the occupational concepts.

Research action based on our findings could have the implication that evidence is generated, and that the data can be used to inform policies around occupation and curricula content. The fusion between occupational concepts and concepts used in ability-based studies (three strands: ability expectation and ableism studies [170–172], studies in ableism [173–175] and critical studies of ableism [176,177]), could be used to look at occupation in a more holistic way and to make visible that every one is ability-judged and ability-enabled or disabled in their occupational endeavors, and with that to decrease the silo disabled people often find themselves in as if they are the only ones that need accommodations and have special needs around occupations. Having more people use the occupational concepts will have, as one implication, that it enriches the existing occupation-based discussions happening outside occupational therapy and occupational science, especially in relation to marginalized groups. Broadening the uptake of the occupational concepts outside occupational therapy will also facilitate a refocusing away from the body that needs to be fixed to the social and physical environment that needs to be fixed. It might also lead to an increased uptake of the rights-based occupational concepts and a more multifaceted interpretation of occupational performance beyond the individual performance assessment. Finally, filling the gaps will also help the EDI discussions of occupational therapy as a workplace.

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Conflicts of Interest: The authors declare no conflict of interest.
## Appendix A

### Table A1. Different occupational concepts mentioned alone and together with all the disability terms, or patient or client (research question 1).

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### Table A1. Cont.

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<th>“occupational aspect”</th>
<th>“occupational being”</th>
<th>“occupational apartheid”</th>
<th>“occupational satisfaction”</th>
<th>“occupational pattern”</th>
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<th>“Occupational equity”</th>
<th>“occupational inequity”</th>
<th>“occupational terminology”</th>
<th>“occupational oppression”</th>
<th>“Patient*” (Online Search, Numbers Reflect Number of Abstracts)</th>
<th>“client*” (Online Search, Numbers Reflect Number of Abstracts)</th>
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Table A1 shows that “occupational performance” was the main term present with the next one already mentioned one tenth of it. Terms that one would expect that only cover social barriers to being occupied such as “occupational justice” were even less or not present.
Table A2. Different disability terms mentioned together with all the other occupational concepts together (research question 1).

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<th>Disability Terms</th>
<th>Reflect Number of Abstracts</th>
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<tr>
<td>Autism 65</td>
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<tr>
<td>Patient (without it being a search term for downloading abstracts, the online search of “patient” generated 3013 hits.)</td>
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<tr>
<td>ASD 65</td>
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<tr>
<td>ADHD 56</td>
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</tr>
<tr>
<td>Wheelchair 55</td>
<td></td>
</tr>
<tr>
<td>Disabled 52</td>
<td></td>
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<tr>
<td>“with disab*”</td>
<td>51</td>
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<tr>
<td>“Attention deficit”</td>
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<tr>
<td>“Autism Spectrum disorder”</td>
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<tr>
<td>“Intellectual disability*”</td>
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<tr>
<td>“Physical disability”</td>
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<tr>
<td>“Developmental disability*”</td>
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</tr>
<tr>
<td>“Learning disability*”</td>
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<tr>
<td>“Disabled pe*”</td>
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<tr>
<td>Blind 11 (eliminated false positive such as doubles blind to describe a research method)</td>
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<tr>
<td>Deaf 8</td>
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<tr>
<td>“Neurodiver*”</td>
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<tr>
<td>Dyslexia 4</td>
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<tr>
<td>“Hearing impaired”</td>
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<td>“Visually impaired”</td>
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<tr>
<td>“Hard of hearing”</td>
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<td>“Learning impairment”</td>
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<tr>
<td>“Speech impairment”</td>
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Table A2 shows that the term patient was the second highest without even having been a search term and autism was the highest. Deaf people and blind people were little covered and the term neurodiv* was rarely mentioned.
Table A3. Hit counts for 12 EDI phrases and 5 EDI policy terms, marginalized group terms often used within EDI and International Conventions and Declarations covering social groups together with occupational concepts (online search) alone or in the 624 abstracts downloaded with the occupational concepts and disability terms (research question 4).

<table>
<thead>
<tr>
<th>Terms</th>
<th>24,104 Abstracts (Online Search, Numbers Reflect Number of Abstracts)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>“Athena SWAN” OR “See change with STEMM Equity Achievement” OR “Dimensions: equity, diversity and inclusion” OR “Science in Australia Gender Equity” OR “NSF ADVANCE”</th>
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<tr>
<td>“equity, diversity and inclusion” OR “equality, diversity and inclusion” OR “diversity, equity and inclusion” OR “diversity, equality and inclusion” OR “Belonging, Dignity, and Justice: OR “Diversity, Equity, Inclusion and Belonging” OR “diversity, Dignity, and Inclusion” OR “Equity, Diversity, Inclusion, and Accessibility” OR “Justice, Equity, Diversity, and Inclusion” OR “Inclusion, Diversity, Equity and Accessibility” OR “Inclusion, Diversity, Equity and Accountability” OR “Equity, Diversity, Inclusion, and Decolonization”</td>
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</table>

| Intersectionality | 2 1 |
Table A3. Cont.

<table>
<thead>
<tr>
<th>Terms</th>
<th>24,104 Abstracts (Online Search, Numbers Reflect Number of Abstracts)</th>
<th>Terms for EDI linked social groups</th>
<th>International Documents linked to EDI covered social groups</th>
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<td>“Visible minorities”</td>
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<td></td>
<td></td>
<td>Racialized</td>
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<td></td>
<td></td>
<td>Ethnic*</td>
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<td>“LGB*”</td>
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<td></td>
<td></td>
<td>Transgender</td>
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<td>“Convention on the Rights of Persons With Disabilities” (CRPD)</td>
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<tr>
<td>“Convention on the Elimination of All Forms of Discrimination Against Women”</td>
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Table A3. Cont.

<table>
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<tr>
<th>Terms</th>
<th>Edi Terms</th>
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<tbody>
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<td>24,104 Abstracts (Online Search, Numbers Reflect Number of Abstracts)</td>
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<tr>
<td>“Declaration on the Rights of Indigenous Peoples”</td>
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<td>“International Convention on the Elimination of All Forms of Racial Discrimination”</td>
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<tr>
<td>“Universal Declaration of Human Rights”</td>
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</table>

Table A3 looks at the presence of EDI phrases and policy term, terms used for groups normally covered under EDI, the concept of intersectionality and international conventions and declarations covering social groups covered within EDI. EDI frameworks such as Athena Swan and EDI phrases generated no hits. Intersectionality had only 2 hits in general and 1 hit related to disabled people. As to EDI-deserving groups, only gender/women had substantial numbers of hits; other terms used for EDI-covered groups were little mentioned and even less so in the abstracts containing the disability search terms.
Table A4. Hit counts for various technologies, and science and technology governance terms and technology-focused ethics fields together with occupational concepts (online search) alone or in the 624 abstracts downloaded with the occupational concepts and disability terms (research question 5).

<table>
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<tr>
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<th>24,104 Abstracts (Online Search; Numbers Reflect Number of Abstracts)</th>
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<tbody>
<tr>
<td>Terms</td>
<td>(Occupational Concepts) AND ABS (Adhd OR “Attention Deficit” OR Autism OR “Autism Spectrum Disorder” OR Deaf OR Disabled OR “Disabled People” OR Dyslexia OR “Hearing Impairment” OR “Learning Disability” OR “learning Impairment” OR “Neurodiv*” OR “People with Disabilities” OR “Physical disability” OR “Speech Impairment” OR “Visual Impairment” OR “Wheelchair OR “Intellectual Disability” OR “Cognitive Impairment” OR “Developmental Disability”), from the 624 Abstracts, Numbers Reflect Number of Abstracts</td>
</tr>
<tr>
<td>Technologies</td>
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<td>“Artificial intelligence” or “machine learning”</td>
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<tr>
<td>“Assistive technolog*”</td>
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<td>automatization</td>
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<td>“Brain computer interface” or “Brain machine interface”</td>
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<td>“Communication technolog*”</td>
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<td>cyborg</td>
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<td>“Internet of thing”</td>
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<td>“robotics” or “robot” OR “robots”</td>
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Table A4. Cont.

<table>
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<th>24,104 Abstracts (Online Search; Numbers Reflect Number of Abstracts)</th>
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| Technologies | 
|---------------|--------------------------------------------------|
| “Technology for” | 26 EBSCO all 385 artificially high as it does not search for “for in the phrase only” |
| “Technology” | 947 |
| “Transhuman*” | 1 |
| Quantum | 4 |
| | Science and technology governance terms |
| “Anticipatory governance” | 0 |
| “Democratizing science and technology” | 0 |
| “Parliamentary technology assessment” | 0 |
| “Participatory technology assessment” | 0 |
| “Responsible innovation” | 0 |
| “Responsible research and innovation” | 0 |
| “Science and technology governance” | 0 |
| “Technology assessment” | 10 |
| “Technology governance” | 0 |
| “Transformative vision assessment” | 0 |
| “Upstream engagement” | 0 |
| | Ethics fields |
| “AI-ethics” | 0 |
The results of Table A4 show that occupational concepts were mentioned to moderate extent with many specific technology terms and phrases. As expected, generic terms such as “Technology”*, “Technology for” and Assistive technology gained substantially more hits. Science and technology governance terms and ethics fields generated mostly no hits.
**Table A5.** Hit counts for various environment-linked terms together with occupational concepts (online search) alone or in the 624 abstracts downloaded with the occupational concepts and disability terms (research question 6).

<table>
<thead>
<tr>
<th>Terms</th>
<th>24,104 Abstracts (Online Search; Numbers Reflect Number of Abstracts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Sustainability”</td>
<td>129</td>
</tr>
<tr>
<td>“Climate change”</td>
<td>36</td>
</tr>
<tr>
<td>“Environmental issues”</td>
<td>10</td>
</tr>
<tr>
<td>“Disaster management”</td>
<td>8</td>
</tr>
<tr>
<td>“Environmental activism”</td>
<td>0</td>
</tr>
<tr>
<td>“Emergency management”</td>
<td>0</td>
</tr>
<tr>
<td>“Disaster preparedness”</td>
<td>0</td>
</tr>
<tr>
<td>“Emergency preparedness”</td>
<td>0</td>
</tr>
<tr>
<td>“Disaster planning”</td>
<td>0</td>
</tr>
<tr>
<td>“Emergency planning”</td>
<td>0</td>
</tr>
<tr>
<td>“UN Framework Convention on Climate Change”</td>
<td>0</td>
</tr>
</tbody>
</table>

Table A5 showed that environment-linked concepts were rarely to not-at-all present.
Table A6. Hit counts for the various well-being terms and well-being composite measures together with occupational concepts (online search) alone or in the 624 abstracts downloaded with the occupational concepts and disability terms (research question 7).

<table>
<thead>
<tr>
<th>Terms</th>
<th>Well-being terms</th>
<th>Numbers Reflect Number of Abstracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terms</td>
<td>24,104 Abstracts (Online Search; Numbers Reflect Number of Abstracts)</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Well-Being Measure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“Determinants of Health”</td>
<td>45</td>
</tr>
<tr>
<td>“Community based rehabilitation”</td>
<td>28</td>
</tr>
<tr>
<td>“Satisfaction with life scale”</td>
<td>25</td>
</tr>
<tr>
<td>“Community rehabilitation”</td>
<td>24</td>
</tr>
<tr>
<td>“Well-being index”</td>
<td>21</td>
</tr>
<tr>
<td>“Social determinants of health”</td>
<td>18</td>
</tr>
<tr>
<td>“Meaning in Life”</td>
<td>16</td>
</tr>
<tr>
<td>“Capability approach”</td>
<td>11</td>
</tr>
<tr>
<td>“Perceived Life Satisfaction”</td>
<td>3</td>
</tr>
<tr>
<td>Aqol</td>
<td>2</td>
</tr>
<tr>
<td>“Better life index”</td>
<td>0</td>
</tr>
<tr>
<td>“Brief Inventory of Thriving”</td>
<td>0</td>
</tr>
<tr>
<td>“Calvert-Henderson Quality of Life”</td>
<td>0</td>
</tr>
<tr>
<td>“Canadian Index of well being”</td>
<td>0</td>
</tr>
<tr>
<td>“Community based rehabilitation matrix”</td>
<td>0</td>
</tr>
<tr>
<td>“Comprehensive Inventory of Thriving”</td>
<td>0</td>
</tr>
<tr>
<td>“Flourishing Scale”</td>
<td>0</td>
</tr>
<tr>
<td>“Index of well-being”</td>
<td>0</td>
</tr>
<tr>
<td>“Scale of Positive and Negative Experience”</td>
<td>0</td>
</tr>
</tbody>
</table>
Table A6. Cont.

<table>
<thead>
<tr>
<th>Terms</th>
<th>Well-Being Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>24,104 Abstracts (Online Search; Numbers Reflect Number of Abstracts)</td>
<td>from the 624 Abstracts, Numbers Reflect Number of Abstracts</td>
</tr>
</tbody>
</table>

Well-Being Measure

| “The Disability and Wellbeing Monitoring Framework and Indicators” | 0 | 0 |
| “The Quality of Being Scale” | 0 | 0 |

Well-Being-Linked Concepts

| “Health Equity” as one concept that is linked to well-being | 10 | 1 |
| “good life” as one concept that is linked to well-being | 8 | 0 |
| “social good” as one concept that is linked to well-being | 0 | 0 |

Table A6 shows that the well-being measures were used sparingly to not at all in general and even less in conjunction with the disability terms.

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