

United States Department of Health and Human Services Office of Disease Prevention and Health Promotion SDoH Domains

Social and Community Context

Healthcare Access and Quality

Economic Stability

Education Access and Quality

Neighborhood and Built Environment

Proposed SDoH Domains

Sex

Race

Education

Income

Employment Status

Housing Status

Disability Status

Insurance Status

Internet Access

Gender

Environmental Safety

Table 1 Frequency of SDoH domain reporting within domain-groups.

Social determinant of health domain	Instances reporting (<i>n</i>)	Unique domain-groups identified (<i>n</i>)
Sex	119	2 ^a
Race	35	30
Education	26	46
Income	10	26
Employment status	8	18
Housing status	3	8
Disability status	2	4
Insurance status	2	4
Internet access	2	2
Gender	0	0
Environment al safety	0	0
Total	207 ^b	140

1.^aIn six publications, “Men” and “Women” were interpreted as indicating Male and Female because the publications did not distinguish the use of those terms as indicating Gender rather than Sex, made no mention of Gender, and reported only “Men” and “Women” as the only two domain-groups.

2.^bTotal number of instances exceeds the 126 total publications because multiple domains could have been reported in a single publication.

Underreporting of social determinants of health (SDoH) domains in clinical research utilizing digital health technologies.

Does clinical research account for diversity in deploying digital health technologies?

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BACKGROUND

Digital health technologies (DHTs) should expand access to clinical research to represent the social determinants of health (SDoH) across the population. The frequency of reporting participant SDoH data in clinical publications is low and is not known for studies that utilize DHTs.

METHODS

Proposed 11 SDoH domains that align to the five SDoH domains established by the United States Department of Health and Human Services Office of Disease Prevention and Health Promotion (ODPHP) to use as a benchmark for evaluating frequency of reporting SDoH in our analysis (Fig. 1)

126 publications in analysis

Mapped proposed SDoH domains to existing LOINC codes (Table 2)

RESULTS

1386 potential instances for reporting of SDoH

207 instances of SDoH domain reporting, accounting for 14.9% of potential instances (Table 1)

Most frequently reported domain was Sex (94.4% of publications), followed by Race and Education (27.8% and 20.6% of publications, respectively).

No other domains were reported in more than 10% of publications.

DISCUSSION

An opportunity exists to increase reporting on the representation of SDoH among participants to encourage equitable and inclusive research progress through DHT-enabled clinical studies.

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Table 2 Proposed SDoH domains and mapped LOINC® codes.	
Proposed SDoH domain	Mapped LOINC® codes (long common name, code)
Sex	Sex, 46098-0
Race	Hispanic, Latino-a, or Spanish origin, 69854-8 Race, 32624-9 Race or ethnicity, 46463-6 Race [PhenX], 56091-2 Race [USSG-FHT], 54134-2 Race or ethnicity OMB.1997, 59362-4 Race or ethnicity [The Position Generator], 67288-1 Race [HHS.ACA Section 4302], 69855-5 Race [AHRQ], 74693-3 Tabulated race [CDC], 80977-2 PhenX—race—ethnic residential segregation protocol 211401, 63038-4
	Highest level of education, 82589-3 Highest level of education [US Standard Certificate of Death], 80913-7 Years of education [#]—Reported, 82590-1 What is the highest grade or level of school you have completed or the highest degree you have received [NHANES], 63504-5
	How hard is it for you to pay for the very basics like food, housing, medical care, and heating, 76513-1 PhenX—chronic stress protocol 181301, 62942-8 Financial resources [PCAM], 83335-0 Total combined household income range in last year, 77244-2 PhenX—annual family income protocol 011101, 63058-2
	Current occupational status [SAMHSA], 68505-7 Employment status of family member, 85152-7 Employment status—current, 67875-5 PhenX—environmental exposures—occupation—occupation history protocol 060501, 62522-8
	Housing status, 71802-3 Alternate residence status [NTDS], 74283-3 Home environment safety and stability [PCAM], 83322-8 Your rent or mortgage is too much [PhenX], 67040-6 PhenX—environmental exposures—plastic exposures at work and home protocol 061401, 62540-0 PhenX—environmental exposures—characteristics of current residence protocol 060101, 62514-5 Household size [#], 86639-2
	Disability type, 95377-8
	Primary insurance, 76437-3 Payment sources, 52556-8 PhenX—health insurance coverage protocol 011501, 63066-5 Health insurance funding was provided, 74186-8
	Devices used in household to access the internet for learning, 99802-1
	Gender identity, 76691-5
	Home environment safety and stability [PCAM], 83322-8 PhenX—exposures to violence—adult protocol 181401, 62944-4 PhenX—exposures to violence—child protocol 181402, 62945-1 PhenX—neighborhood safety protocol 210901, 63028-5 PhenX—perceived social support—conflict protocol 180701, 62929-5