Suicidal Tendencies as Correlates of Disability Measures:

Using Canadian Community Health Survey (CCHS) Archived Data

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Psychological Consequences of Disability:

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Abstract

The relationship between disability and suicidality has long been established. In this study, the Health Utilities Index (HUI) identifies levels of disability for correlation with measures of suicidality. Seven HUI subscales of disability (Vision, Hearing, Speech, Mobility, Dexterity, Cognition, and Pain), and eight variables concerning psychological distress and suicidality (HUI Emotion, depression, dissatisfaction with life in general, feeling helpless dealing with problems in life, feeling hopeless during the past month, feeling worthless during the past month, suicidal thoughts: ever in life, suicidal thoughts: past 12 months), found in the Canadian Community Health Survey (CCHS) 2009 component were analyzed to view the relationship between disability, and psychological outcome, including suicidality. The correlational analysis showed that all HUI disability measures had significant positive correlations with suicidality, and that disability concerning pain, cognition and mobility had the greatest impact of those. HUI scores in the CCHS 2009 component report, showed 724 individuals receiving a HUI score < 0.00, defined as 'worse than dead' These individuals were described by demographic, disability, social and suicidality measures to view these extreme cases in reference to the label 'worse than dead' given in the HUI module. Results show that these individuals though having a generally low sense of self-perceived physical and mental health and scored moderately high in social alienation; they show no signs of extreme suicidality or emotional distress, making it hard to validate this label as correct concerning the life quality for these individuals.

Keywords: Canadian Community Health Survey (CCHS), disability, Health Utilities Index (HUI), Psychological distress, suicidality

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"Experts in the field suggest that a suicidal person is feeling so much pain that they can see no other option. They feel that they are a burden to others, and in desperation see death as a way to escape their overwhelming pain and anguish. The suicidal state of mind has been described as constricted, filled with a sense of self-hatred, rejection, and hopelessness" (Candian Mental Health Association, 2014).

Introduction

Different disabilities affect people in different ways. Physically disabled people can, for example, become frustrated from the loss of mobility and thereby loss of activities. Getting out can be difficult since this may require special transport and help from others. Mentally disabled people on the other hand may feel more frustrated because they have a hard time communicating or expressing feeling. Research on disability and health care suggests that individuals with a disability experience increased barriers to obtaining health care as a result of accessibility concerns, such as transportation and problems with communication (Drainoni, et al., 2006). In some cases, disability can also lead to loss of social roles and social isolation which again can lead to a wide range of negative emotions and thinking (Morrison, 2008).

Common effects of a disability may include: mental health issues like anxiety and depression, loss of freedom and independence, frustration and anger at having to rely on other people, loss of self-esteem and confidence, especially in social situations (London Health, 2014). The existence of a disability may also be a source of emotional maladjustment for individuals and their caretakers. Disabled individuals and their families have increased risk

for poor health and poor economical quality of life outcomes when the disability affects their

socioeconomic status. Since disabled individuals may have a harder time finding

employment, this may often be the case (U.S. Census Bureau, 2006). Individuals with

disabilities might therefore feel a more pressing urge to commit suicide because of feeling

like a burden to friends, family and caregivers (Joiner, Ribeiro, & Silva, 2012).

Suicide is a human tragedy and is sometimes seen as a last resort in a desperate or

seemingly hopeless situation. The WHO estimates that almost one million people choose to

take their own lives every year (WHO, n.d). "Suicide is among the three leading causes of

death among those aged 15-44 years in some countries, and the second leading cause of death

in the 10-24 years age group; these figures do not include suicide attempts which can be many

times more frequent than suicide" (WHO, n.d, p. 1.).

Suicidal thoughts have numerous causes and suicide attempts and suicide have been

linked to both interpersonal and intrapersonal problems (Boergers, Spirito, & Donaldson,

1998). Suicidal thoughts are often the result of feeling like one cannot cope when faced with

an overwhelming and seemingly hopeless life situation (Vilhjalmsson, Sveinbjarnardottir, &

Kristjansdottir, 1998). If one has no hope for the future, one may mistakenly think that suicide

is the solution. Typical risk factors for suicide include: previous suicide attempt(s), history of

depression or other mental illness, alcohol or drug abuse, family history of suicide or

violence, physical illness and feeling alone (Centers for Disease Control and Prevention,

2012).

Disabilities

Disabilities are defined by the World Health Organization as any restriction or lack of

ability to perform an activity in the manner considered normal as a result of impairment

(WHO, 1980). The same document defines handicap as a disadvantage for an individual

resulting from an impairment or disability that limits or prevents the fulfilment of a normal

function in a role that is considered normal for that individual within the cultural and social

framework of functioning for the individual in question (WHO, 1980).

Earlier research on the effects of disability on psychological distress and suicidality

has shown that several disabilities increase psychological distress and increase suicidality in

patients. Pain seems to be the most studied variable of disability linked to increased

psychological distress regarding suicidal thought and suicidal ideation, showing that chronic

pain increases the risk of suicide attempts (Stenagera, Christiansen, Handberg, & Jensen,

2014) and that illicit drug use as a form for pain relief also increases suicidality (Racine,

Choinière, & Nielson, 2013). There has also been research investigating the relationship

between disability, impairment and depression (Prince, Harwood, Blizard, Thomas, & Mann ,

1997). The more general significance of poor physical health on suicidal ideation has also

been established (Hawton & Fagg, 1988; Fairweather et.al., 2006).

The main purpose of this study was to examine what effect HUI reported disability

states have on psychological distress, with emphasis on suicidality. Using the Health Utilities

Index (HUI) subscales for disability states, psychological distress and suicidality variables

reported in the Canadian Community Health Survey (CCHS) 2009 component, this study

aimed to see which of those disabilities predict suicidality.

Study 1

Purpose

Study 1 was conducted aimed to see if disabilities predict suicidality.

Method

Measures: The Health Utilities Index (HUI) is a multi-attribute health-status classification

system, designed to provide a framework with which to describe consequences of health

status. The HUI is a family of generic health profiles and preference-based systems for the

purposes of measuring health-related quality of life (HRQoL), and producing utility scores.

"For health economists, HRQoL is usually quantified by «preference-based» measures, such

as the Health Utilities Index (HUI), on the presumption that less disability due to illness

allows patients more choice in their life activities" (Gamst-Klaussen & Rudmin, 2014, p. 1).

The Health Utilities Index mark 3 (HUI3) utilizes eight subscales (Vision, Hearing,

Speech, Ambulation, Dexterity, Emotion, Cognition and Pain), to compute a total HRQoL

using a proprietary mathematical formula. Weighting of the subscales in the Health Utilities

Index (HUI) is simplified by use of statistical modeling, using participants from the general

population who are asked to value health conditions using a 100-point visual analogue scale

and a standard gamble chance board. In this way, HUI total scores represent mean community

preferences on a 0.00-1.00 range, from 'dead' 0.00 to perfect health 1.00. The HUI total score

for each health state is then calculated using a mathematical formula developed from the

preference scores in line with the Von Neumann–Morgenstern utility theorem (von Neumann

& Morgenstern, 1944). The Health Utilities Index (HUI) has been used in hundreds of studies

since 1990, and has strong theoretical foundations, is reliable and valid, and is well accepted

by patients and professionals (Horsman, Furlong, Feeny, & Torrance, 2003, p. 2). There is a

growing trend for the use of Health Utilities Indexes in health-related quality of life measures

for describing treatment processes and outcomes in clinical studies, economic evaluations of

health care programs (cost-effectiveness and cost-utility analyses) and measurements and

monitoring of population health.

The HUI's eight subscales; Vision, Hearing, Speech, Mobility, Dexterity, Emotion,

Cognition, and Pain are identifiers of disability states. HUI respondents are asked a series of

questions concerning eight attributes of health concerning disability levels in vision, hearing,

speech, mobility, dexterity, cognition, emotion, and pain. Respondents are assigned a score of

1-2 and up to 1-6 ranging from good to worse on each attribute and then their overall HUI

utility score is calculated. Vision and hearing questions cover the level of functioning of the

modality e.g. if one has myopia or hypermetropia, or is blind, hard of hearing or deaf. Speech

questions cover the ability to speak, and if one can do so understandably. Dexterity questions

cover the ability to use and utilize hands and fingers. Mobility questions cover the ability to

move, i.e. walking, and if one requires help to move from either another person or

mechanized i.e. crutches or wheelchair. Emotion relates to the respondents emotional state

concerning happiness. Cognition focuses on memory and thinking and the questions concern

mostly problem-solving abilities and general memory. Pain questions concentrate on pain

level and how much said pain level limit daily activities (HUInc, 2008).

HUI Emotion differs from the other subscales in that it relates to the respondents

emotional evaluation of life and not the state of disability, and is therefore, in the present

study used as an independent variable concerning suicidality with its positive extreme states

that the respondent is 'happy and interested in life' and its negative extreme states that the

respondent is 'so unhappy that life is not worthwhile'. The HUI disability subscale attribute

level description as shown in Table 1. The current study uses the HUI as a measure of

disability and does not concern itself with the preference based measure 'health-related

quality of life'.

Table 1: HUI disability subscale attribute level description showing range, first two, and worst score level for all

disability states. Data from the 2009 Canadian Community Health Survey (CCHS).

HUI subscales	Range	Level 1	Level 2	Worst state
Vision	1-5	"No problem"	"Problem, corrected by lenses"	"Myopia and hypermetropia"
Hearing	1-3	"No problem"	"Problem, corrected"	"Problem, not corrected"
Speech	1-2	"No problem"	"Partly or not understandable"	
Mobility	1-4	"No problem"	"Problem, no aid required"	"Need help to walk or cannot walk"
Dexterity	1-3	"No problem"	"Problem, no aid required	"Needs help"
Cognition	1-6	"Able to remember most things, think clearly and solve day to day problems"	Able to remember most things, but have a little difficulty when trying to think and solve day to day problems"	"Unable to remember anything at all, and unable to think or solve day to day problems"
Pain	1-5	"Free of pain and discomfort"	"Mild to moderate pain that prevents no activities"	"Severe pain that prevents most activities"
Emotion	1-5	"Happy and interested in life"	"Somewhat happy"	"So unhappy that life is not worthwhile"

In addition to the dependent HUI disability measures, the independent variables HUI

Emotion, Depression, Feeling hopeless dealing with problems in life, Dissatisfaction with life

in general, Feeling hopeless during the past month, Feeling worthless during the past month,

Suicidal thoughts: ever in life, Suicidal thoughts: past 12 months as shown in Table 2.

Sample: Data from the CCHS 2009 component was used for the current study (Statistics

Canada, 2010). The CCHS is a national cross-sectional survey conducted bi-annually by

Statistics Canada that collects information on health determinants, health status and the

utilization of the health system in Canada. The CCHS covers topics related to diseases and

health conditions, general health, lifestyle and social conditions. By collecting information

about health at the community level, the CCHS aims to support provincial ministries of

health, by providing those with the timely information they need to evaluate existing

programs and to design new ones suited to their communities. The CCHS provides the

current, detailed and uniform health information in every province and territory. The CCHS

has already been instrumental in drawing attention to emerging health issues, for example increasing trends in obesity (Statistics Canada, 2014).

The sampling for the CCHS is based on province population and the number of health regions within each province. A population sample of all regions and territories in Canada for people ages 12 and older is selected by random number within households. Of these, 50% where selected by telephone listings and 50% by existing Labor Force Survey sampling frames, and the CCHS is in this way calculated to represent 98% for the non-institutional population above the age of 12 (Statistics Canada, 2010, June). Based on this sampling procedure, participants are selected and administered the CCHS 2009 questionnaire by trained interviewers using computer-assisted interviewing (Statistics Canada, 2011). Participants were able to choose the language in which the interview is conducted.

The CCHS includes three types of content: core content, optional content and rapid-response modules (Statistics Canada, 2010). Core content is asked of all respondents, and remains relatively stable over time. Optional content is chosen by health regions and is usually coordinated at the provincial level. Rapid Response modules are cost-recovery projects asked of all respondents living in the ten provinces usually for one collection period of 2 months. Core variables have data on more than 100,000 respondents; whereas, optional variables have data on far fewer respondents, depending on how many provinces, and which provinces requested those variables to be measured. Results from this survey are used for policy-making and program development that affect Canadian communities.

The 2009 CCHS database was released for academic research in 2011 as part of Statistics Canada's Data Liberation Initiative, the goal of which is to make data available to researchers at post-secondary institutions. Due to the depth and scope of the CCHS, several hundred articles have been written utilizing different cycles of the CCHS dataset.

Table 2: Descriptive demographic, disability and suicidality measures for all respondents.

Data from the 2009 Canadian Community Health Survey (CCHS).

Variables	Range	Mean	SD	N
COVARIATE DEMOGRAPHIC MEASURES				
Gender	0-1	.45	.50	124,188
Age	13-82	47.87	20.45	124,188
Highest level/education.	1-4	2.83	1.30	120,803
Total household income.	1-5	3.34	1.43	102,802
INDEPENDENT DISABILITY MEASURES				
HUI Vision problems	1-5	1.61	.58	123,257
HUI Hearing problems	1-3	1.06	.30	122,660
HUI Speech problems	1-2	1.01	.09	124,027
HUI Mobility problems	1-4	1.12	.51	123,968
HUI Dexterity problems	1-3	1.01	.14	124,048
HUI Cognition problems	1-6	1.67	1.11	123,755
HUI Pain problems	1-5	1.47	1.05	123,895
DEPENDENT SUICIDALITY MEASURES				
HUI Emotion problems	1-5	1.27	.56	123,718
Diagnosed depression	0-1	.07	.26	124,025
Dissatisfaction with life in general	1-5	1.73	.72	120,555
Feeling helpless dealing with problems of life	1-5	3.86	.90	6,607
Feeling hopeless during the past month	1-5	4.76	.63	39,796
Feeling worthless during the past month	1-5	4.82	.57	39,749
Suicidal thoughts: ever in life	0-1	.10	.30	27,992
Suicidal thoughts: past 12 months	0-1	.21	.41	2,737

Note. For gender 1= Male 0= Female. N= Number of respondents. Differences in number of respondents on some items are

explained by the fact that not all provinces requested replies from items in the CCHS 2009 optional content. For education 3

= post-secondary grad. For income 3 = $40-59,999. Mean age was computed using category interval midpoints as the best

estimate of age.

Procedures: Using the results of the CCHS 2009 component for the selected variables as

shown in Table 2, a partial correlational analysis was computed. Satisfaction with life in

general, Feeling hopeless dealing with problems in life, Feeling hopeless during the past

month, Feeling worthless during the past month are reverse-keyed in the CCHS data, meaning

a high value means not the variable label. Therefore, these variables were recoded and

Satisfaction with life in general renamed Dissatisfaction with life in general to make a high

value consistent with the variable label.

Results & Discussion

Table 3 presents the results of the partial correlational analysis controlling for age, total household income, gender and highest education level. Findings show that there is a significant relationship between HUI reported disability and proneness to suicidality and other mental health problems. The HUI subscales concerning physical disabilities shows relatively low positive correlations with the independent variable concerning suicidal thought ever in life. Hearing (r(23,040) .02, $p < .001$), Speech (r(23,040) .02, $p < .001$), Vision (r(23,040) .05, $p < .001$), Dexterity (r(23,040) .03, $p < .001$), Mobility (r(23,040) .05, $p < .001$), and positive non-significant correlations with the other three variables directly concerning suicidal though within the last twelve months. The same dependent variables, Hearing, Speech, Vision, and Dexterity had significant low positive correlation with all of the variables concerning psychological distress ($p < .001$).

The dependent variables Cognition and Pain showed significant positive correlations with all the independent variables ($p < .001$), and showed a stronger link to both psychological distress and suicidality variables then do the physical disability variables, showing the strongest link between the two and emotional distress, Cognition (r(100,025) .24 $p < .001$), Pain (r(100,025) .21 $p < .001$). These findings suggests that living with pain or having trouble remembering or thinking is may be experienced as worse than or harder than losing sensory modality or motor functioning.

The partial correlational analysis of Study 1 shows that there are significant low positive correlations between disability, psychological distress and suicidality variables. This was replicated with seven measures of disabilities and eight measures of suicidality broadly conceived. Thus, Study 1 suggests that many or most people with disabilities are not suicidal or excessively distressed by their disabled situation. However, Study 1 examined disabilities in single, sensory, mobility and pain modalities. This opened for speculation about the consequences of multiple disabilities.

Table 3: Partial correlations of Health Utility Index disability measures with selected measures of suicidality and psychological distress, controlling for age, gender, household income and personal education. Data are from the 2009 Canadian Community Health Survey.

Variables	HUI Hearing	HUI Speech	HUI Vision	HUI Dexterity	HUI Mobility	HUI Cognition	HUI Pain
HUI Emotion	.03*	.05*	.06*	.06*	.10*	.24*	.21*
	df=100,025	df=100,025	df=100,025	df=100,025	df=100,025	df=100,025	df=100,025
Depression	.03*	.04*	.05*	.04*	.08*	.20*	.19*
	df=101,604	df=102,325	df=102,115	df=102,325	df=102,325	df=102,325	df=102,325
Dissatisfaction with life in general	.03*	.04*	.06*	.06*	.15*	.19*	.26*
	df=100,236	df=100,236	df=100,236	df=100,236	df=100,236	df=100,236	df=100,236
Feeling helpless dealing with problems in life	.05*	.03*	.05*	.06*	.12*	.21*	.16*
	df=5,545	df=5,545	df=5,545	df=5,545	df=5,545	df=5,545	df=5,545
Feeling hopeless during the past month	.03*	.02*	.06*	.03*	.08*	.18*	.17*
	df=34,062	df=34,062	df=34,062	df=34,062	df=34,062	df=34,062	df=34,062
Feeling worthless during the past month	.03*	.04*	.06*	.04*	.10*	.19*	.17*
	df=34,032	df=34,032	df=34,032	df=34,032	df=34,032	df=34,032	df=34,032
Suicidal thoughts: ever in life	.02*	.02*	.05*	.03*	.05*	.14*	.15*
	df=23,040	df=23,040	df=23,040	df=23,040	df=23,040	df=23,040	df=23,040
Suicidal thoughts: past 12 months	.02	.01	.04	.02	.06	.10*	.11*
	df=2,354	df=2,354	df=2,354	df=2,354	df=2,354	df=2,354	df=2,354

Note. *= p< .001. df= Degrees of freedom.

Study 2

Purpose

The purpose of Study 2 was to view the effects of having multiple disabilities and how this justifies the categorization 'worse than dead' considering that the single modality disabilities in Study 1 showed relatively low positive correlations with suicidality suggests that this may be over-stated or invalid as a label. In Study 2 using the HUI index measures, the multi-disabled and extreme disables-states are considered to review if the label 'worse than dead' is warranted.

Method

Data from the CCHS 2009 component concerning individuals scoring below 0.00 in their HUI total was used for the current study. The Health Utilities Index total score from the 8 subscales computed is a way to quantify the respondents' disabled state. This total is ranged from 0.00 'equal to being dead' to 1.00 'perfect health'. The HUI also allows a negative HUI total score ranging from 'dead' (0.00) and downward. All respondents scoring below zero are categorized as having a disabled state considered 'worse than dead' (Feeny, et al., 2002, p. 121). The CCHS 2009 component features 724 respondents scoring below 0.00 on their HUI total and therefore falling under this categorization.

Data from the CCHS 2009 component concerning individuals scoring below 0.00 in their HUI total was used for the current study.

Measures: Study 2 uses demographic measures concerning age, gender, education level and total household income, the HUI subscale measures for disabilities (Vision, Hearing, Speech, Mobility, Dexterity, Cognition, and Pain), along with social variables concerning employment social alienation, marital status and sexual activity and suicidality measures; HUI Emotion, diagnosed depression, dissatisfaction with life and suicidal thought, as shown in Table 4.

Procedures: The demographic, disability, health and social variables shown in Table 4, were computed using SPSS to view the descriptive statistics for responses to further investigate the relationship between reported HUI total scores and actual state of life quality. Self-perceived health, Self-perceived health compared to one year ago, Self-perceived mental health, Sense of belonging in local community and Satisfaction with life in general is reverse-keyed in the CCHS data, meaning a high value means not the variable label. Therefore, these variables were recoded and renamed; Self-perceived ill-health, Self-perceived health compared to one year ago, Self-perceived mental health problems, Social alienation and Dissatisfaction with life in general, to make a high value consistent with the variable label.

Table 4: Descriptive demographic, disability, health and social and suicidality measures for individuals with Health Utility Index (HUI) scores lower than 0.00 invoking the label "worse than dead". Data from the 2009 Canadian Community Health Survey (CCHS).

Variables	Range	Mean	SD	N
DEMOGRAPHIC MEASURES				
Gender (0= female, 1=male)	0-1	.42	.49	724
Age	13-82	61.33	17.86	724
Highest level of education	1-4	2.00	1.34	686
Total household income	1-5	2.23	1.30	602
DISABILITY MEASURES				
HUI Vision problems	1-5	2.41	1.22	724
HUI Hearing problems	1-3	1.54	.82	724
HUI Speech problems	1-2	1.15	.35	724
HUI Mobility problems	1-4	2.98	1.12	724
HUI Dexterity problems	1-3	1.44	.82	724
HUI Cognition problems	1-6	4.04	1.49	724
HUI Pain problems	1-5	4.41	1.27	724
HEALTH VARIABLES				
Self-perceived ill-health	1-5	4.41	.87	722
Self-perceived ill-health compared to one year ago	1-5	3.79	.96	724
Self-perceived mental health problems	1-5	3.66	1.22	532
SOCIAL VARIABLES				
Employment (0 =No, 1=Yes)	0-1	.14	.35	403
Social alienation	1-4	2.99	1.05	528
Married (0 =No, 1=Yes)	0-1	.41	.49	723
Sexual intercourse past year (0 =No, 1=Yes)	0-1	.69	.46	114
SUICIDALITY MEASURES				
HUI Emotion problems	1-5	3.01	1.38	724
Diagnosed depression (0 =No, 1=Yes)	0-1	.51	.50	722
Dissatisfaction with life in general	1-5	3.42	1.24	517
Suicidal thoughts: Ever in life (0 =No, 1=Yes)	0-1	.48	.50	115

Note. N= Number of respondents. Differences in number of respondents on some items are explained by the fact that not all provinces requested replies from items in the CCHS 2009 optional content. For education 2 = secondary grad. For income 3 = $40-59,999.

Results & Discussion

Study 2 showed that the individuals scoring below 0.00 on their HUI total were mostly poorly educated, 58% were women, and their mean age was; early sixties. The highest disability scores were those of pain, cognition and mobility, and the least disabled by speech related disabilities, though the disability data show that the group is not extremely disabled within any of the HUI disability measures. Their self-perceived health was low, and most reported their health to have declined over the past year. These individuals also reported a moderately high sense of alienation. They did not score extremely high on emotion distress, depression or suicidal thought and where not generally dissatisfied with life, as would be expected by a label as 'worse than dead' given by the HUI module.

These findings indicate that these individuals are in fact not 'worse than dead', which is indicated by the HUI label. They showed no extreme rates of depression with only 51% having diagnosed depression, they had a mid-range level of emotional distress, and 52% had not ever considered suicide. This study does therefore not find any evidence indicating that this label is warranted for these individuals as a group, with individuals that are married and sexually active, and not reporting general dissatisfaction with life, and has not ever thought about suicide being categorized as 'worse than dead'.

General Discussion

There are many social effects of disability. These effects may have great influence on quality of life and variables such as social isolation, and lowered levels may lead to mental health impairments, depression and suicidality (Aschan et al., 2013). The present study used population data from the 2009 Canadian Community Health Survey and found weak, but

replicated positive relationships between disabled states and measures of psychological distress and suicidality. The stronger relationships between distress and suicidality were with the disabilities in modalities of mobility, cognitive function, and pain. The findings from Study 1 are consistent with earlier research concerning the effects of pain-related disability states and depression on suicidality (Edwards, Smith, Kudel, & Haythornthwaite, 2006). Edwards, *et* al. (2006) found that the magnitude of depressive symptom and the degree of pain-related catastrophizing were consistent predictors of the presence and degree of suicidal ideation. Similarly, Dour, Cha and Nock (2011) found that emotion-cognition interaction in the statistical prediction of suicide attempts, linked problem-solving skills as a predictor for probability of a suicide attempts. Further support for more general findings on the psychological effect of disability is found in research done on the association between incident disability and depressive symptoms, showing that disability has a significant impact on the development of depressive symptoms (Chang, et al., 2009).

Further, Study 2 looked at the effect of multiple disabilities reported with the HUI, scoring extremely low on HUI total score and thus labeled 'worse than dead'. This study used demographic, disability, health, social and suicidality measures to describe the group of individuals classified by the HUI index as 'worse than dead'. The study found that disabled states involving mobility, cognition and pain were highly represented in these individuals with extremely low HUI total scores; however, they showed no extreme suicidal ideation and most report having sex within the past year, showing social interaction and clear signs of life quality. These studies imply a relationship between HUI disability scores, psychological distress and suicidality but also that the HUI may be mislabeling the extreme low HUI total scores 'worse than dead' when most of these individuals seem not to consider themselves as better off dead.

These studies have implications for the use of the HUI in that it is a useful tool in identifying disabled states, but it might also mislabel individuals with a health state involving living with multiple disabilities as 'worse than dead'. These studies also imply that disabled individuals should be monitored for suicidal thought, and that medical staff, families and the general public should be educated that multiple disabilities do not necessarily mean that the person feels despair or is suicidal.

Research Weaknesses: These studies are limited by the methodology and the sample used. Partial correlational analysis was used for Study 1, showing the relationship between variables. Although partial correlations allows for the removal of controlling variables, it should be mentioned that while partial correlation analysis provides estimates of interactions it does not give any information regarding causality.

Future research: The Canadian Community Health Survey (CCHS) does not include the part of the population living in institutions. Therefore, the Health Utilities Index (HUI) does not account for older population with generally assumed poorer health residing in institutions, making it likely that the HUI scores are biased downwards. There is also a lack of onset data for the disability subscales within the HUI. This lack of onset data eliminates the ability to differentiate congenital disabilities from acquired disabilities.

In using more describing identifiers one might better identify suicidal thought or ideation. Similar studies using the Health Utilities Index (HUI) and more describing suicidality identifiers like the Beck Scale for Suicide Ideation or the Columbia Suicide Severity Rating Scale as measures of suicidality would seem likely to give a more in-depth result then those found with suicidality measures used in this study.

Conclusion: To conclude, the results from these studies show that there are low positive correlations between disabilities and suicidality, based on a large, representative sample of a general population, and thus imply that disabled individuals should be monitored for suicidal

thought. Another implication is that medical staff, families and the general public should be

educated that multiple disabilities do not necessarily mean that the person feel despair or are

suicidal since the studies also establish that suicidal thinking is not a universal outcome of

living with various or even multiple disabilities. These studies have implications for the use of

the HUI in that it is a useful tool in identifying disabled states, and that it may mislabel

individuals with multiple disabilities as 'worse than dead', and the usage of this label should

be revised and reconsidered.

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