Measuring social exclusion in routine public health surveys

Bergen, A.P.L. van

Supplementary material

SUPPLEMENTARY MATERIAL CHAPTER 2

Supplementary file 1: Literature search strategy details

The following databases were searched:

PubMed (to 1 January 2018), EMBASE (to 1 January 2018) and CINAHL (to 1 January 2018).

Search terms :

PubMed	social exclusion [tiab] OR social inclusion [tiab]
EMBASE	'social exclusion'/exp OR (social NEXT/1 exclusion):ab,ti OR (social NEXT/1 inclusion):ab,ti
CINAHL	(TI 'social exclusion' OR AB 'social exclusion') OR (TI 'social inclusion' OR AB 'social inclusion')

Supplementary file 2: CASP risk of bias tool for cross-sectional studies

CASP Critical Appraisal Skills Programme

11 questions to help you make sense of descriptive/cross-sectional studies How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a descriptive/ cross-sectional study (e.g., a study that collects data on individuals at one time point using a survey or review of medical charts):

- Are the results of the study valid?
- What are the results?
- Will the results help locally?

The 11 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is "yes", it is worth proceeding with the remaining questions. You are asked to record a "yes", "no" or "can't tell" to most of the questions. A number of italicized prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided. These questions are adapted from Guyatt GH, Sackett DL, and Cook DJ, Users' guides to the medical literature. II. How to use an article about therapy or prevention. *JAMA* 1993; 270 (21): 2598-2601 and *JAMA* 1994; 271(1): 59-63

Screening Questions

1. Did the study address a clearly focused issue? Yes Can't tell No

HINT: A question can be focused in terms of:
- *the population(s) studied*
- *the health measure(s) studied (e.g., risk factor, preventive behavior, outcome)*

2. Did the authors use an appropriate method to answer their question? Yes Can't tell No

HINT: Consider
- *Is a descriptive/cross-sectional study an appropriate way of answering the question?*
- *Did it address the study question?*

Detailed Questions

3. Were the subjects recruited in an acceptable way? Yes Can't tell No

HINT: We are looking for selection bias which might compromise the generalizability of the findings:
- *Was the sample representative of a defined population?*
- *Was everybody included who should have been included?*

4. Were the measures accurately measured to reduce bias? Yes Can't tell No

HINT: We are looking for measurement or classification bias:
- *Did they use subjective or objective measurements?*
- *Do the measures truly reflect what you want them to (have they been validated)?*

5. Were the data collected in a way that addressed the research issue? Yes Can't tell No

Consider:
- *if the setting for data collection was justified*
- *if it is clear how data were collected (e.g.,interview, questionnaire, chart review)*
- *if the researcher has justified the methods chosen*
- *if the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted?)*

6. Did the study have enough participants to minimize the play of chance? Yes Can't tell No

Consider:
- *if the result is precise enough to make a decision*
- *if there is a power calculation. This will estimate how many subjects are needed to produce a reliable estimate of the measure(s) of interest.*

7. How are the results presented and what is the m ain result? Yes Can't tell No

Consider:
- *if, for example, the results are presented as a proportion of people experiencing an outcome,*

such as risks, or as a measurement, such as mean or median differences, or as survival curves and hazards
- *how large this size of result is and how meaningful it is*
- *how you would sum up the bottom-line result of the trail in one sentence*

8. Was the data analysis sufficiently rigorous? Yes Can't tell No

Consider:
- *if there is an in-depth description of the analysis process*
- *if sufficient data are presented to support the findings*

9. Is there a clear statement of findings? Yes Can't tell No

Consider:
- *if the findings are explicit*
- *if there is adequate discussion of the evidence both for and against the researchers' arguments*
- *if the researcher have discussed the credibility of their findings*
- *if the findings are discussed in relation to the original research questions*

10. Can the results be applied to the local population? Yes Can't tell No

HINT: Consider whether
- *The subjects covered in the study could be sufficiently different from Your population to cause concern.*
- *Your local setting is likely to differ much from that of the study*

11. How valuable is the research? write comments here

Consider:
- *if the researcher discusses the contribution the study makes to existing knowledge (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?)*
- *if the researchers have discussed whether or how the findings can be transferred to other population*

Supplementary file 3: CASP risk of bias tool for cohort studies

12 questions to help you make sense of cohort studies

How to use this appraisal tool

Three broad issues need to be considered when appraising a cohort study:

- **Are the results of the study valid? (Section A)**
- **What are the results? (Section B)**
- **Will the results help locally? (Section C)**

The 12 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is "yes", it is worth proceeding with the remaining questions. There is some degree of overlap between the questions, you are asked to record a "yes", "no" or "can't tell" to most of the questions. A number of italicized prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.
These checklists were designed to be used as educational tools as part of a workshop setting.

(A) Are the results of the study valid

Screening Questions

1. Did the study address a clearly focused issue? Yes Can't tell No

HINT: A question can be focused in terms of:
- *the population studied*
- *the risk factors studied*
- *the outcomes considered*
- *Is it clear whether the study tried to detect a beneficial or harmful effect?*

2. Was the cohort recruited in an acceptable way? Yes Can't tell No

HINT: Look for selection bias which might compromise the generalisibility of the findings:
- *Was the cohort representative of a defined population?*
- *Was there something special about the cohort?*
- *Was everybody included who should have been included?*

Is it worth continuing?

3. Was the exposure accurately measured to minimise bias? Yes Can't tell No

HINT: Look for measurement or classification bias:
- *Did they use subjective or objective measurements?*
- *Do the measurements truly reflect what you want them to (have they been validated)?*
- *Were all the subjects classified into exposure groups using the same procedure*

4. Was the outcome accurately measured to minimise bias? Yes Can't tell No

HINT: Look for measurement or classification bias:
- *Did they use subjective or objective measurements?*
- *Do the measures truly reflect what you want them to (have they been validated)?*
- *Has a reliable system been established for detecting all the cases (for measuring disease occurrence)?*
- *Were the measurement methods similar in the different groups?*
- *Were the subjects and/or the outcome assessor blinded to exposure (does this matter)?*

5. (a) Have the authors identified all important confounding factors? Yes Can't tell No

List the ones you think might be important, that the author missed.

(b) Have they taken account of the confounding factors in the design and/or analysis? Yes Can't tell No

HINT: Look for restriction in design, and techniques e.g. modelling, stratified-, regression-, or sensitivity analysis to correct, control or adjust for confounding factors

6. (a) Was the follow up of subjects complete enough? Yes Can't tell No

(b) Was the follow up of subjects long enough? Yes Can't tell No

HINT: Consider
- T*he good or bad effects should have had long enough to reveal themselves*

- *The persons that are lost to follow-up may have different outcomes than those available for assessment*
- *In an open or dynamic cohort, was there anything special about the outcome of the people leaving, or the exposure of the people entering the cohort?*

(B) What are the result?

7. What are the results of this study? Yes Can't tell No

HINT: Consider
- *What are the bottom line results?*
- *Have they reported the rate or the proportion between the exposed/ unexposed, the ratio/the rate difference?*
- *How strong is the association between exposure and outcome (RR,)?*
- *What is the absolute risk reduction (ARR)?*

8. How precise are the results?

HINT: Look for the range of the confidence intervals, if given.

9. Do you believe the results? Yes Can't tell No

HINT: Consider
- *Big effect is hard to ignore!*
- *Can it be due to bias, chance or confounding?*
- *Are the design and methods of this study sufficiently flawed to make the results unreliable?*
- *Bradford Hills criteria (e.g. time sequence, dose-response gradient, biological plausibility, consistency)*

(C) Will the results help locally?

10. Can the results be applied to the local population? Yes Can't tell No

HINT: Consider whether
- *A cohort study was the appropriate method to answer this question*
- *The subjects covered in this study could be sufficiently different from your population to cause concern*
- *Your local setting is likely to differ much from that of the study*
- *You can quantify the local benefits and harms*

11. Do the results of this study fit with other available evidence? Yes Can't tell No

12. What are the implications of this study for practice?

HINT: Consider

- *One observational study rarely provides sufficiently robust evidence to recommend changes to clinical practice or within health policy decision making*
- *For certain questions observational studies provide the only evidence*
- *Recommendations from observational studies are always stronger when supported by other evidence*

Supplementary file 4: Details about the specific methodological limitations.

1, No theoretical motivation of the concept SE/SI. Limitation is present if the paper does not a. refer to SE literature and/or theories; b. provide a definition of SE/SI; and/or c. include a motivated choice of SE/SI measurement. Absence of theoretical motivation and conceptual underpinning may lead to confusion of what precisely is being measured [12].

2, Data set not originally designed to measure SE/SI. Limitation is present if the study is based on secondary data only, including register and case notes data.

3, Not all dimensions of SE/SI measured. Limitation is present if only two or three of the four dimensions of SE are measured.

4, No composite measure SE/SI. Limitation is present if the study measures indicators across a number of dimensions without aggregation into a composite measure (index / scale or total score / latent variable). 4" Limitation is partly present if aggregation does not include all dimensions measured.

5, No existing SE/SI measure. Limitation is present if the study did not use a questionnaire designed specifically to measure SE/SI, and researchers choose their own indicators, ex post or ex ante. Limitation is partly present if validated measures were used for the dimensions of SE or a measure was constructed and (partly) validated.

6, Testing of association SE/SI -health was not a stated objective. Limitation is present if the study did not set out to test the association between SE/SI and a health-related measure, but included SE/SI or health as a confounding or mediating factor.

7, No adjustment for demographic and other potential confounding factors. Limitation is present if potential confounding was not examined. Limitation is partly present if potential confounding was examined by demographic variables but not by other factors OR potential confounding was examined by other potential confounding factors but not by demographic variables. Gender, age, ethnicity, country of birth, marital status, household composition and geographic area were classified as demographic factors. Income, education, occupation and employment were categorised as 'other factors'.

Supplementary file 5:

Tables S1a-S3b Description of observational studies on the association between SE/SI and mental health in the general population (S1a) and in high risk groups (S1b); physical health in the general population (S2a) and in high risk groups (S2b); and general health in the general population (S3a) and in high risk groups (S3b).

Table S1a: Description of observational studies on the association between SE/SI and mental health in the general population

Study	Setting	Population	Sample size	Indicators SE/SI *	Health measure **	Statistical analysis
Retrospective cohort study						
Sacker et al. [46]	UK	General population, 65 years or older	4,312	SP: social exclusion index [a] Measured in wave 3.	MH1: Transition in psychological distress between wave 1 and 2 [b]	Linear regression
			4,244		MH2: Psychological distress (wave 4) [b]	Logistic regression
Cross-sectional study						
Bayram et al. [34]	Turkey	General population, 18-80 years	2,493	S: social participation (9) E: material deprivation (8) P1: access to institutions (5) P2: access to adequate housing and safe environment (8) C: cultural normative integration (5 items) [d]	MH: psychological health (WHOQOL-BREF)	Structural equation modeling
Halleröd & Larsson [47]	Sweden	General population 16-74 years	4,941	S: loneliness E1: deprivation of goods/ services (36); E2: cash margin P1: crowded housing (4); P2: disorganised area (4); P3: worried by crime; P4: victimisation crime; P5: victimisation violence C1: voting; C2: politically active	MH: anxiety (occurrence, over the previous two weeks, of anxiety, worry or anguish)	Bivariate correlation
Honey et al. [37]	Australia	General population, 15-29 years	3,392	S: social support (10) E: financial hardship (7) [e]	MH: mental health [f]	Linear regression
Van de Beek et al. [38]	Netherlands	Dutch Moroccan visitors of online community,18 years or older [i]	267	S:social support (3) P: perceived discrimination (9) [j]	MH1: depressive symptoms [k] MH2: psychotic experiences [k]	Hierarchical linear regression

	Confounding, match-ing & stratification** etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Confounder: gender, age. age^2, ethnicity, migrant, marital status, job status, educational level, social class, region and (transitions in) SAH and LLTI. [c)] Mediator/moderator: rural vs urban; car access, mobile phone ownership, internet use	**Effect on SP** Transition from: -Low to high: + -High to low : ns -Stable high : +	**Effect MH1 on SP (wave 3)** MH1 ß (95% CI) -Stable low is reference -Low=>high 0.28 (0.01-0.54) ^ -Stable high 0.91 (0.64-1.18) ^^ ^ p<.05; ^^ p<.01	+	2 3 5	+
		+ SP	**Effect SP on MH2 (wave 4)** SP: OR_{adj}=1.07 (1.02-1.13)			
	Other factors in model: physical health, environment, social relations. Not in model: P1 C.	+ S P2 ns E P1 C	MH⇦S: ß=-0.77 MH⇨P2: ß=-0.58 (Model fit criteria: RMSEA<0.05; GFI>0.90 & CFI>0.90)	+/0	4 7”	+
		+ S E1 E2 P1 P2 P3 P4 P5 C1 ns C2 (p<.001)	Kendall tau_b S:0.23; E1:0.20; E2:0.18; P1:0.05; P2:0.09; P3:0.16; P4:0.05; P5:0.11; C1:0.09	+	2 4 5 6 7	+
	Stratified by gender. Covariate: D=disability other than mental health	+ S E [g)] ♀	D*S: p < .05; D*E: p < .05; S*E: p < .05; D*S* E: p < .05	+	1 2 3 4 5” 6	+
		+ S E [g)] ♂	D*S: p < .05; D*E: p < .05; S*E: p < .05; D*S* E: p < .05	+	1 2 3 4 5” 6	
	Adj for gender, age, migrant status and education	+ S ns P S*P	S: ß=-0.339 p<.001	+	1 3 4 5” 7”	+
		+ S P	S: ß=-0.154 p<.05 P: ß=-0.197 p<.01			

Study	Setting	Population	Sample size	Indicators SE/SI *	Health measure **	Statistical analysis
Richter & Hoffmann [48]	Switzerland	General population 18-64 for men / 63 for women	14,969 h)	S1: living alone; S2 living without a partner; S3 no person to talk to; S4 attendance of social events; S5 feeling lonely; S6 social support (3) E: low income	MH1: severe mental illness or disability h)	Logistic regression
					MH2: common mental illness h)	

* S= social dimension; E=economic dimension; P=political dimension; C=cultural dimension; between brackets the number of items (if more than 1). A group of letters e.g. EP or SEP indicates an aggregate measure based on the listed dimensions.

** MH=mental health.

*** Code for results: + hypothesis confirmed i.e. high SE/low SI associated with adverse health outcome; ns no significant association; - hypothesis rejected i.e. low SE/high SI associated with adverse health outcome; +? high SE/low SI combined with adverse health, but no statistical testing; na=not applicable. C/C = Case/Control.

$ P-value <.05 unless stated otherwise. OR's and HR's are given with the 95% confidence interval between brackets. SD=standard deviation. Adj=adjusted for potential confounders.

$$ Code for results: + - 0 see ***; +/0 hypothesis confirmed for 30-70% of SE/SI indicators and the remaining 70-30% not significant; x no statistical testing or no associations reported.

Specific methodological limitations: Limitations: 1, no theoretical motivation of the concept SE/SI; 2, data set not originally designed to measure SE/SI; 3, not all dimensions of SE/SI measured; 4, no composite measure SE/SI; 5, no existing SE/SI measure; 6, testing of association SE/SI -H was not a stated objective; 7, no adjustment for demographic and other potential confounding factors; ", limitation partly present. For more details please see Supplementary file 4.

General study quality was appraised with the CASP=Critical Appraisal Skills Programme tool for cohort studies (Supplementary file 2) or cross-sectional studies (Supplementary file 3).

a) A social exclusion index was constructed with three underlying domains; S1=Civic participation (4 items e.g. participation in cultural, sports and leisure activities), S2=Social relations and resources (5 items e.g. living alone, no close friendship) and P= Service provision and access (5 items e.g. poor quality of local medical facilities).

b) Psychological distress was measured with the 12 item General Health Questionnaire (GHQ).

c) SAH=self-assessed health. LLTI=limiting long-term illness/disability. Transitions in SAH and LLTI were entered in the regression model with MH1 as independent variable and SP as dependent variable.

d) Jehoel Gijsbers & Vrooman [35].

	Confounding, match-ing & stratification** etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Adj for gender and age	+ S1-6 E	OR (95% CI) S1 4.47 (3.26-6.97) S2 4.19 (3.04-5.75) S3 5.31 (3.40-8.00) S4 3.98 (2.92-5.46)) S5 17.64 (12.62-24.48) S6 5.28 (3.81-7.28) E 4.10 (2.98-5.64) No illness is reference group	+	2 3 4 5 7”	+
		+ S1-6 E	OR (95% CI) S1 2.17 (1.82-2.57) S2 1.95 (1.67-2.27) S3 1.66 (1.17-2.28) S4 1.22 (1.05-1.41) S5 5.31 (4.29-6.54) S6 1.78(1.46-2.16) E 1.28 (1.07-1.51) No illness is reference group			

e) Dichotomous sum scores based on a median split (S) and “1 or more” versus “none” (E). Original sources Henderson et al. (1978) and Marshall & Barnett (1993). For references please see Honey et al. [37].

f) Mental health was measured with the SF36 mental health scale. This scale consists of 5 questions on symptoms of depression, anxiety and positive mental health and is used for identifying common mental disorders.

g) The association between disability and MH was moderated by both financial hardship and social support. Under conditions of low SE (= high social support & no financial hardship) there were no differences in MH between people with and without disabilities. Under conditions of low social support there was an enhanced risk of MH problems and the effect was stronger for people with disabilities. The combination of two factors contributing to SE strengthens the effect on MH.

h) The analysis involved 171 people with severe mental illness (MH1), 299 people with severe physical illness PH1, 841 people with common mental illness (MH2) and 13,957 people without these illnesses. In Table S1a only results for MH1 and MH2 are presented (N=14,969). MH1 = being treated for a mental health problem and receiving a disability pension; MH2 = being treated for a mental health problem and not receiving a disability pension; PH1 = not being treated for a mental health problem and receiving a disability pension; No illness = not being treated for a mental health problem and not receiving a disability pension. The results for PH1 are presented in TableS2a.

i) Marokko.nl: a popular website, which is regularly visited by 70% of all young Moroccan-Dutch people.

j) The study included three social exclusion variables: Social support measured with the Oslo Social Support Questionnaire; Perceived discrimination measured with the Every Day Discrimination Scale; and Social Defeat measured with the Defeat Scale . The Defeat scale contains 16 statements, which describe how feel about themselves e.g. successful, powerless or one of life’s losers and does not correspond to our multidimensional definition of SE. In this table we only present the results for Social support and Perceived discrimination.

k) Measures used: Depressive symptoms: Kessler Psychological Distress Scale 10 (K10); Psychotic experiences: Prodromal Questionnaire-16 (PQ-16).

Table S1b: Description of observational studies on the association between SE/SI and mental health in high risk groups

Reference	Setting	Population	Sample size	Indicators SE/ SI *	Health measure **	Statistical analysis
Case control study						
Flores et al. [42]	Spain	Adult men from various risk settings	105	S: family contact E: income level P: habitual domicile C: source of income (legal, illegal, work) SEPC: excluded on all 4 dimensions	**Outcome** MH: personality features by DSM- III (9 scales)	Mann-Whitney U Test comparing case groups with control (no AIDS, no drug addiction, no SE)
Todd et al. [49]	England	Clients of Mental Health Services (MHS) and Drug & Alcohol Services (DAS)	590	**Outcome:** S: isolation E: employment P1: homelessness (2) P2: education C: contact with criminal justice system (4)	MH: comorbidity of psychiatric and substance misuse disorders	Conditional logit model
Webber & Huxley [39]	England	Persons assessed for compulsory hospitalization	300	S: social support E1: income, E2: employment P1: insecure housing; P2: education; P3: neighbourhood deprivation [a)] SEP: 3 or more indicators above mean	**Outcome:** MH: emergency compulsory hospitalization MH: compulsory hospitalization	Uni and multivariate logistic regression
Cross-sectional study						
Choi et al. [40]	South Korea	Torture survivors	206	S: exclusion by family and acquaintances and not being able to reveal torture experiences (5) P: no support or help by government / institutions (1) SP: average rating on 6 items [b)]	Post-traumatic stress disorder [c)] Depression Anxiety Hostility Somatisation Interpersonal sensitivity	Hierarchical regression analysis

	Confounding, matching & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Case 1: AIDS + drug addiction + SE	+ SEPC 8 scales ns SEPC narcistic	Z-values ranged from -4.533 to -2.795	+	5 7	+
	Case 2: drug addiction + SE	+ SEPC 8 scales ns SEPC narcistic	Z-values ranged from -5.852 to -2.714	+		
	Case 3: SE	+ SEPC 6 scales ns SEPC histronic, ns SEPC antisocial ns SEPC aggressive-sadistic	Z-values ranged from -5.955 to -2.758	+/0		
	C/C: MH=yes/no Matched on gender, age; type of substance (DAS clients only)	MHS clients: + S E P1 C ns P2	SE factor present vs not present: OR (95% CI) S:1.85 (1.20-2.83) E:0.36 (0.21-0.59) P1: 4.51 (2.25-9.04) and 3.40 (1.53-7.54) C: OR's ranging from 3.17 (1.34–7.49) to 10.05 (4.32–23.4)	+	1 4 5	+
		DAS clients: ns S E P C		0		
	C/C: MH:=yes/other assessment outcome Stratified sample by geographic area and assessment outcome. Adj for ethnicity, bi-polar disorder and present risk	+ S S_{adj} ns E P SEP	S: OR=2.16 (1.22-3.83) S: OR_{adj}=2.04 (1.12-3.71)	0 (SEP)	1 2 3 5"	+
		+ P1 SEP ns $P1_{adj}$ SEP_{adj} ns S E1 E2 P2 P3	P1: OR=1.72 (1.05-2.79) SEP: OR=2.01 (1.22-3.31)	0 (SEP_{adj})		
	Co-variates: sex, age, education, psychological preparedness, perceived distress from three types of torture [d], other traumatic experience and time since the first torture event, perceived distress from physical damage related to torture and post torture stressors [d]	+ SP	SP: ß=0.310 p<.001	+	1 3 5"	+
		+ SP	SP: ß=0.227 p<.05			
		+ SP	SP: ß=0.297 p<.01			
		+ SP	SP: ß=0.318 p<.01			
		+ SP	SP: ß=0.296 p<.001			
		0 SP				

Reference	Setting	Population	Sample size	Indicators SE/ SI *	Health measure **	Statistical analysis
Cole et al. [36]	USA	Patients publicly funded substance abuse treatment	787	E: economic hardship P: perceived discrimination [e] *SSS = subjective social standing*	**Outcome:** MH: Perceived stress	Multivariate linear regression
Fakhoury & Priebe [52] [d]	England	Patients Assertive Outreach team	580	S: living alone P: street homelessness, C1: history of arrests, C2: physical violence	**Outcome:** MH1: Alcohol abuse and dependency	Multiple regression
					MH2: Drug abuse and dependency	
Killaspy et al. [33]	England	Adults with psychosis	67	**Outcome:** S: social integration (T1:15/ T2:27 items) E1: consumption (7/8 items) E2: productivity (1/5 items) P: access to services (2/4 items) C: political engagement (3/3 items) [g]	MH1: Development of psychosis	Paired t-test (ΔT2-T1)
					MH2: current symptoms MH3: QoL MH4: unmet needs	ANCOVA
Maia et al. [55]	Portugal	Patients with HIV	371	EP: index based on 6 indicators [i] S1: Relationship with family S2: Social support	MH: symptoms of depression [j]	Hierarchical linear regression
March et al. [50]	9 European countries	Drug users in public places	1,879	E: occupation P: housing in last year C: been in prison	MH: Intravenous drug use:	Hierarchical logistic regression
O'Brien et al. [51]	Cananda	Adults in HIV treatment	913	E: income, difficulty with housing costs, employment (5) P: housing situation and belonging in the neighbourhood (3) EP: latent variable based on E and P indicators	MH: mental symptoms & impairments (57)	Structural equation modeling

	Confounding, matching & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Gender, age employment, health, substance abuse, social support, self and personal control,	+ E P	E : ß$_{adj}$=.182; p<.001 P : ß$_{adj}$=.139; p<.001 *SSS: β_{adj} = -.324; p<.001*	+	3 4 5”	+
	Gender, age, ethnicity, employment, marital status, new client, contact with other mental health services, previous (compulsory) hospitalisation, clinical diagnose, acts of parasuicide	+ S C1 C2 ns P	S: OR 2.30 (1.33, 3.99) C1: OR 2.14 (1.10, 4.17) C2: OR 1.87 (1.02, 3.44)	+/0	1 2 3 4 5	+
		+ P C2 ns S C1	P: OR 3.79 (1.37, 10.49) C2 OR 3.89 (2.27, 6.68)			
		+ ΔS ΔE2 ns ΔE1 ΔP ΔC [g)]	Mean (SD) P value S: T1 33.2 (7.8) T2: 27.9 (6.4) p<..001 E2: T1 5,4 (4.4) T2: 2.6 (1.5) p<.001	+/0	4	+
	Covariates gender, age, marital status, ethnicity, education, accommodation, institutional, forensic and disease history	ΔS + MH3 ns MH2 MH4 ΔE2 ns MH2 MH3 MH4 [h)]	ΔS MH3: b$_{adj}$=-3.0 (-6.0-0.0) P=.048	na		
	Gender, age, adverse experiences index, health and disease indicators [k)]	+ EP S1 S2	EP: ß= 0.130 p<.01 S1: ß=-0.154 p<.01 S2: ß=-0.513 p<.001	+	1 3 4” 5	+
	Gender, age, country, age of first use cocaine/heroin, drug treatment	+ E P C	Injectors versus non-injectors: E: OR$_{adj}$=1.38 (1.06-1.81) P: OR$_{adj}$=1.57 (1.17-2.12) C: OR$_{adj}$=1.32 (1.02-1.70)	+	1 3 4 5	+
	Other factors in model: physical symptoms & impairments, daily functioning	+ EP	Physical symptoms MH SI, ß=0.427 Significance level 0.05	+	2 3 5 7”	+

For footnotes * ** *** $ $$ # ## see Table S1a.

a) Based upon the Index of Multiple Deprivation (IMD) which includes 38 indicators on income, employment, health & disability, education, skills & training, barriers to housing & services, living environments and crime. (Department for Communities and Local Government. 2007. The index of multiple deprivation. London: The National Archives, DCLG.)

b) Internal consistency (Cronbach's alpha) of the six items on social exclusion was .816.

c) Post-traumatic stress disorder was assessed by the Korean version of the Impact of Event Scale-Revised. Other complex post-traumatic symptoms i.e. Depression, Anxiety, Hostility, Somatisation and Interpersonal sensitivity, were assessed by related subscales of the Symptom Checklist 90-Revised-Korean version.

d) Types of torture were constructed using principal axis factor analysis and included physical torture, psychological torture and torture of deprivation. Post-torture psychosocial stressors were assessed by the Exposure to Psychosocial Stressor Scale designed specifically to assess the presence and perceived distress of stressors in the context of Korea and included probation, socio-economic repression and social exclusion. Social exclusion is reported here separately.

e) Economic hardship was assessed with a modified measure of ability to meet expenses and food insecurity in the 1996 Survey of Income and Program Participation (SIPP; She and Livermore, 2007). Perceived discrimination: Kessler et al., 1999; Subjective social standing: Adler et al., 2000, p. 587. For references please see Cole et al. [36].

f) The study of Fakhoury and Priebe is a prospective cohort study. The data in this review, however, come from a cross-sectional analysis. Hence, the classification as a cross-sectional design.

g) SE is measured with the SInQUE [32] which is designed as a structured interview for use in people with mental health problems. The questionnaire is in two parts: the first part relates to the year prior to the first psychiatric admission (T1) and the second part relates to the current situation (T2).

h) Two of the five SI domains (S and E2) showed a significant change in SInQUE scores between the development of a psychotic illness (T1) and currently (T2). The change in social integration (ΔS) was significantly associated with QoL(MH3) and not with current symptoms (MH2) and unmet needs (MH4).

i) Index of social exclusion: sum of the level of needs with regard to 1. employment, 2. sources of income, 3. housing conditions (14 items), 4. support needs for nutrition, 5. money and 6. instrumental care providers in case of need (items). Sum score varying between 0 and 6.

j) Depressive symptoms were measured with a reduced version of the Questionnaire for identification of the psychosocial needs of people living with HIV, Maia et al., 2014, based on six symptoms (thoughts of ending life, feeling lonely, feeling sad, not interested in anything, feeling hopeless about the future, and without hope for the future).

k) Time since diagnosis of HIV, source of infection, marital infection, health status and daily concerns with health.

Table S2a: Description of observational studies on the association between SE/SI and physical health in the general population

Reference	Setting	Population	Sample size	Indicators SE/SI *	Health measure**	Statistical analysis
Prospective cohort study						
Saito et al. [43]	Japan	General population, 65 years or older	13,310	S: social isolation and/or social inactivity E: relative poverty ES: excluded on S and E	**Outcome**: PH: mortality	Cox's proportional hazard model
Case control study						
Waterstone et al. [44]	England	General population: women who delivered in maternity units	2,938	SEPC: 1 or more indicators present, out of list of 13 SE indicators [a)]	**Outcome:** PH: severe obstetric morbidity	Multivariate logistic regression
					PH: severe PET	
					PH: severe haemorrhage	
					PH: severe sepsis	
					PH: uterine rupture	
Cross-sectional study						
Bayram et al. [34]	Turkey	General population, 18-80 years	2,493	S: social participation (9) E: material deprivation (8) P1: access to institutions (5) P2: access to adequate housing and safe environment (8) C: cultural normative integration (5 items) [b)]	PH: physical health (WHOQOL-BREF)	Structural equation modeling
Halleröd & Larsson [47]	Sweden	General population 16-74 years	4,941	S: loneliness E1: deprivation of goods/services (36); E2: cash margin P1: crowded housing (4); P2: disorganised area (4); P3: worried by crime; P4: victimisation crime; P5: victimisation violence C1: voting; C2: politically active	PH1: obesity	Bivariate correlation
					PH2: headache	
					PH3: sleeplessness	

	Confounding, match-ing & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Adj for age, marital status, education, municipality, disease and/or impairment,	+ S ES ♀ ns E	S: HR_{adj} 1.46 (1.03-2.09) ES: HR_{adj} 1.73 (1.03-2.90)	+	2 3 5	+
		ns S E ES ♂	x	0	2 3 5	
	C/C: PH=yes/no Matched on maternity unit Adj. for age, race, general medical and obstetric risk factors, course of pregnancy, conditions at booking,	+ SEPC	SEPC: OR_{adj}=2.64;(1.69 – 4.11)	+	2 5	+
		+ SEPC	SEPC: OR_{adj}=1.99;(1.07 – 3.72)	+		
		+ SEPC	SEPC: OR_{adj}=2.91;(1.76 – 4.82)	+		
		ns SEPC	x	0		
		ns SEPC	x	0		
	Other factors in model: psychological health, environment and social relations. Not in model: C P1	+ S ns E P1-2 C	PH⇨S: ß=-0.40 Significance level not mentioned	0	4 7”	+
		+ E1 E2 P3 P4 ns S P1 P2 P5 C1 C2 (p<0.001)	Kendall tau_b: E1:0.13; E2:0.10; P3:0.03; P4:-0.03	+/0	2 4 5 6 7	+
		+ S E1 E2 P1 P2 P3 P4 P5 C1 C2 ns (p<0.001)	S:0.10; E1:0.13; E2:0.13; P1:0.05; P2:0.07; P3:0.06; P4:0.04; P5:0.06; C1:0.06; C2:-0.04	+		
		+ S E1 E2 P2 P3 P5 C1 ns P1 P4 C2 (p<0.001)	S:0.13; E1:0.15; E2:0.12; P2:0.10; P3:0.13; P5:0.09; C1:0.06	+		

Reference	Setting	Population	Sample size	Indicators SE/SI *	Health measure**	Statistical analysis
Richter & Hoffmann [48]	Switzerland	General population 18-64 for men / 63 for women	14,256 [c)]	S1: living alone; S2 living without a partner; S3 no person to talk to; S4 attendance of social events; S5 feeling lonely; S6 social support (3) E1: low income	PH: physical illness or disability [c)]	Logistic regression

* S= social dimension; E=economic dimension; P=political dimension; C=cultural dimension; between brackets the number of items (if more than 1). A group of letters e.g. EP or SEP indicates an aggregate measure based on the listed dimensions.

** PH=physical health. QoL=quality of life. PET=pre-eclamptic conditions including HELPP syndrome and eclampsia.

*** Code for results: + hypothesis confirmed i.e. high SE/low SI associated with adverse health outcome; ns no significant association; - hypothesis rejected i.e. low SE/high Si associated with adverse health outcome; +? high SE/low SI combined with adverse health, but no statistical testing. C/C = Case/Control.

$ P-value <.05 unless stated otherwise. OR's and HR's are given with the 95% confidence interval between brackets. Adj=adjusted for potential confounders.

$$ Code for results: + - 0 see ***; +/0 hypothesis confirmed for 30-70% of SE/SI indicators and the remaining 70-30% not significant; x no statistical testing or no associations reported.

Specific methodological limitations: Limitations: 1, no theoretical motivation of the concept SE/SI; 2, data set not originally designed to measure SE/SI; 3, not all dimensions of SE/SI measured; 4, no composite measure SE/SI; 5, no existing SE/SI measure; 6, testing of association SE/SI -H was not a stated objective; 7, no adjustment for demographic and other potential confounding factors; ", limitation partly present. For more details please see Supplementary file 4.

General study quality was appraised with the CASP=Critical Appraisal Skills Programme tool for cohort studies (Supplementary file 2) or cross-sectional studies (Supplementary file 3).

a) SE indicators: S – 1, partner abroad of unsupported. E - 2. on income support. P – 3, poor housing. C - 4, concealed pregnancy; 5, age <16 years; 6, previous minor/child in local authority or state care; 7, in trouble with the law; 8, unbooked; 9, unwanted pregnancy; 10, currently or previously in foster care; 11, care order being considered on potential child; 12, social worker involved; and 13, drug or alcohol dependency.

b) Jehoel Gijsbers & Vrooman [35].

	Confounding, match-ing & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Adj for gender and age	+ S1-6 E	OR (95% CI) S1 2.68 (2.08-3.54) S2 3.94 (3.08-5.02) S3 3.18 (2.13-4.59) S4 2.89 (2.29-3.64) S5 6.54 (4.67-8.99) S6 3.00 (2.28-3.90) E 3.65 (2.84-4.47) No illness is reference group	+	2 3 4 5 7”	+

c) The analysis involved 299 people with severe physical illness PH, 171 people with severe mental illness (MH1), 841 people with common mental illness (MH2) and 13,957 people without these illnesses. In Table S2a only results for PH are presented (N=14,256). PH = not being treated for a mental health problem and receiving a disability pension; MH1 = being treated for a mental health problem and receiving a disability pension; MH2 = being treated

Table S2b: Description of observational studies on the association between SE/SI and physical health in high risk groups

For footnotes see Table S2a.

Reference	Setting	Population	Sample size	Indicators SE/SI *	Health measure**
Cross-sectional study					
O'Brien et al. [51]	Cananda	Adults in HIV treatment	913	E: income, difficulty with housing costs, employment (5) P: housing situation and belonging in the neighbourhood (3) EP: latent variable based on E and P indicators	PH1: physical symptoms & impairments (26) PH2: daily functioning (17)

Table S3a: Description of observational studies on the association between SE/SI and general health in the general population

Reference	Setting	Population	Sample size	Indicators SE/SI *	Health measure**
Prospective cohort study					
Bryngelson [41]	Sweden	General population, 18-55 years	3,144	**Outcome:** S: no close friends and/or single/ unmarried E: no cash margin C: not voting ES, EC: excluded on E&S, E&C	GH: long-term sickness absence
Gannon & Nolan [53]	Ireland	General adult population	2,727	**Outcome:** S: evening out in last 2 week E1: household income E2: risk of poverty	GH: disability onset GH: persistent disability

	Statistical analysis	Confounding, match-ing & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Structural equation modeling	Mental symptoms & impairments (MH)	PH1 PH2: + EP	PH1 SI, ß=-0.230 PH1 PH2 SI, ß=0.239 PH1 MH SI, ß=0.427 Significance level 0.05	+	2 3 5 7”	+

	Statistical analysis	Confounding, match-ing & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Logistic regression analysis	Adj for age and social exclusion situation at T1	+ E ES ♀ ns S C EC	E: OR_{adj}=1.81 (1.21-2.70) ES: OR_{adj}=10.08 (1.82-55.73)	+/0	2 3 4” 5 7”	+
			+ E ♂ ns S C ES EC	E: OR_{adj}=4.08 (2.42-6.86)	0	2 3 4” 5 7”	
	Probit model (stand. regr. coeff)	Adj for gender, age, education and household composition	+ S E1 E2	S: $ß_{adj}$=0.135 E1: $ß_{adj}$=-0.217; E2: $ß_{adj}$= 0.054.	+	3 4 5	+
			+ S E1 E2	S: $ß_{adj}$=-0.135 E1: $ß_{adj}$=-0.256; E2: $ß_{adj}$=0.040			

Reference	Setting	Population	Sample size	Indicators SE/SI *	Health measure**
Retrospective cohort study					
Sacker et al. [46]	UK	General population, 65 years or older	4,321	SP: social exclusion index based on three dimensions: S1 = Civic participation (4), S2 = Social relations and resources (5) P = Service provision and access (5) [a] Measured in wave 3.	GH1: transition in SAH (wave 1=>2) [b]
					GH2: transition in LLTI (wave 1=>2) [b]
					GH3: SAH (wave 4)
					GH4:LLTI (wave 4)
Cross-sectional study					
Halleröd & Larsson [47]	Sweden	General population 16-74 years	4,941	S: loneliness E1: deprivation of goods/services (36); E2: cash margin P1: crowded housing (4); P2: disorganised area (4); P3: worried by crime; P4: victimisation crime; P5: victimisation violence C1: voting; C2: politically active	GH: chronic disease [d]
Urbanos-Garrido [54]	Spain	General population, 16 and over	25,498	S1: face contacts with family S2: face contacts with friends S3: non-face contacts with family S4: non-face contacts with friends S5: voluntary work E1: financial deprivation (10) E2: no dental treatment due to financial problems P1: housing deprivation (9)	GH: SAH
					GH: chronic disease [e]
					GH: limitations [e]

	Statistical analysis	Confounding, match-ing & stratification etc.	Results per indicator***	Correlations and effect estimates per indicator $	Combined result $$	Methodological limitations #	Study quality ##
	Linear regression	Adj for gender, age. age^2, ethnicity, migrant, marital status, job status, educational level, social class, region and (transitions in) SAH and LLTI. Mediator/ moderator: rural vs urban; car access, mobile phone ownership, internet use	**Effect on SP (wave 3)** -Good=>poor: + -Poor=>good: + -Stable poor: +	**Effect on SP (wave 3)** c) GH1 ß (95% CI) -Stable good is reference -Good=>poor 0.76 (0.49-1.02) ^^^ -Poor=>good 0.61 (0.32-0.90) ^^^ -Stable poor 0.95 (0.72-1.18) ^^^	+	2 3 5	+
			Effect on SP (wave 3) -Good=>poor: ns -Poor=>good: ns -Stable poor: +	**Effect on SP (wave 3)** c) GH2 ß (95% CI) -Stable no LLTI is reference -Stable LLTI 0.22 (0.02-0.42) ^			
	Logistic regression		+ SP	**Effect on GH3 (wave 4)** SP: OR_{adj}=1.15 (1.09-1.21)			
			+ SP	**Effect on GH4 (wave 4)** SP: OR_{adj}=1.07 (1.02-1.12)			
	Bivariate correlation		+ S E1 E2 P2 P3 ns P1 P4 P5 C1 C2 (p<0.001)	Kendall tau_b: S:0.06; E1:0.07; E2:0.08; P2:0.05; P3:0.12	+/0	2 4 5 6 7	+
	Concentration index: % contribution to health inequality	Other factors in model: gender, age, education, employment, urbanicity, region, deprivation	+ S2 S4 E1 E2 P ns S1 S3 S5	S2 3.87%; S4 2.58%; E1: 29.85%, E2:2.61%, P: 8.56%	+	3 4 5	+
			+ S1 S2 S3 S4 E1 E2 P ns S5	S1 0.23%; S2 3.68%; S3 0.23%; S4 4.05%; E1: 29.73%, E2:3.74%, P: 7.17%			
			+ S2 S3 S4 E1 E2 P ns S1 S5	S2 4.40%; S3 0.11% S4 4.43%; E1: 32.56%, E2:4.02%,P: 8.01%			

* S= social dimension; E=economic dimension; P=political dimension; C=cultural dimension; between brackets the number of items (if more than 1). A group of letters e.g. ES or EC indicates an aggregate measure based on the listed dimensions.

** GH=general health. SAH=self-assessed health.

*** Code for results: + hypothesis confirmed i.e. high SE/low SI associated with adverse health outcome; ns no significant association; - hypothesis rejected i.e. low SE/high SI associated with adverse health outcome; +? high SE/low SI combined with adverse health, but no statistical testing; na=not applicable.

$ P-value <.05 unless stated otherwise. OR's and HR's are given with the 95% confidence interval between brackets. Adj=adjusted for potential confounders.

$$ Code for results: + - 0 see ***; +/0 hypothesis confirmed for 30-70% of SE/SI indicators and the remaining 70-30% not significant; x no statistical testing or no associations reported.

Specific methodological limitations: Limitations: 1, no theoretical motivation of the concept SE/SI; 2, data set not originally designed to measure SE/SI; 3, not all dimensions of SE/SI measured; 4, no composite measure SE/SI; 5, no existing SE/SI measure; 6, testing of association SE/SI -H was not a stated objective; 7, no adjustment for demographic and other potential confounding factors; ", limitation partly present. For more details please see Supplementary file 4.

Table S3b: Description of observational studies on the association between SE/SI and general health in high risk groups

For footnotes see Table S3a.

Reference	Setting	Population	Sample size	Indicators SE/ SI *	Health measure**	Statistical analysis	
Cross-sectional study							
Johner et al. [55]	Canada	Single mothers, 18-59 years	375	S1: social support; S2: social network diversity; S3: social network density; S4: sense of control; E: education	GH: SAH	Hierarchical logistic regression	

General study quality was appraised with the CASP=Critical Appraisal Skills Programme tool for cohort studies (Supplementary file 2) or cross-sectional studies (Supplementary file 3).

a) A social exclusion index was constructed with three underlying dimensions; P= Service provision and access (5 items e.g. poor quality of local medical facilities), S1=Civic participation (4 items e.g. participation in cultural, sports and leisure activities) and S2=Social relations and resources (5 items e.g. living alone, no close friendship).

b) SAH=self-assessed health (excellent, very good, good vs fair or poor). LLTI=limiting long-term illness/ disability present (yes/no). Transitions in SAH and LLTI were entered in the regression model with MH1 as independent variable and SP as dependent variable.

c) ^ $p<0.05$, ^^^ $p<0.001$.

d) Chronic disease was measured with a single question asking if the respondent suffered from any longstanding illness or handicap that negatively impacts on his/her ability to work or perform daily activities.

e) Chronic disease was measured with a single question asking if any chronic disease, disability or condition was present (yes/no). Limitations was measured with a single question on the presence of any kind of limitations in daily activity (intense or not) due to health problems in the preceding six months (yes/no).

	Confounding, match-ing & stratification etc.	**Results per indicator*** **	**Correlations and effect estimates per indicator $**	**Combined result $$**	**Methodological limitations #**	**Study quality ##**
	Stratified by social assistance receipt. Adj. for income, age, aboriginal identity, children under 6 and disability.	On social assistance: + S4 ns S1 S2 S3 E	S4: $ß_{adj}$= .250 p=.004	0	3 4 5	+
		Not on social assistance: + S1 S4 ns S2 S3 E	S1: $ß_{adj}$= .278 p=.001; S4: $ß_{adj}$= .170 p=.042	0	3 4 5	

SUPPLEMENTARY MATERIAL CHAPTER 3

Figure S1. Centroid plots Index1: Quadrants I and II (A); Quadrants III and IV (B).

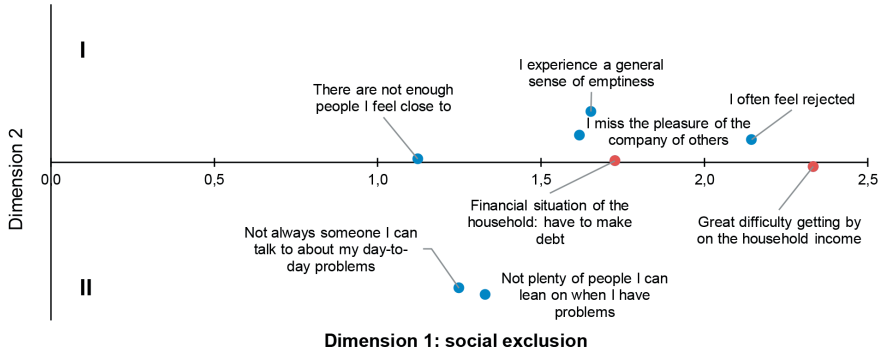


Figure S1A. Centroid plots Index1: Quadrants I and II.

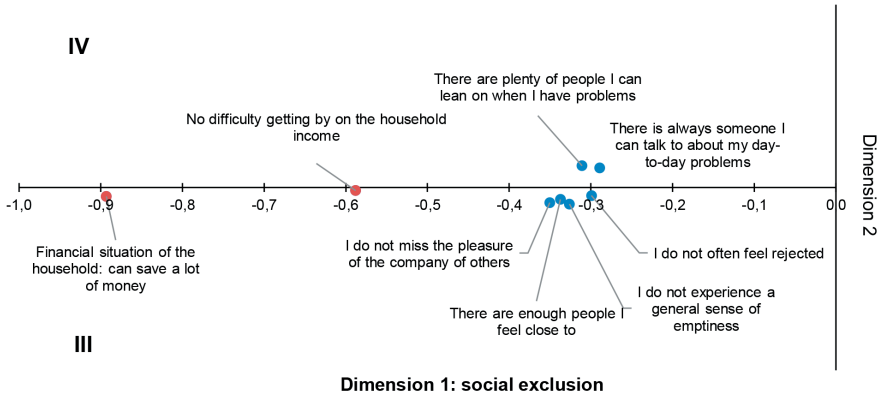


Figure S1B. Centroid plots Index3: Quadrants III and IV.

The Figures S1 A and B show the centroid plots generated by a two dimensional Overals analysis on the Amsterdam dataset. Blue are centroids of variables in the set 'Lack of social participation'; red are centroids of variables in the set 'Material deprivation'. The scales vary between figures. Although two dimensions are shown here, only dimension 1 is relevant as it represents the social exclusion domain. Dimension 2 is added for visual mapping of the constructed space. For the sake of clarity, only lowest and highest variable values are displayed.

As shown in Figures S1 A and B, all negative outcomes (difficult getting by; often feeling rejected; missing the pleasure of the company of others; etc) are clustered in quadrants I and II, while the positive outcomes are all clustered in the quadrants III and IV. The centroid plots thus show that the variables separate well groups of objects that are socially excluded (quadrants I and II) from those not socially excluded (quadrants III and IV).

Figure S2. Centroid plots Index2: Quadrants I and II (A); Quadrants III and IV (B).

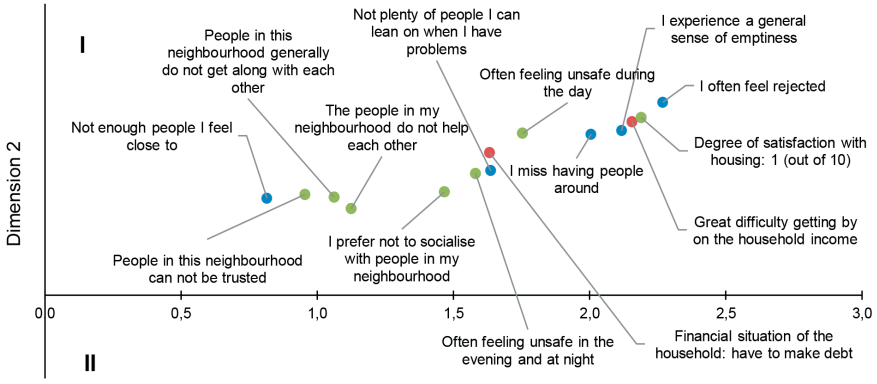


Figure S2A. Centroid plots Index2: Quadrants I and II.

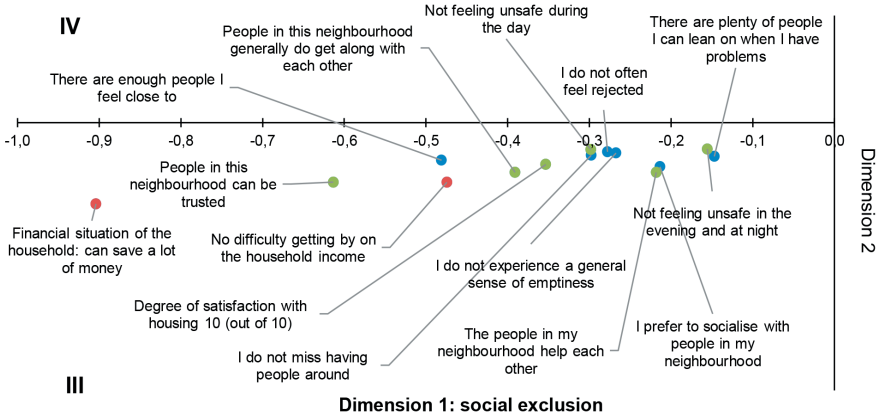


Figure S2B. Centroid plots Index2: Quadrants III and IV.

The figures S2 A and B show the centroid plots generated by a two dimensional Overals analysis on the Rotterdam / The Hague dataset. Blue are centroids of variables in the set 'Lack of social participation'; red are centroids of variables in the set 'Material deprivation' and green are centroids of variables in the set 'Limited access to basic social rights'. The scales vary between figures. Although two dimensions are shown here, only dimension 1 is relevant as it represents the social exclusion domain. Dimension 2 is added for visual mapping of the constructed space. For the sake of clarity, only lowest and highest variable values are displayed. As shown in Figures S2 A and B, all negative outcomes (difficult getting by; often feeling rejected; missing having people around; etc) are clustered in quadrants I and II, while the positive outcomes are all clustered in the quadrants III and IV. The centroid plots thus show that the variables separate well groups of objects that are socially excluded (quadrants I and II) from those not socially excluded (quadrants III and IV).

Figure S3. Centroid plots Index3: Quadrants I and II (A); Quadrants III and IV (B).

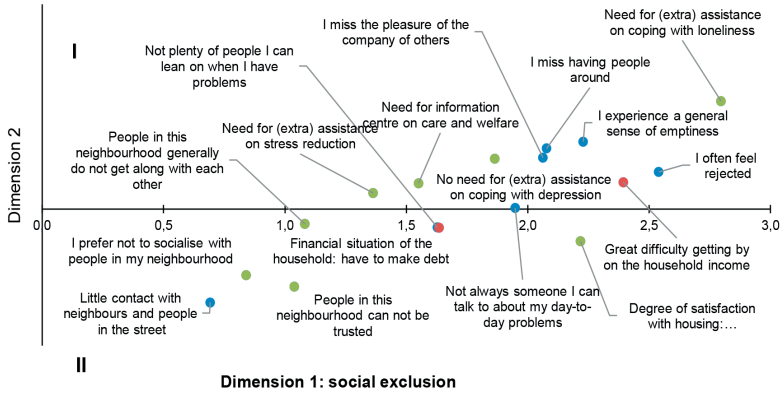


Figure S3A. Centroid plots Index3: Quadrants I and II.

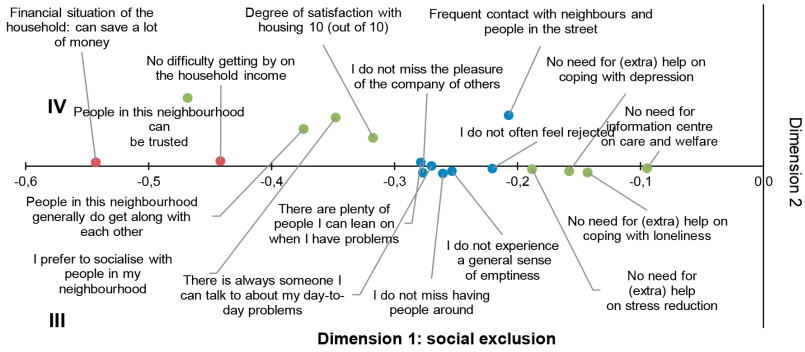


Figure S3B. Centroid plots Index3: Quadrants III and IV.

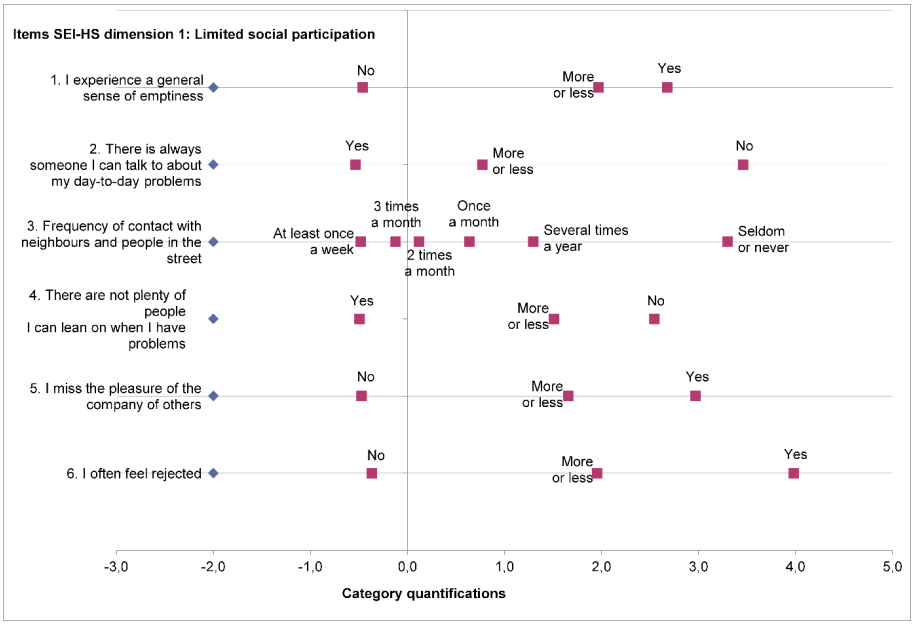
The figures S3 A and B show the centroid plots generated by a two dimensional Overals analysis on the Utrecht dataset. Blue are centroids of variables in the set 'Lack of social participation'; red are centroids of variables in the set 'Material deprivation' and green are centroids of variables in the set 'Limited access to basic social rights'. The scales vary between figures.

Although two dimensions are shown here, only dimension 1 is relevant as it represents the social exclusion domain. Dimension 2 is added for visual mapping of the constructed space. For the sake of clarity, only lowest and highest variable values are displayed.

As shown in Figures S2 A and B, all negative outcomes (difficult getting by; often feeling rejected; limited contact with neighbours; etc) are clustered in quadrants I and II, while the positive outcomes are all clustered in the quadrants III and IV. The centroid plots thus show that the variables separate well groups of objects that are socially excluded (quadrants I and II) from those not socially excluded (quadrants III and IV).

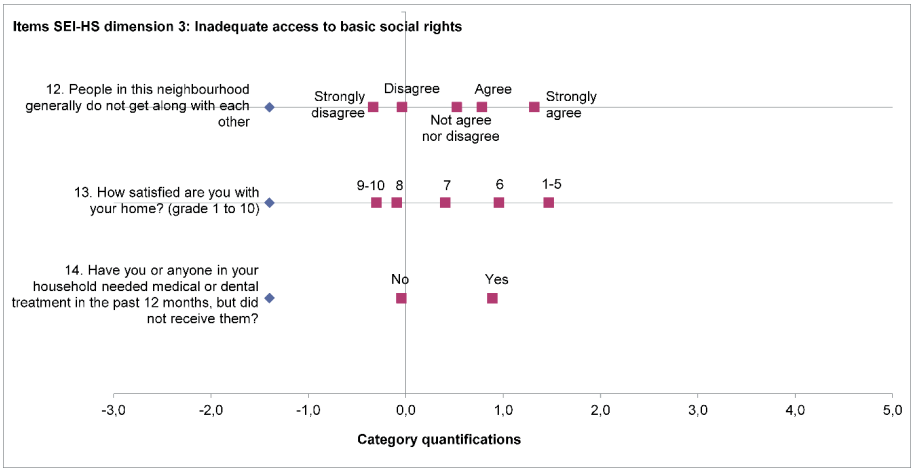
SUPPLEMENTARY MATERIAL CHAPTER 4

Additional file 1. Category quantifications SEI-HS items dimension (limited) Social Participation.



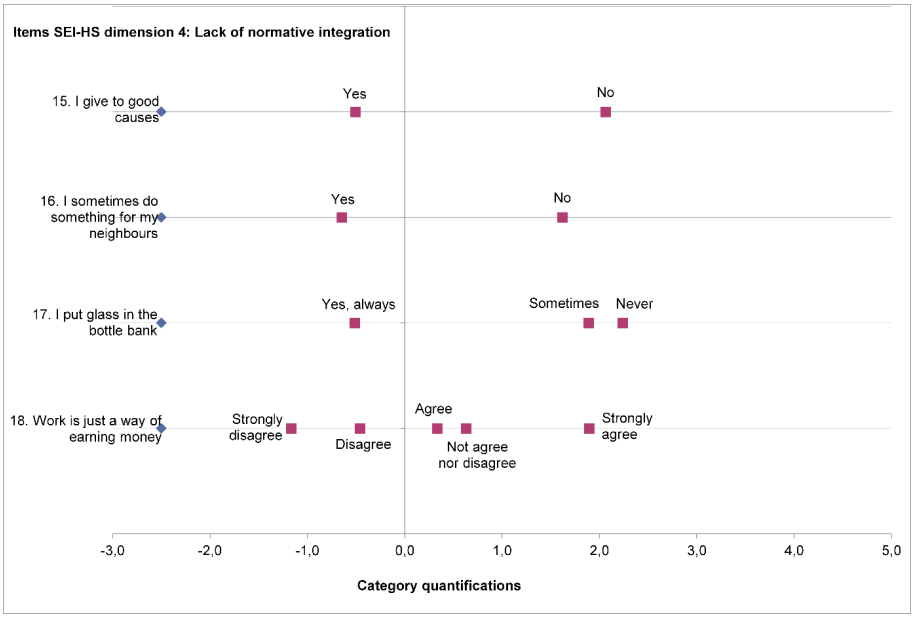
The figure shows for each item of the dimension (limited) Social Participation the relationship between the original category and the quantification resulting from the canonical correlation analysis. Categories indicating little or no social exclusion received the lowest quantifications and categories indicating high levels of social exclusion received the highest values. The category quantifications were used to calculate the Social Participation scale score by multiplying them with their item weights (Table 3); and adding up the results.

Additional file 2. Category quantifications SEI-HS items dimension (inadequate access to basic) Social Rights.



The above figure shows for each item of the dimension (inadequate access to basic) Social Rights the relationship between the original category and the quantification resulting from the canonical correlation analysis. Categories indicating little or no social exclusion received the lowest quantifications and categories indicating high levels of social exclusion received the highest values. The category quantifications were used to calculate the Social Rights scale score by multiplying them with their item weights (Table 3); and adding up the results.

Additional file 3. Category quantifications SEI-HS items dimension (lack of) Normative Integration.



The above figure shows for each item of the dimension (lack of) Normative Integration the relationship between the original category and the quantification resulting from the canonical correlation analysis. Categories indicating little or no social exclusion received the lowest quantifications and categories indicating high levels of social exclusion received the highest values. The category quantifications were used to calculate the Normative Integration scale score by multiplying them with their item weights (Table 3); and adding up the results.

SUPPLEMENTARY MATERIAL CHAPTER 5

S1A Table. Differential item functioning in SEI-HS items with respect to migrant background, Surinamese versus native Dutch. * **

Surinamese versus native Dutch	Total DIF		Uniform DIF				Non-uniform DIF		Type of DIF
	P Value M3 vs M1	Δ R^2 M3-M1	*P* Value M2 vs M1	% difference in $\beta_{11\ (M2-M1)}$	% difference in $\beta_{12\ (M2-M1)}$	Δ R^2 M2-M1	*P* Value M3 vs M2	Δ R^2 M3-M2	***
Dimension 1: Limited social participation									
1. I experience a general sense of emptiness	0.003	0.003	0.003	-1.4%	-0.9%	0.002	0.031	0.001	None
2. There is always someone I can talk to about my day-to-day problems	**0.000**	0.007	**0.000**	-3.1%	-2.2%	0.006	0.050	0.001	Not subst.
3. There are plenty of people I can lean on when I have problems	**0.002**	0.003	**0.000**	-1.9%	-1.5%	0.002	0.573	0.001	Not subst.
4. I miss the pleasure of the company of others	0.016	0.002	0.019	-1.2%	-0.8%	0.001	0.087	0.001	None
5. I often feel rejected	0.065	0.001	0.028	-1.1%	-0.7%	0.001	0.299	0.000	None
6. Little contact with neighbours and people in the street	0.162	0.001	0.412	-0.5%	-0.4%	0.000	0.107	0.001	None
Dimension 2: material deprivation									
7. Had difficulty past year getting by on the household income	**0.000**	0.008	**0.000**	-3.2%	-1.9%	0.004	**0.000**	0.004	Not subst.
8. I have enough money to heat my home	**0.002**	0.006	**0.000**	-4.7%	-0.9%	0.005	0.266	0.001	Not subst.
9. I have enough money for club memberships	**0.000**	0.004	**0.000**	-4.0%	-2.8%	0.005	**0.000**	0.005	Not subst.
10. I have enough money to visit others	0.019	0.002	0.005	-2.1%	-2.0%	0.002	0.375	0.000	None
Dimension 3: inadequate access to basic social rights									
11. People in this neighbourhood generally do not get along with each other	**0.000**	0.010	**0.000**	-2.8%	-2.3%	0.009	0.023	0.001	Not subst.
12. Degree of satisfaction with housing	0.993	0.000	0.971	0.0%	0.0%	0.000	0.955	0.000	None
13. I didn't receive a medical or dental treatment	0.035	0.004	0.025	-2.7%	-2.6%	0.002	0.164	0.002	None

Dimension 4: lack of normative integration									
14. I give to good causes	**0.001**	0.001	0.550	0.3%	0.3%	0.000	**0.000**	0.001	Not subst.
15. I sometimes do something for my neighbours	**0.000**	0.011	**0.000**	-2.5%	-2.2%	0.010	0.172	0.001	Not subst.
16. I put glass items in the bottle bank	**0.000**	0.005	**0.001**	-1.7%	-1.9%	0.002	**0.000**	0.003	Not subst.
17. Work is just a way of earning money	**0.000**	0.009	**0.000**	-3.2%	-7.3%	0.008	0.004	0.001	Not subst.

*Model 1: $Y = \beta_0 + \beta_1 M$; Model 2: $Y = \beta_0 + \beta_1 M + \beta_2 G$; Model 3 : $Y = \beta_0 + \beta_1 M + \beta_2 G + \beta_3 M*G$. Y=item, M=matching variabele=dimensions scale en G=grouping variable=Surinames vs native Dutch.

**Results in bold if the following criteria for DIF were met: P value < 0.002 (Bonferroni corrected) [39], % difference in β > 10% [39], Nagelkerke pseudo R^2 Δ >= 0.035 [40].

***None: P value total DIF >= 0.002; Not substantial: P value total DIF < 0.002 & Δ R^2 (M3-M1) < 0.035.

S1B Table. Differential item functioning in SEI-HS items with respect to migrant background, Moroccan versus native Dutch. * **

Moroccan versus native Dutch	Total DIF		Uniform DIF				Non-uniform DIF		Type of DIF
	P Value M3 vs M1	Δ R^2 M3-M1	*P* Value M2 vs M1	% difference in $\beta_{11\ (M2-M1)}$	% difference in $\beta_{12\ (M2-M1)}$	Δ R^2 M2-M1	*P* Value M3 vs M2	Δ R^2 M3-M2	***
Dimension 1: Limited social participation									
1. I experience a general sense of emptiness	0.009	0.002	0.235	-0.7%	-0.4%	0.000	0.006	0.002	None
2. There is always someone I can talk to about my day-to-day problems	**0.000**	0.005	**0.000**	-2.6%	-1.6%	0.005	0.628	0.000	Not subst.
3. There are plenty of people I can lean on when I have problems	**0.000**	-0.001	**0.000**	-0.5%	-2.2%	-0.002	0.179	0.001	Not subst.
4. I miss the pleasure of the company of others	**0.000**	0.004	**0.000**	-1.8%	-1.0%	0.003	0.030	0.001	Not subst.
5. I often feel rejected	0.445	0.000	0.685	0.2%	0.1%	0.000	0.286	0.000	None
6. Little contact with neighbours and people in the street	0.340	0.001	0.086	1.1%	1.1%	0.001	0.816	0.000	None
Dimension 2: material deprivation									
7. Had difficulty past year getting by on the household income	**0.000**	0.003	0.026	-1.3%	-1.1%	0.001	**0.000**	0.002	Not subst.
8. I have enough money to heat my home	**0.000**	0.024	**0.000**	-7.2%	-8.4%	0.023	0.307	0.001	Not subst.
9. I have enough money for club memberships	**0.000**	0.026	**0.000**	-4.3%	-3.2%	0.021	**0.000**	0.005	Not subst.
10. I have enough money to visit others	1.000	0.000	1.000	0.0%	0.3%	0.000	1.000	0.000	None
Dimension 3: inadequate access to basic social rights									
11. People in this neighbourhood generally do not get along with each other	**0.000**	0.008	0.110	1.4%	0.9%	0.000	**0.000**	0.008	Not subst.
12. Degree of satisfaction with housing	**0.000**	0.011	**0.000**	-3.1%	-2.6%	0.008	**0.000**	0.003	Not subst.
13. I didn't receive a medical or dental treatment	0.346	0.002	0.560	-1.2%	-0.9%	0.000	0.227	0.002	None

Dimension 4: lack of normative integration									
14. I give to good causes	0.695	0.000	0.308	0.4%	0.3%	0.000	0.815	0.000	None
15. I sometimes do something for my neighbours	0.411	0.000	0.404	-0.3%	-0.2%	0.000	0.336	0.000	None
16. I put glass items in the bottle bank	**0.000**	0.017	**0.000**	-2.4%	-2.1%	0.015	0.004	0.002	Not subst.
17. Work is just a way of earning money	**0.000**	0.005	0.078	-0.7%	-0.9%	0.000	**0.000**	0.005	Not subst.

*Model 1: $Y = \beta_0 + \beta_1 M$; Model 2: $Y = \beta_0 + \beta_1 M + \beta_2 G$; Model 3 : $Y = \beta_0 + \beta_1 M + \beta_2 G + \beta_3 M*G$. Y=item, M=matching variabele=dimensions scale en G=grouping variable=Moroccan vs native Dutch.

**Results in bold if the following criteria for DIF were met: P value < 0.002 (Bonferroni corrected) [39], % difference in β > 10% [39], Nagelkerke pseudo R^2 Δ >= 0.035 [40].

***None: P value total DIF >= 0.002; Not substantial: P value total DIF < 0.002 & ΔR^2 (M3-M1) < 0.035.

S1C Table. Differential item functioning in SEI-HS items with respect to migrant background, Turkish versus native Dutch. * **

Turkish versus native Dutch	Total DIF		Uniform DIF				Non-uniform DIF		Type of DIF
	P Value M3 vs M1	Δ R^2 M3-M1	*P* Value M2 vs M1	% difference in $\beta_{11\ (M2-M1)}$	% difference in $\beta_{12\ (M2-M1)}$	Δ R^2 M2-M1	*P* Value M3 vs M2	Δ R^2 M3-M2	***
Dimension 1: Limited social participation									
1. I experience a general sense of emptiness	**0.000**	0.016	**0.000**	-4.2%	-3.1%	0.016	0.079	0.000	Not subst.
2. There is always someone I can talk to about my day-to-day problems	**0.000**	0.004	**0.000**	-3.4%	-2.6%	0.003	0.234	0.001	Not subst.
3. There are plenty of people I can lean on when I have problems	**0.000**	0.009	**0.000**	-4.2%	-3.3%	0.006	**0.001**	0.003	Not subst.
4. I miss the pleasure of the company of others	**0.000**	0.017	**0.000**	-4.4%	-3.4%	0.017	0.583	0.000	Not subst.
5. I often feel rejected	**0.001**	0.003	**0.000**	-2.1%	-1.6%	0.003	0.790	0.000	Not subst.
6. Little contact with neighbours and people in the street	**0.000**	0.003	0.000	4.0%	4.5%	0.003	0.103	0.000	Not subst.
Dimension 2: material deprivation									
7. Had difficulty past year getting by on the household income	**0.000**	0.006	**0.000**	-3.5%	-3.3%	0.006	0.182	0.000	Not subst.
8. I have enough money to heat my home	**0.000**	0.014	**0.000**	-6.1%	-8.0%	0.013	0.274	0.001	Not subst.
9. I have enough money for club memberships	**0.000**	0.021	**0.000**	-4.7%	-4.6%	0.017	**0.000**	0.004	Not subst.
10. I have enough money to visit others	1.000	0.000	1.000	-0.9%	4.6%	0.000	1.000	0.000	None
Dimension 3: inadequate access to basic social rights									
11. People in this neighbourhood generally do not get along with each other	**0.000**	0.003	0.033	-1.5%	-0.9%	0.000	**0.000**	0.003	Not subst.
12. Degree of satisfaction with housing	**0.000**	0.002	0.641	0.2%	0.2%	0.000	**0.000**	0.002	Not subst.

13. I didn't receive a medical or dental treatment	**0.000**	0.030	**0.000**	**-11.9%**	**-10.4%**	0.028	0.058	0.002	Not subst.
Dimension 4: lack of normative integration									
14. I give to good causes	**0.000**	0.007	**0.000**	2.2%	2.6%	0.006	0.087	0.001	Not subst.
15. I sometimes do something for my neighbours	0.183	0.001	0.112	-0.3%	-0.4%	0.001	0.313	0.000	None
16. I put glass items in the bottle bank	**0.000**	0.023	**0.000**	-1.2%	-2.2%	0.020	**0.000**	0.003	Not subst.
17. Work is just a way of earning money	**0.000**	0.014	**0.000**	-1.5%	-4.1%	0.010	**0.000**	0.004	Not subst.

*Model 1: $Y = \beta_0 + \beta_1 M$; Model 2: $Y = \beta_0 + \beta_1 M + \beta_2 G$; Model 3 : $Y = \beta_0 + \beta_1 M + \beta_2 G + \beta_3 M*G$. Y=item, M=matching variabele=dimensions scale en G=grouping variable=Turkish vs native Dutch.

**Results in bold if the following criteria for DIF were met: P value < 0.002 (Bonferroni corrected) [39], % difference in β > 10% [39], Nagelkerke pseudo R2 Δ >= 0.035 [40].

***None: P value total DIF >= 0.002; Not substantial: P value total DIF < 0.002 & ΔR^2 (M3-M1) < 0.035.

S2 Table. Factor loadings items SEI-HS in adults of Surinamese, Moroccan and Turkish origin compared to the reference values in the general Dutch population [#]

	Surinamese		Moroccan		Turkish		Reference
Dimension 1: Limited social participation							
Item 1	*0.773*	*.000*	*0.734*	*.000*	*0.825*	*.000*	0.769
Item 2	*0.497*	*.000*	*0.481*	*.000*	*0.551*	*.000*	0.504
Item 3	*0.561*	*.000*	*0.570*	*.000*	*0.558*	*.000*	0.479
Item 4	*0.780*	*.000*	*0.727*	*.000*	*0.789*	*.000*	0.769
Item 5	*0.770*	*.000*	*0.752*	*.000*	*0.718*	*.000*	0.689
Item 6	*0.151*	*.000*	*0.304*	*.000*	*0.217*	*.000*	0.258
Dimension 2: material deprivation							
Item 7	*0.650*	*.000*	*0.596*	*.000*	*0.628*	*.000*	0.588
Item 8	*0.546*	*.000*	*0.591*	*.000*	*0.594*	*.000*	0.519
Item 9	*0.723*	*.000*	*0.567*	*.000*	*0.603*	*.000*	0.720
Item 10	*0.767*	*.000*	*0.722*	*.000*	*0.680*	*.000*	0.679
Dimension 3: inadequate access to basic social rights							
Item 11	*0.380*	*.000*	*0.384*	*.000*	*0.312*	*.000*	0.435
Item 12	*0.393*	*.000*	*0.440*	*.000*	*0.495*	*.000*	0.436
Item 13	*0.252*	*.000*	*0.262*	*.000*	*0.149*	*.000*	0.233
Dimension 4: lack of normative integration							
Item 14	*0.440*	*.000*	*0.453*	*.000*	*0.487*	*.000*	0.414
Item 15	*0.379*	*.000*	*0.528*	*.000*	*0.578*	*.000*	0.332
Item 16	*0.229*	*.000*	*0.257*	*.000*	*0.241*	*.000*	0.336
Item 17	*0.191*	*.000*	0.097	.052	-0.046	.299	0.298

Confirmatory Factor Analysis in SPSS AMOS

S3 Appendix. Dutch version of the SEI-HS

Dimensie 1: Onvoldoende sociale participatie

Er volgen nu enkele uitspraken. Wilt u van elk van de volgende uitspraken aangeven in hoeverre die op u, zoals u **de laatste tijd** bent, van toepassing is?

Kruis op iedere regel uw antwoord aan *		ja	min of meer	nee
a.	Er is altijd wel iemand in mijn omgeving bij wie ik met mijn dagelijkse probleempjes terecht kan.	☐	☐	☐
b.	Ik ervaar een leegte om mij heen.	☐	☐	☐
c.	Er zijn genoeg mensen op wie ik in geval van narigheid kan terugvallen.	☐	☐	☐
d.	Ik mis gezelligheid om mij heen.	☐	☐	☐
e.	Vaak voel ik me in de steek gelaten.	☐	☐	☐

Hoe vaak hebt u contact met buren of mensen die bij u in de straat wonen?

- □ minstens 1 keer in de week
- □ 3 keer per maand
- □ 2 keer per maand
- □ 1 keer per maand
- □ minder dan 1 keer per maand
- □ zelden of nooit

Dimensie 2: Materiële deprivatie

Heeft uw huishouden meestal voldoende geld om de volgende dingen te doen?

		ja	nee
a.	uw huis goed verwarmen	☐	☐
b.	lidmaatschap van sportclub of vereniging betalen	☐	☐
c.	bij vrienden of familie op visite gaan	☐	☐

Heeft u de **afgelopen 12 maanden** moeite gehad om van het inkomen van uw huishouden rond te komen?

- □ Nee, geen enkele moeite
- □ Nee, geen moeite, maar ik moet wel opletten op mijn uitgaven
- □ Ja, enige moeite
- □ Ja, grote moeite

Dimensie 3: Onvoldoende toegang tot sociale grondrechten & Dimensie 4: Onvoldoende normatieve integratie

Hieronder wordt een aantal stellingen gegeven. Wilt u aangeven in hoeverre u het eens bent met deze stellingen?

Kruis op iedere regel uw antwoord aan.	helemaal eens	beetje eens	niet eens/ niet oneens	beetje oneens	helemaal oneens
a. De mensen in mijn buurt kunnen in het algemeen slecht met elkaar opschieten.	☐	☐	☐	☐	☐
b. Werken is slechts een manier om geld verdienen.	☐	☐	☐	☐	☐

Heeft u of iemand in uw huishouden de **afgelopen 12 maanden** een medische behandeling of tandheelkundige behandeling nodig gehad, maar deze niet ontvangen?

□ ja
□ nee

Wat geldt voor u?

Ik geef geld aan goede doelen
□ ja
□ nee

Ik doe af en toe iets voor de buren
□ ja
□ nee

Ik breng glas naar de glasbak
□ ja, altijd
□ ja, soms
□ nee, nooit

Hoe tevreden bent u met uw woning?

1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Druk dit uit in een rapportcijfer van 1 tot en met 10, 1=zeer ontevreden, 10=zeer tevreden

>>> De vragen mogen verspreid in de vragenlijst geplaatst worden, bij voorkeur in samenhang met vergelijkbare onderwerpen.

SUPPLEMENTARY MATERIAL CHAPTER 6

Table A1. Relative risk (95% CI) and PAF for four dimensions of social exclusion

	*Dimension 1: Limited social participation (9.8%)**		*Dimension 2: Material deprivation (8.9%)**		*Dimension 3: Inadequate access to basic social rights (10.0%)**		*Dimension 4: Lack of normative integration (8.6%)**		*Social Exclusion Index (10.3%)**	
	RR	PAF	RR	PAF	RR	PAF	RR	PAF	RR	PAF
CVD and risk factors										
♦ CVD	2.18 (1.65-2.89)	11.55	**3.01** (2.28-3.99)	18.02	1.28 (0.93-1.75)	2.78	1.47 ((1.11-1.94)	4.00	2.58 (1.95-3.41)	13.93
♦ Diabetes	1.71 (1.46-1.99)	6.88	2.35 (2.05-2.70)	12.10	1.47 (1.26-1.73)	4.74	1.50 (1.28-1.75)	4.28	2.25 (1.96-2.57)	11.33
♦ High blood pressure	1.41 (1.26-1.58)	4.03	1.93 (1.74-2.15)	8.33	1.23 (1.09-1.39)	2.31	1.21 (1.07-1.36)	1.76	1.63 (1.47-1.81)	6.09
♦ Current smoking	1.35 (1.24-1.48)	3.43	1.57 (1.45-1.71)	5.12	1.44 (1.32-1.56)	4.36	1.39 (1.27-1.52)	3.38	1.58 (1.46-1.71)	5.64
♦ Obesity	1.53 (1.36-1.72)	5.13	2.16 (1.94-2.41)	10.39	1.57 (1.39-1.77)	5.67	1.46 (1.29-2.51)	3.97	1.92 (1.72-2.14)	8.60
♦ Inactivity	2.80 (2.46-3.18)	17.52	**3.03** (2.66-3.45)	18.19	2.02 (1.75-2.33)	10.19	2.20 (1.92-2.51)	10.32	**3.29** (1.92-3.70)	18.99
Cancer	1.51 (1.15-1.99)	4.97	1.35 (1.04-1.77)	3.14	*1.13 (0.87-1.46)*	1.28	*1.22 (0.90-1.65)*	1.86	1.31 (1.02-1.69)	3.11
Low self-rated health	2.41 (2.28-2.56)	13.79	2.84 (2.69-3.00)	16.44	2.10 (1.98-2.24)	11.04	1.59 (1.48-1.72)	5.10	2.83 (1.69-2.99)	15.83
Anxiety / depression	**5.38** (4.94-5.86)	42.72	**5.01** (4.59-5.48)	35.89	**3.31** (3.00-3.65)	23.10	2.33 (2.08-2.62)	11.46	**7.95** (7.19-8.78)	41.60
Low personal control	**6.70** (6.05-7.42)	55.62	**5.95** (5.36-6.60)	44.27	**3.81** (3.40-4.27)	28.09	2.77 (2.43-3.16)	15.21	**6.36** (5.87-6.91)	35.49

* Weighted prevalence, population 19 years and older, G4, 2016.

In italic if RR not significant at $\alpha = 0.05$ and **bold** it RR strong, i.e., between 3 and 8 [26].

Table A2. Overlap between social exclusion and four social factors (weighted percentages)

	Low education			*Low household income*			*Low labour market position*			*Non-Western migration background*		
Social exclusion	No	Yes	Total	No	Yes	Total	No	Yes	Total	No	Yes	Total
No	83.3	6.6	89.8	71.0	19.0	90.0	80.6	9.3	89.8	65.2	24.6	89.7
Yes	7.9	2.3	10.2	4.8	5.2	10.0	5.4	4.8	10.2	3.8	6.4	10.3
Total	91.1	8.9	100.0	75.8	24.2	100.0	85.9	14.1	100.0	69.0	31.0	100.0
Proportion SE	8.7	25.7		6.4	21.5		6.2	34.1		5.6	20.7	

Table A3. Relative risks (95% CI) for social factors with and without SE and differential effects [# $]

	RR_{SF+SE+}	RR_{SF+SE-}	$\Delta(RR_{SF+SE+}, RR_{SF+SE-})$
Low education			
CVD risk factors			
♦ Diabetes	**4.93 (4.07-5.97)**	**3.97 (3.49-4.52)**	0.96 .
♦ High blood pressure	2.84 (2.45-3.30)	2.36 (2.13-2.62)	0.48 .
♦ Current smoking	1.35 (1.15-1.59)	*0.93 (0.81-1.06)*	0.42 ↓
♦ Obesity	2.82 (2.37-3.35)	2.62 (2.33-2.94)	0.20 .
♦ Inactivity	**5.07 (4.24-6.07)**	2.62 (2.26-3.04)	2.45 ↓
Cancer	1.89 (1.21-2.98)	1.96 (1.53-2.50)	-0.06 .
Low Self-Rated Health	**4.09 (3.82-4.39)**	2.89 (2.71-3.09)	1.20 ↓
Anxiety/depression symptoms	**10.53 (9.14-12.13)**	2.58 (2.16-3.08)	7.95 ↓
Low personal control	**9.13(8.12-10.27)**	**3.35 (2.91-3.85)**	5.78 ↓
Low household income			
CVD risk factors			
♦ Diabetes	2.56 (2.13-3.08)	1.31 (1.13-1.51)	1.26 ↓
♦ High blood pressure	1.64 (1.42-1.90)	*0.91 (0.82-1.02)*	0.73 ↓
♦ Current smoking	1.80 (1.62-2.01)	1.41 (1.30-1.52)	0.40 ↓
♦ Obesity	2.03 (1.75-2.36)	1.27 (1.13-1.42)	0.76 ↓
♦ Inactivity	**4.43 (3.82-5.14)**	1.52 (1.31-1.76)	2.91 ↓
Cancer	*1.13 (0.77-1.65)*	*0.78 (0,60-1.01)*	0.35 .
Low Self-Rated Health	**3.45 (3.23-3.67)**	1.53 (1.42-1.64)	1.92 ↓
Anxiety/depression symptoms	**10.35 (9.10-11.76)**	1.99 (1.69-2.34)	8.36 ↓
Low personal control	**7.71 (6.95-8.54)**	1.66 (1.45-1.90)	6.05 ↓
Low labour market position			
CVD risk factors			
♦ Diabetes	2.87 (2.37-3.49)	1.99 (1.68-2.35)	0.89 ↓
♦ High blood pressure	2.01 (1.74-2.33)	1.57 (1.39-1.78)	0.44 .
♦ Current smoking	1.92 (1.73-2.12)	1.37 (1.25-1.51)	0.55 ↓
♦ Obesity	2.42 (2.08-2.81)	2.04 (1.80-2.29)	0.38 .
♦ Inactivity	**4.98 (4.29-5.79)**	2.71 (2.33-3.15)	2.28 ↓
Cancer	1.65 (1.13-2.42)	1.52 (1.16-2.01)	0.13 .
Low self-Rated Health	**4.30 (4.06-4.55)**	2.88 (2.70-3.08)	1.42 ↓
Anxiety/depression symptoms	**15.02 (13.29-16.97)**	**5.17 (4.42-6.06)**	9.84 ↓
Low personal control	**10.67 (9.69-11.74)**	**4.10 (3.60-4.66)**	6.57 ↓

Table A3 - continued

	RR_{SF+SE+}	RR_{SF+SE-}	$\Delta(RR_{SF+SE+}, RR_{SF+SE-})$
Non-Western migration background			
CVD risk factors			
♦ Diabetes	**3.21 (2.72-3.80)**	1.99 \(1.76-2.23)	1.23 ↓
♦ High blood pressure	1.67 (1.46-1.91)	*1.03 (0.93-1.13)*	0.64 ↓
♦ Current smoking	1.37 (1.23-1.54)	*0.99 (0.91-1.07)*	0.39 ↓
♦ Obesity	2.30 (1.97-2.65)	1.65 (1.49-1.82)	0.65 ↓
♦ Inactivity	**4.88 (4.21-5.65)**	2.36 (2.09-2.67)	2.52 ↓
Cancer	*0.68 (0.45-1.05)*	0.57 (0.44-0.74)	0.11 .
Low self-Rated Health	**3.44 (3.22-3.67)**	1.70 (1.59-1.82)	1.73 ↓
Anxiety/depression symptoms	**10.95 (9.64-12.44)**	2.16 (1.85-2.52)	8.79 ↓
Low personal control	**7.52 (6.79-8.32)**	1.60 (1.41-1.82)	5.91 ↓

In italic if RR not significant at $\alpha = 0.05$ and **bold** it RR strong i.e. between 3 and 8 [26].

& ↓ RR_{SF+SE-} is significantly lower than RR_{SF+SE+}, i.e., there is no overlap between the 95% CIs.

Gerard

In Amsterdam, op de 10e verdieping van een nieuwbouwflat, woont de 53-jarige Gerard. Gerard werkte ruim dertig jaar als internationaal vrachtwagenchauffeur. Twee jaar geleden is hij vanwege gezondheidsproblemen afgekeurd. Nu zit hij thuis, kijkt tv of speelt spelletjes op de computer, en om een uur of twee of drie rookt hij zijn eerste jointje. Gerard heeft een turbulent leven achter de rug. Op zijn 17e overleefde hij op het nippertje een steekpartij. Sindsdien is hij op zijn hoede en houdt mensen op een afstand. Na een pijnlijke scheiding en een breuk met zijn familie is hij op zichzelf aangewezen. Vrienden heeft hij niet maar mist hij wel. '*Gewoon vrienden hebben, met wie je kan praten, waarmee je kan lachen'*.

De laatste maanden ligt Gerard vaak wakker. Hij heeft schulden en dreigt uit zijn flat gezet te worden. De schulden zijn ontstaan in de periode na zijn scheiding. '*Ik was een beetje de weg kwijt, ben gevlucht in de drank en drugs, cocaïne, LSD,...*' Een eerder schuld-saneringstraject maakte hij niet af. '*Ik voelde me eigen te gecontroleerd. Nu moet ik wel doorzetten want als ik nu niet doorzet word ik uit de flat gezet.*'

Gerards toekomstdromen: schuldenvrij zijn, in zijn mooie flat blijven wonen, wat meer geld om leuke dingen te doen en misschien een nieuwe liefde.

Gebaseerd op interviews voor Sociaal Uitgesloten in de grote stad, van Bergen et al. 2014.