SchouderNetwerken Nederland

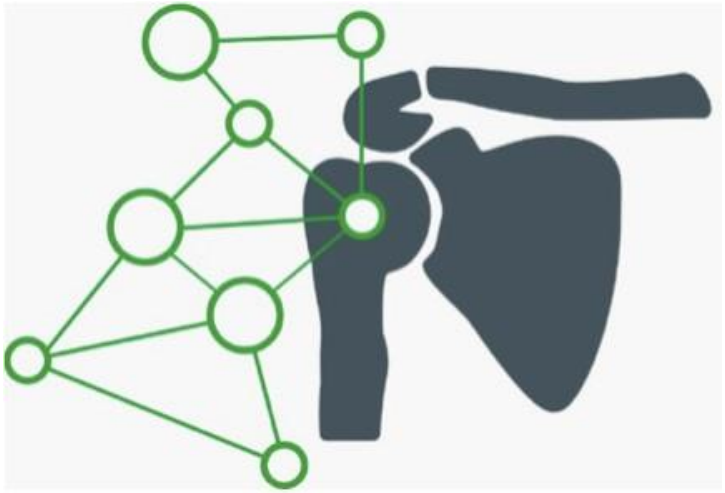
Screening on modifiable prognostic factors with 3S questionnaire

SNN Screening Schouder questionnaire

door Gerard Koel, FT, MSc, MT

SAXION

FYSIO THERAPIE WOLDER STEEN



EUSSER

EUROPEAN SOCIETY FOR SHOULDER AND ELBOW REHABILITATION

Content

1. Motivation for the development of the 3S questionnaire, 3th version
2. Characteristics of the 3S questionnaire
3. 3S as a CDST: Clinical Decision Support tool
4. Three diagnostic studies on the methodological quality of the 3 S list
   - descriptive statistics
   - explanatory statistics
5. Conclusions, questions

1. Motivation

- Do we have a clear explanation for (ongoing) Shoulder Pain (SP)?
- What is the relation between a PT / medical diagnosis and the clinical signs & symptoms?
- Does the BPS model also fits SP patients?
- Is the term ‘psychological’ adequate for SP patients that don’t respond to our treatment?
- Are psychological factors correlated with SP, the cause or consequence, a + or – predictor?
- Do we prefer ‘stepped care’ or ‘stratified care’?

On which way do psychological factors influence shoulder pain?

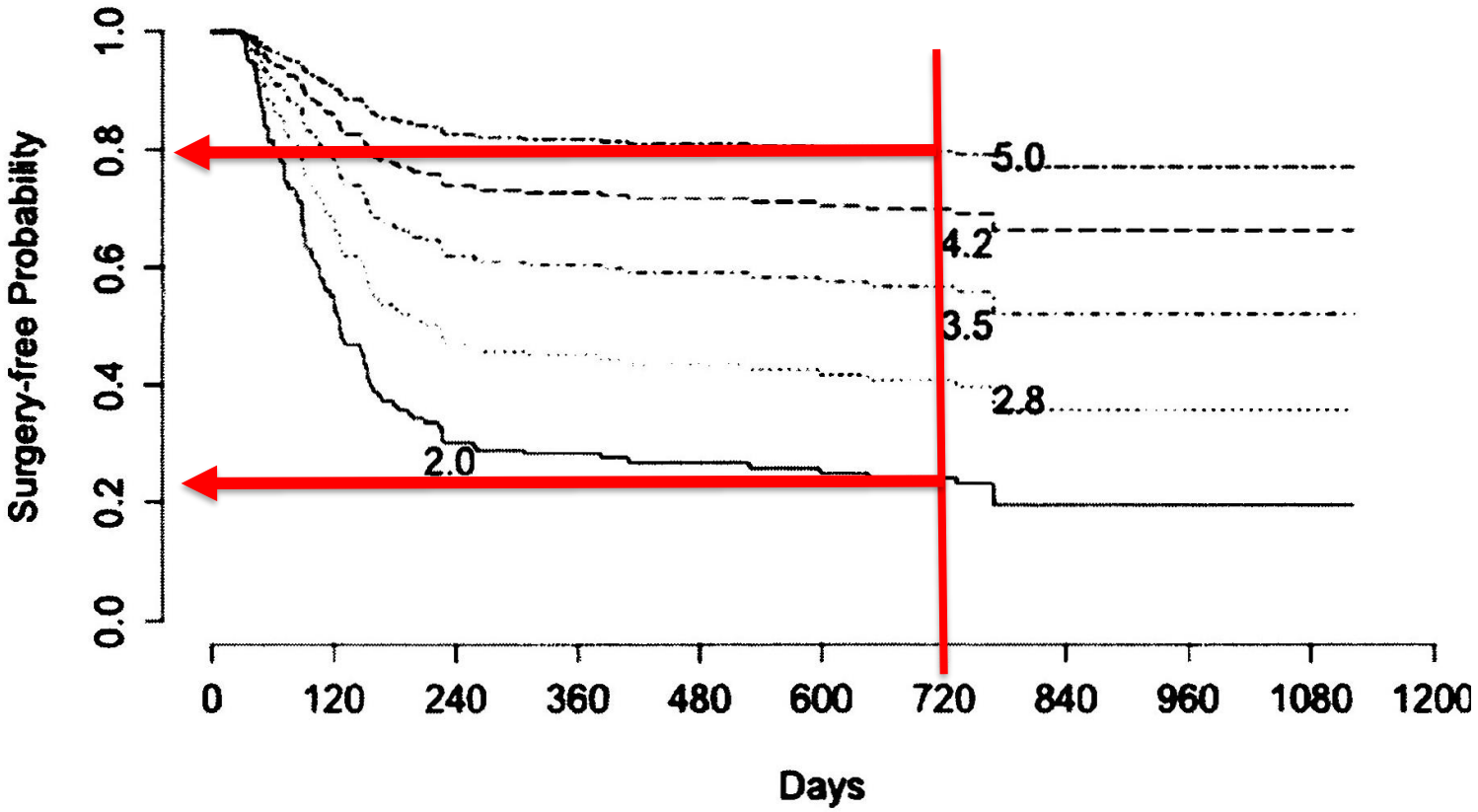
- The SP is the cause for psychological factors / disfunctions; psychological factors as consequence.
- The psychological factors have influence on the perception / interpretation of SP.
- The psychological factors are a cause of SP, it is an etiologic factor.
- The psychological factors influence the transition of (sub)acute SP to ongoing / chronic SP.
- SP (somatic disfunction) & psychological factors are two different disfunctions in one patient.
- The psychological factors have influence up on the treatment effectiveness (predicting factor).

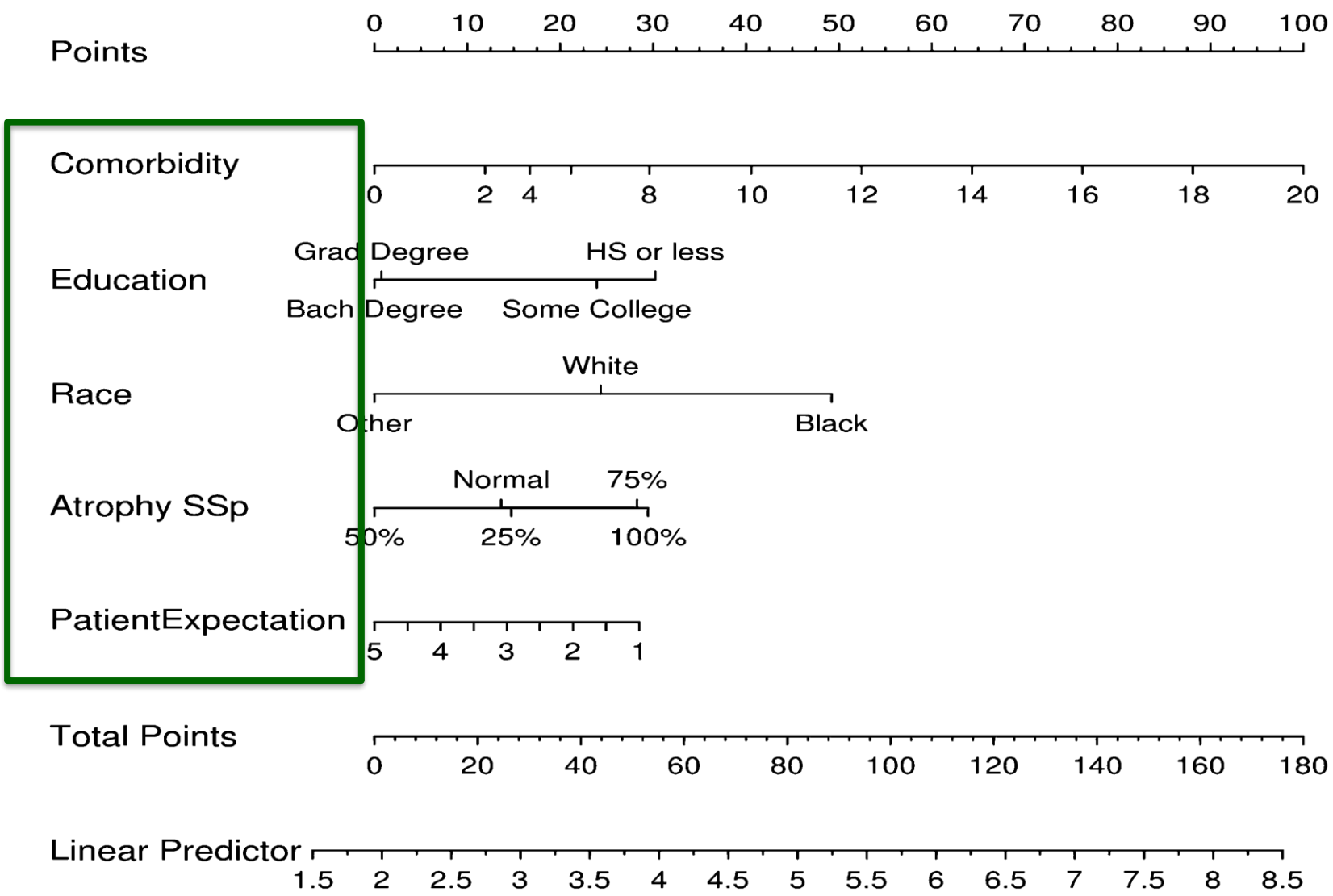
Journal of Shoulder and Elbow Surgery
ELSEVIER Volume 25, Issue 8, August 2016, Pages 1303-1311

Shoulder

2013 Neer Award: predictors of failure of nonoperative treatment of chronic, symptomatic, full-thickness rotator cuff tears

Warren R. Dunn MD, MPH [a], John E. Kuhn MD, MS [b], Rosemary Sanders BA [b], Qi An MS [c], Keith M. Baumgarten MD [d], Julie Y. Bishop MD [e], Robert H. Brophy MD [f], James L. Carey MD, MPH [g], Frank Harrell PhD [c], Brian G. Holloway MD [h], Grant L. Jones MD [e], C. Benjamin Ma MD [i], Robert G. Marx MD, MS [j], Eric C. McCarty MD [k], Sourav K. Poddar MD [k], Matthew V. Smith MD [f], Edwin E. Spencer MD [h], Armando F. Vidal MD [k] ... Rick W. Wright MD [m]

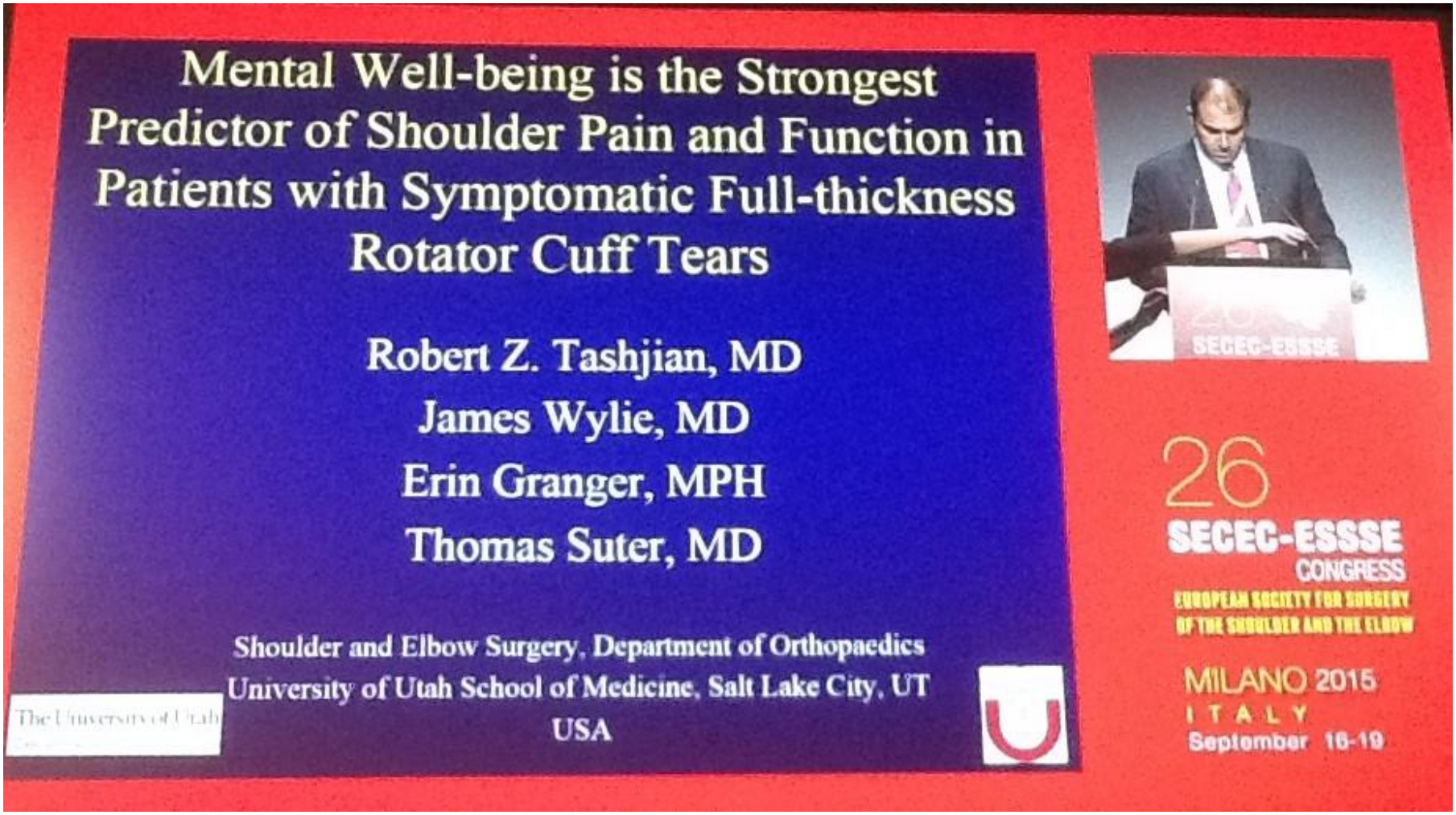




Vijf factoren die samenhangen met het ontstaan van SchouderPijn bij RC letsels.

Dunn WR, Kuhn JE, Sanders R, An Q, Baumgarten KM, Bishop JY, e.a. Symptoms of pain do not correlate with rotator cuff tear severity: a cross-sectional study of 393 patients with a symptomatic atraumatic full-thickness rotator cuff tear. J Bone Joint Surg Am. 21 mei 2014;96(10):793–800.

Tashjian RZ, Farnham JM, Albright FS, Teerlink CC, Cannon-Albright LA. Evidence for an inherited predisposition contributing to the risk for rotator cuff disease. J Bone Joint Surg Am. mei 2009;91(5):1136–42.



J Shoulder Elbow Surg (2017) 26, 752–756

ELSEVIER

JOURNAL OF SHOULDER AND ELBOW SURGERY

www.elsevier.com/locate/ymse

Resilience correlates with outcomes after total shoulder arthroplasty

John M. Tokish, MD[a,*], Michael J. Kissenberth, MD[a], Stefan J. Tolan, MD[a], Tariq I. Salim, BS[b], Josh Tadlock, BS[b], Thomas Kellam, BS[b], Catherine D. Long, BS[c], Ashley Crawford, BS[c], Keith T. Lonergan, MD[a], Richard J. Hawkins, MD[a], Ellen Shanley, PT, PhD, OCA[d]

[RESEARCH REPORT]

ROGELIO A. CORONADO, PT, PhD[1] • COREY B. SIMON, DPT, PhD[2] • TREVOR A. LENTZ, PT[3]
CHARLES W. GAY, DC, PhD[4] • LAUREN N. MACKIE, MS[3] • STEVEN Z. GEORGE, PT, PhD[2,5]

Optimism Moderates the Influence of Pain Catastrophizing on Shoulder Pain Outcome: A Longitudinal Analysis

Psychological symptoms and clinical outcome after shoulder surgery

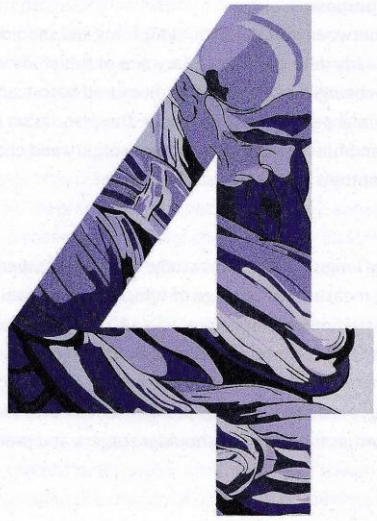
Rinco Koorevaar

CHAPTER

The influence of preoperative and postoperative psychological symptoms on clinical outcome after shoulder surgery: a prospective longitudinal cohort study

Rinco CT Koorevaar, Esther van 't Riet,
Marleen JJ Gerritsen, Kim Madden, Sjoerd K Bulstra

CHAPTER



Do psychological symptoms change after shoulder surgery? A prospective longitudinal cohort study

Rinco CT Koorevaar, Esther van 't Riet, Ellie BM Landman
Marleen JJ Gerritsen, Kim Madden, Sjoerd K Bulstra

- Rather complex and difficult to predict;
  interaction / interdependent / combined !!

Original Article

CLINICAL REHABILITATION

Clinical Rehabilitation
1–12

DOI: 10.1177/0269215519831056
journals.sagepub.com/home/cre
SAGE

The influence of cognitions, emotions and behavioral factors on treatment outcomes in musculoskeletal shoulder pain: a systematic review

Liesbet De Baets[1], Thomas Matheve[1], Mira Meeus[2,3,4], Filip Struyf[2] and Annick Timmermans[1]

Abstract

Objective: To examine the predictive, moderating and mediating role of cognitive, emotional and behavioral factors on pain and disability following shoulder treatment.

Data sources: Electronic databases (PubMed, Web of Science, Embase and PsycINFO) were searched until 14 January 2019.

BMJ Open

The role of psychological factors in the perpetuation of pain intensity and disability in people with chronic shoulder pain: a systematic review

Javier Martinez-Calderon,[1,2] Mira Meeus,[2,3,4] Filip Struyf,[2] Jose Miguel Morales-Asencio,[5] Gabriel Gijon-Nogueron,[6] Alejandro Luque-Suarez[1]

To cite: Martinez-Calderon J, Meeus M, Struyf F, *et al*. The role of psychological factors in the perpetuation of pain intensity and disability in people with chronic shoulder pain: a systematic review. *BMJ Open* 2018;**8**:e020703. doi:10.1136/bmjopen-2017-020703

► Prepublication history and additional material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2017-020703).

Received 21 November 2017
Revised 13 March 2018
Accepted 15 March 2018

ABSTRACT

Introduction Chronic shoulder pain is a very complex syndrome, and the mechanisms involved in its perpetuation remain unclear. Psychological factors appear to play a role in the perpetuation of symptoms in people with shoulder chronicity. The purpose of this systematic review is to examine the role of psychological factors in the perpetuation of symptoms (pain intensity and disability) in people with chronic shoulder pain.

Methods and analysis A systematic search was performed on PubMed, AMED, CINAHL, PubPsych and EMBASE from inception to July 2017. Longitudinal studies with quantitative designs analysing the role of psychological factors on pain intensity, disability or both were included. The methodological quality of the included studies was evaluated with an adapted version of the Newcastle Ottawa Scale. The level of evidence per outcome was examined using the Grading of Recommendations Assessment, Development and

Strengths and limitations of this study

- The use of a prespecified protocol registered on the International Prospective Register of Systematic Reviews, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist, the Grading of Recommendations Assessment, Development and Evaluation approach to evaluate the overall quality and the strength of the evidence, and the adapted Newcastle Ottawa Scale to determine the risk of bias in each study.
- It is possible that some studies were not identified even though both a comprehensive and a robust search strategy were carried out.
- Reported bias was found in several included studies.
- The quality of the evidence was very low.
- The results of the present study are not robust, and conclusions should be interpreted with caution.

BJSM Online First, published on July 21, 2016 as 10.1136/bjsports-2016-096084

OPEN ACCESS

Psychological factors are associated with the outcome of physiotherapy for people with shoulder pain: a multicentre longitudinal cohort study

Rachel Chester,[1,2] Christina Jerosch-Herold,[1] Jeremy Lewis,[3] Lee Shepstone[4]

▸ Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bjsports-2016-096084).

[1]Faculty of Medicine and Health Sciences, School of Health Sciences, University of East Anglia, Norwich, Norfolk, UK
[2]Physiotherapy Department, Norfolk and Norwich University

ABSTRACT

Background/aim Shoulder pain is a major musculoskeletal problem. We aimed to identify which baseline patient and clinical characteristics are associated with a better outcome, 6 weeks and 6 months after starting a course of physiotherapy for shoulder pain.

Methods 1030 patients aged ≥18 years referred to physiotherapy for the management of musculoskeletal shoulder pain were recruited and provided baseline data. 840 (82%) provided outcome data at 6 weeks and 811

clinical and psychosocial factors are associated with better or worse outcomes.

Prognostic factors associated with the outcome of physiotherapy for shoulder pain are unclear, and currently cannot support clinical decision-making.[8] Our previous review highlighted the need for an adequately sized study to investigate a wider range of biopsychosocial variables as potential prognostic factors. This is needed as the optimal treatment for shoulder pain remains unclear.[9]

Psychological factors are associated with the outcome of physiotherapy for people with shoulder pain: a multicentre longitudinal cohort study

Rachel Chester,[1,2] Christina Jerosch-Herold,[1] Jeremy Lewis,[3] Lee Shepstone[4]

What are the findings?

- Higher patient expectation of recovery as a result of physiotherapy, higher pain self-efficacy, lower pain severity at rest, and for patients not retired, being in employment or education were associated with a better outcome.
- Clinical examination findings suggestive of a structural diagnosis were inconsistently associated with outcome.
- Physiotherapists' predictions of how well a patient will respond to treatment cannot be relied on. A more formalised approach is required.
- Psychosocial in addition to biomedical information should be formally assessed and feed into decision-making about management options.

How might it impact on clinical practice in the near future?

- Physicians referring patients to physiotherapy should reinforce a positive expectation of recovery as a result of physiotherapy treatment.
- Psychological factors, such as patient expectation and pain self-efficacy should be formally assessed using standardised measures.
- Patients with resting pain and/or pain arising from other comorbidities may be provided and guided on appropriate pain medication or other pain-relieving treatments prior to or at the same time as referral to physiotherapy.
- A multidisciplinary approach should be considered for patients with more extreme psychological responses associated with a poorer outcome, resting shoulder pain not responding to medication provided by their physician, and patients not currently employed or in education but of working age.

Sources / causal factors for (ongoing) SP.

Psychosocial Factors

Referred Pain

- Cervical
- Thoracic
- Abdomen

Peripheral Sensitization

Central Sensitization

Stiff Shoulder

- Frozen Shoulder
- Osteoarthritis
- Locked dislocation
- Osteosarcoma

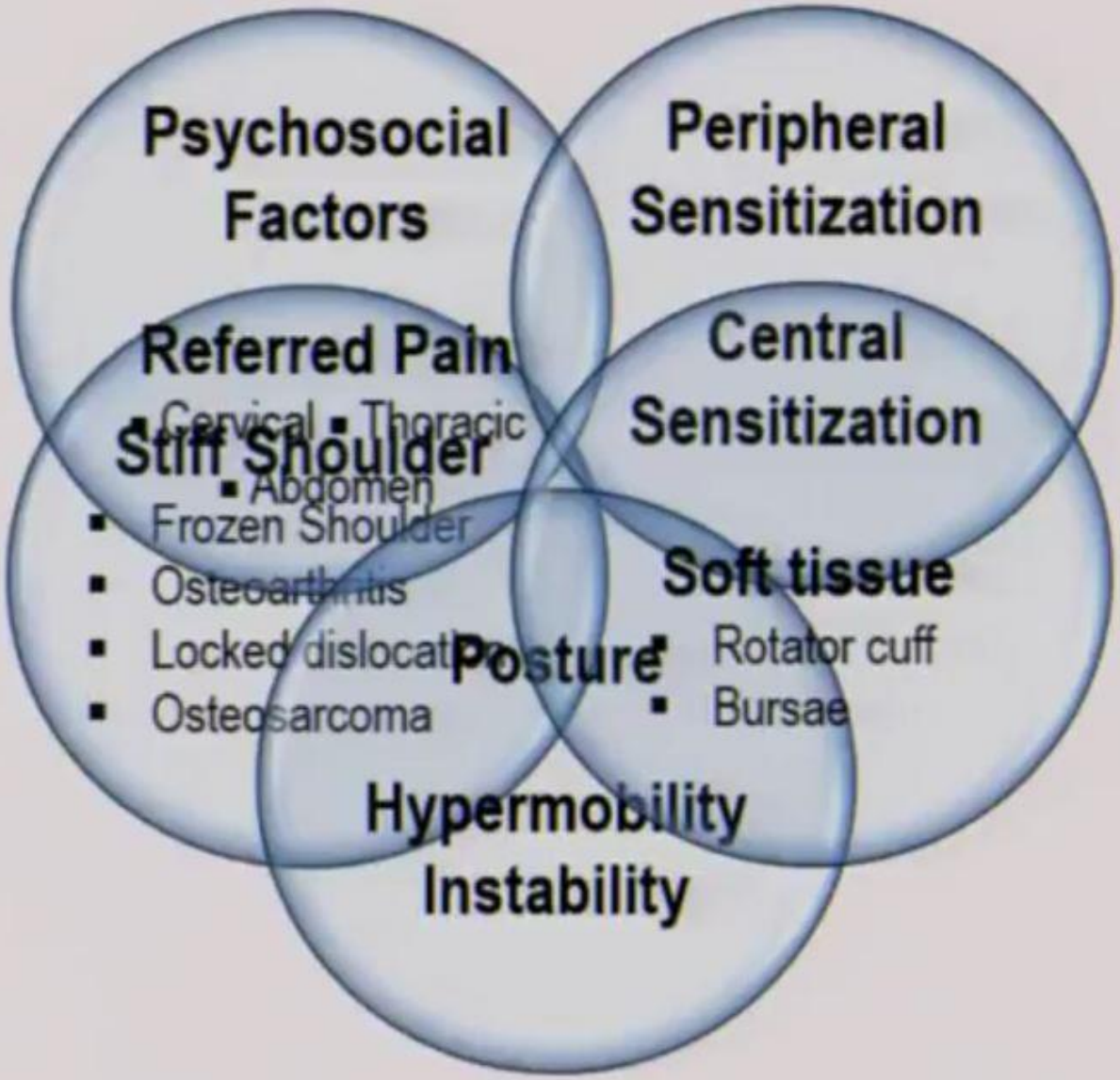
Posture

Hypermobility Instability

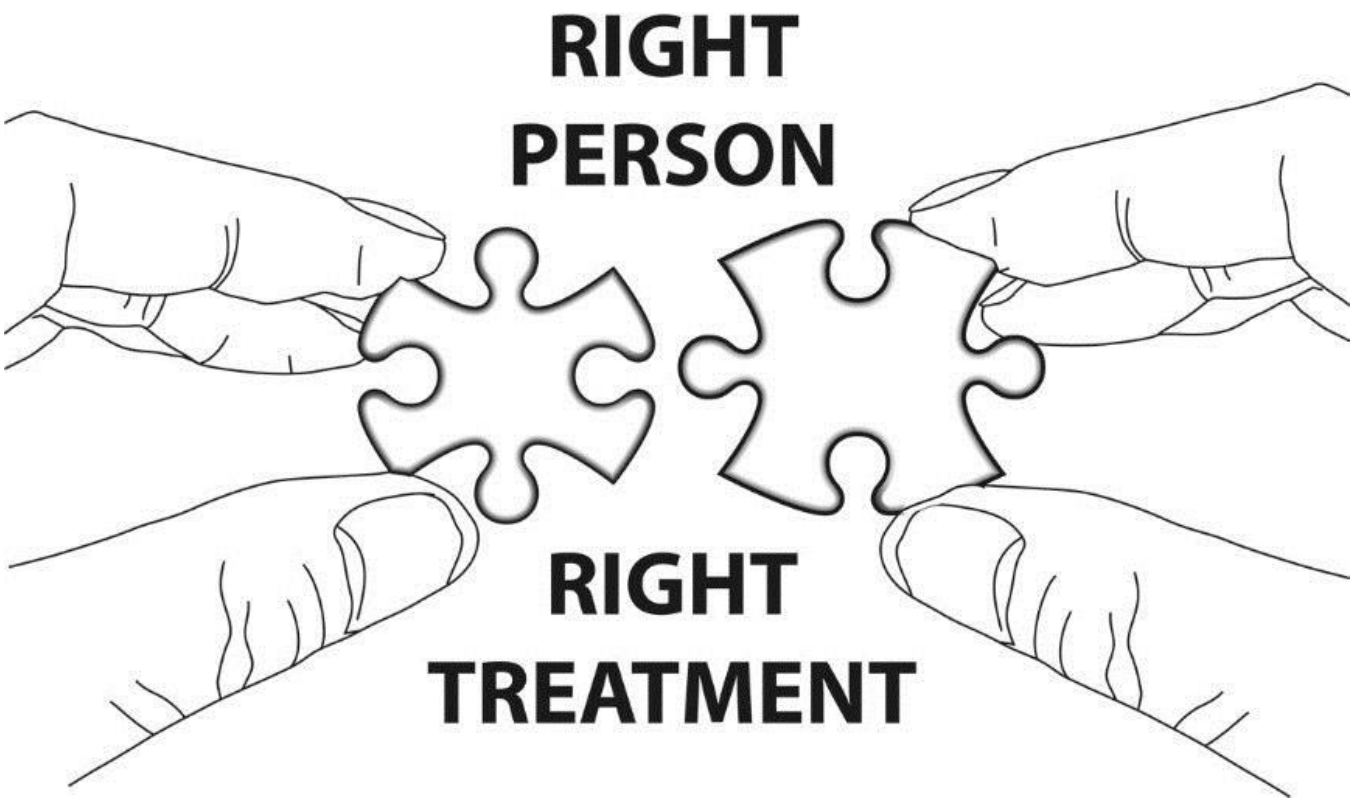
Soft tissue

- Rotator cuff
- Bursae

Sources / causal factors for (ongoing) SP : IN DE PRAKTIJK ELKAAR NIET UITSLUITEND.



Multimodal analysis: the PT as Sherlock Holmes !!



In SP patients PT's have to realise a multimodal analysis, collaborate with patients (SDM) and apply a multimodal treatment plan.

2. Characteristics 3S list

- Not time consuming (couple of minutes)
- Covers relevant prognostic factors
- Covers modifiable prognostic factors
- Simple / clear for SP patients to score
- Easy for PT's to score / evaluate
- Satisfying / sufficient methodological quality
- Supports the PT in the clinical reasoning process (CDST)

2. Versions of 3S list

- 2016: First version
- 2018: A number af adjustments
- December 2019: Third version

SchouderNetwerken Nederland

De SNN Schouder Screening vragenlijst (3S vragenlijst)

Auteurs: Gerard Koel, Karin Hekman, Paul van der Tas.
De 3S vragenlijst wordt gebruikt om patiënten met schouderpijn die in de eerste lijn worden behandeld, te screenen op verschillende factoren die de mate van schouderpijn bepalen.
Op die wijze wordt de analyse naar oorzaken voor de schouderpijn ondersteund om te komen tot een passend behandelplan.

Naam: Rick H Datum: 20-02-2018

Lees alstublieft de stelling en kruis het vakje aan dat het best past bij uw huidige schouderpijn. Per stelling kiest u één vakje. Het is de bedoeling dat u bij het invullen van de lijst rekening houdt met uw schouderpijn in de **laatste twee weken** (of als u korter dan 2 weken last heeft, sinds het begin van uw schouderpijn).

		Eens	Oneens
1	Ondanks mijn schouderpijn, slaap ik 's nachts normaal. Mijn slaap wordt niet negatief beïnvloed door mijn SP.	☐	☒
2	Naast pijn rond de schouder en in de bovenarm, heb ik de laatste 2 weken ook uitstralende pijn of tintelingen in mijn onderarm.	☐	☒
3	Ondanks mijn schouderpijn kan ik onderhands, met twee handen, best een gewicht van ongeveer 10 kilo (kratje bier) optillen.	☒	☐
4	Naast pijn aan mijn aangedane zijde, heb ik de laatste 2 weken ook pijn tussen de schouderbladen en aan de andere schouder.	☒	☐
5	Ondanks mijn schouderpijn kan ik met mijn 'aangedane' arm op normale wijze een deur open en dicht doen.	☒	☐
6	Ik merk dat ik vanwege mijn schouderpijn vaker somber ben en minder van mijn leven geniet dan normaal.	☐	☒
7	Ik ervaar mijn huidige schouderpijn als erg vervelend maar heb er vertrouwen in dat, met fysiotherapie, die pijn sterk gaat afnemen.	☐	☒
8	Vanwege mijn schouderpijn is het af te raden om mijn 'aangedane' arm actief te gebruiken.	☒	☐
9	Als het nodig is om oefeningen voor pijnlijke schouder uit te voeren, ben ik in staat dat programma uit te voeren.	☒	☐

10 Over het geheel genomen, hoe hinderlijk was uw schouderpijn de laatste 2 weken?

In het geheel niet hinderlijk	*Een beetje hinderlijk*	*Matig hinderlijk*	*Erg hinderlijk*	*Extreem hinderlijk*
☐	☐	☐	☒	☐

3S totaal score:	Opvallende sub-score(s):
Beleid:	

3. 3S list as CDST

- An instrument that helps the professional to take clinical decisions on a logical and strategic way.
- An instrument that improves the systematic approach of complex situations.
- Helps to screen / evaluate / quantify actual ‘signs & symptoms’ with recommendations for PT evaluation and / or PT treatment.
- Can be applied with computers / software.

Wat is een CDST ??

- Een instrument (bijvoorbeeld SNN KR model) dat de professional helpt bij het nemen van klinische beslissingen.
- Poogt vanuit actuele patiënt karakteristieken (‘signs & symptoms) gerichte aanbevelingen te doen betreffende diagnostiek en behandeling.
- Gaat vaak gepaard met technologie en computers / software.

3S statement 1

Despite my actual Shoulder Pain (SP) I sleep normally. My sleep function is not negatively influenced by the SP.
Construct:
Consequences following PT evaluation:

3S statement 1

Despite my actual Shoulder Pain (SP) I sleep normally. My sleep function is not negatively influenced by the SP.
Construct: - Sleeping disturbances in case of distress - Sleeping disturbances in case of inflammation
Consequences following PT evaluation / treatment:

3S statement 1

Despite my actual Shoulder Pain (SP) I sleep normally. My sleep function is not negatively influenced by the SP.
Construct: - Sleeping disturbances in case of distress - Sleeping disturbances in case of distress
Consequences following PT evaluation / treatment: Moment of disturbances (start or wake up after 3-4 hours) Night pain as quantification for load / rehab

3S statement 2

Besides pain round the shoulder and in the upper arm, last two weeks I noticed referred pain or pins and needles in my lower arm.
Construct:
Consequences following PT evaluation / treatment:

3S statement 2

Besides pain round the shoulder and in the upper arm, last two weeks I noticed referred pain or pins and needles in my lower arm.
Construct: more pain reference >> segmental sensitisation C5 – C6 (without neurological signs / symptoms)
Consequences following PT evaluation:

3S statement 2

Besides pain round the shoulder and in the upper arm, last two weeks I noticed referred pain or pins and needles in my lower arm.
Construct: more pain reference >> segmental sensitisation C5 – C6 (without neurological signs / symptoms)
Consequences following PT evaluation / treatment: active MTP's ?? Secundary hyperagesia ?? apply segmental de-sensitisation as therapy

3S statement 3

Despite my SP, I‘m able to lift, with both hands, a weight of 10 kilos / 20 pounds at hip height (crate of beer) with both hands.
Construct:
Consequences following PT evaluation:

3S statement 3

Despite my SP, I‘m able to lift, with both hands, a weight of 10 kilos / 20 pounds at hip height (crate of beer) with both hands.
Construct: self- perception about an activity that, for 90% of SP patients, should be able to perform; self-efficacy Can be even a bit catastrofying
Consequences following PT evaluation / treament:

3S statement 3

Despite my SP, I‘m able to lift, with both hands, a weight of 10 kilos / 20 pounds at hip height (crate of beer) with both hands.
Construct: self- perception about an activity that, for 90% of SP patients, should be able to perform; self-efficacy Can be even a bit catastrofying
Consequences following PT evaluation / treatment: Use TAMPA (shoulder version, 11 items) / FABQ Gradual exposure / functional rehab

3S statement 4

Beside pain on the affected side, last 2 weeks I also notice pain between my shoulder blades and in the other shoulder.
Construct:
Consequences following PT evaluation:

3S statement 4

Beside pain on the affected side, last 2 weeks I also notice pain between my shoulder blades and in the other shoulder.
Construct: More widespread pain; can be disproportional Can lead to hypothesis Central Sensitisation *Also + score on statement 1?*
Consequences following PT evaluation:

3S statement 4

Beside pain on the affected side, last 2 weeks I also notice pain between my shoulder blades and in the other shoulder.
Construct: More widespread pain; can be disproportional Can lead to hypothesis Central Sensitisation Also + score on statement 1?
Consequences following PT evaluation /treatment: Use the CSI (with cut off point) Improve self confidence of patients, apply NPE (pain education)

3S statement 5

My actual SP episode is really annoying, but I'm confident that, with physical therapy, the pain will diminish strongly.
Construct:
Consequences following PT evaluation:

3S statement 5

My actual SP episode is really annoying, but I'm confident that, with physical therapy, the pain will diminish strongly.
Construct: Patient expectations Not positive enough (mental and or cognitive)
Consequences following PT evaluation:

3S statement 5

My actual SP episode is really annoying, but I'm confident that, with physical therapy, the pain will diminish strongly.
Construct: Patient expectations Not positive enough (mental and or cognitive)
Consequences following PT evaluation / treatment: Thinking in poblems in stead of solutions Give the SP patients + perceptions during / after therapy

3S statement 6

I notice that because of my SP I’m more often gloomy and that I do not enjoy the things I used to enjoy.
Construct:
Consequences following PT evaluation:

3S statement 6

I notice that because of my SP I'm more often gloomy and that I do not enjoy the things I used to enjoy.
Construct: Slightly depressed / seriously depressed? Consequence of MSK problems?
Consequences following PT evaluation:

3S statement 6

I notice that because of my SP I'm more often gloomy and that I do not enjoy the things I used to enjoy.
Construct: Slightly depressed / seriously depressed? Consequence of MSK problems?
Consequences following PT evaluation / treatment: Extra questionnaires (4 DKL, HADS)

3S statement 7

A SP episode can take long with varying pain and restrictions. In difficult times I have enough resilience to come through such times with little trouble.
Construct:
Consequences following PT evaluation:

3S statement 7

A SP episode can take long with varying pain and restrictions. In difficult times I have enough resilience to come through such times with little trouble.
Construct: Resilience Internal locus of control Self - efficacy
Consequences following PT evaluation:

3S statement 7

A SP episode can take long with varying pain and restrictions. In difficult times I have enough resilience to come through such times with little trouble.
Construct: Resilience Internal locus of control Self-efficacy
Consequences following PT evaluation / treatment: BRS (Brief Resilience Scale), PSEQ Improve self-confidence >> communication during exc. Gradual exposure

3S statement 8

Because of my SP it’s not really safe for me to perform physical activities with my affected shoulder.
Construct:
Consequences following PT evaluation:

3S statement 8

Because of my SP it’s not really safe for me to perform physical activities with my affected shoulder.
Construct: Fear for movement Catastrofying
Consequences following PT evaluation:

3S statement 8

Because of my SP it’s not really safe for me to perform physical activities with my affected shoulder.
Construct: Fear for movement Catastrofying
Consequences following PT evaluation / treatment: TAMPA (11 items, shoulder), FABQ Pain education / gradual exposure / Reconceptualising of fearful movement

3S statement 9

If necessary to perform an exercise or rehab program for my SP at home, I'm able to carry those exercises out.
Construct:
Consequences following PT evaluation:

3S statement 9

If necessary to perform an exercise or rehab program for my SP at home, I'm able to carry those exercises out.
Construct: Compliance Adequate behaviour Self-management
Consequences following PT evaluation:

3S statement 9

If necessary to perform an exercise or rehab program for my SP at home, I'm able to carry those exercises out.
Construct: Compliance Adequate behaviour Self-management
Consequences following PT evaluation / treatment: Graded activity Increase the load

3S statement 10

Overall, how bothersome has your SP been in the last two weeks? *1 point if: 'very much' or 'extremely' are listed.*
Construct:
Consequences following PT evaluation:

3S statement 10

Overall, how bothersome has your SP been in the last two weeks? *1 point if: 'very much' or 'extremely' are listed.*
Construct: Perceived discomfort Stable / instable, loadable / not-loadable
Consequences following PT evaluation:

3S statement 10

Overall, how bothersome has your SP been in the last two weeks? *1 point if: 'very much' or 'extremely' are listed.*
Construct: Perceived discomfort Stable / instable, loadable / not-loadable
Consequences following PT evaluation / treatment: See scores on items 4, 8 and 9 Improve confidence Functional training

4. Three studies 3S list

1. SNN 3S vragenlijst project (n= 305)
   SNN members asked their SP patients to participate in this longitudinal study
2. 'Validity study' compare 3S with SF12 (n= 45)
   NCOI study bachelor thesis (Redmar van Haaster)
3. Reliability study 3S vragenlijst
   MMS master thesis (Elaine Reitsema) Saxion hogeschool Enschede (n= 50)

Het 3S vragenlijst project.

- Een longitudinale SNN studie (3 – 12 weken)
  1e meting- Sociodemografisch / SPADI / 3S / SF 12
  2e meting- GPE (6pt.Likert scale) / SPADI / 3S / oordeel FT

- Excel spreadsheet / achtergrond informatie / informed consent op:
  http://schoudernetwerk.nl/page/snn-kr-model-3s

- 3S vragenlijst is een (vermoedelijk) relevant onderdeel in het KR proces van SN FT'en.

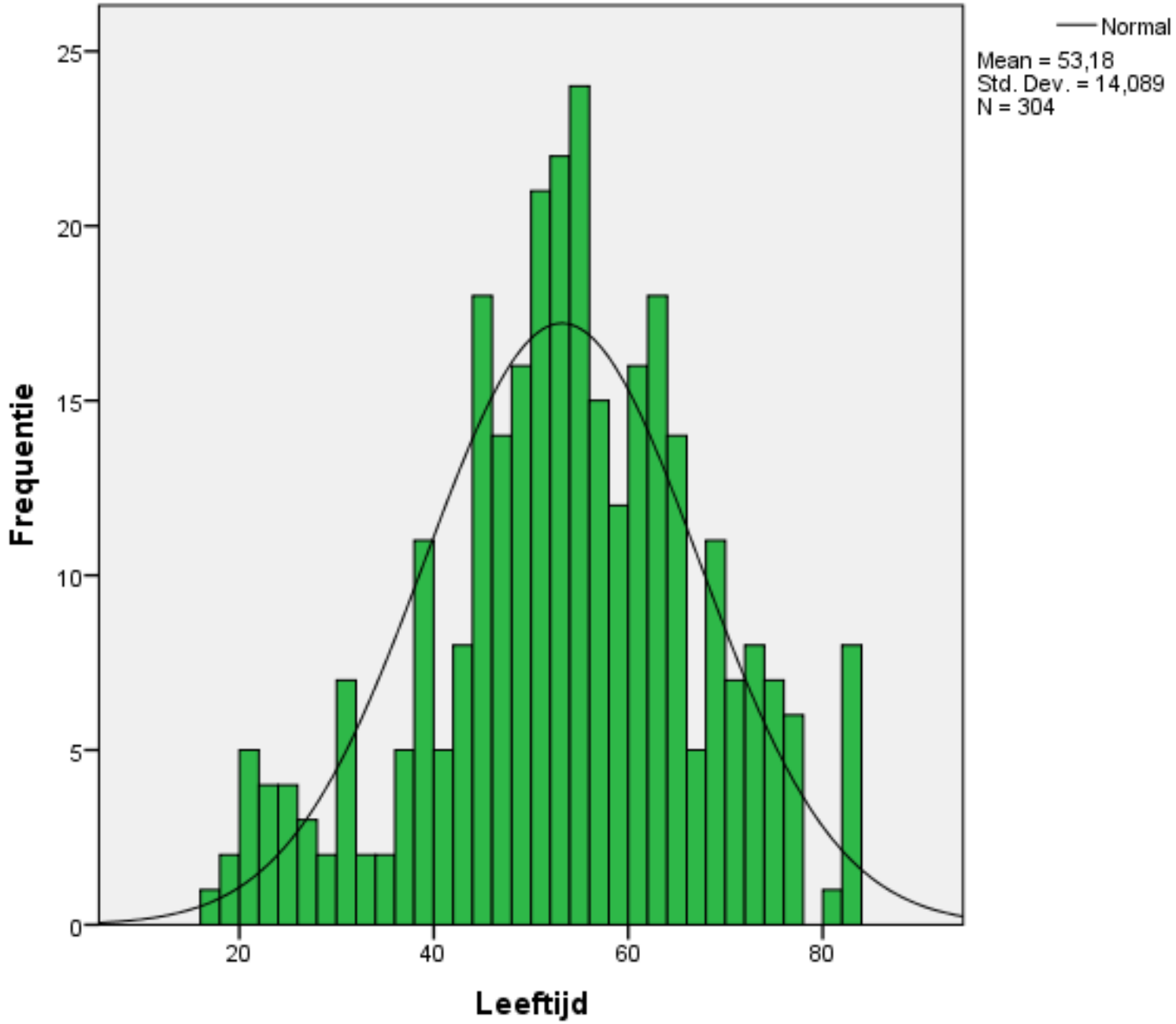
*3SonderzoekSNN.2017.sav [DataSet1] - IBM SPSS Statistics Data Editor

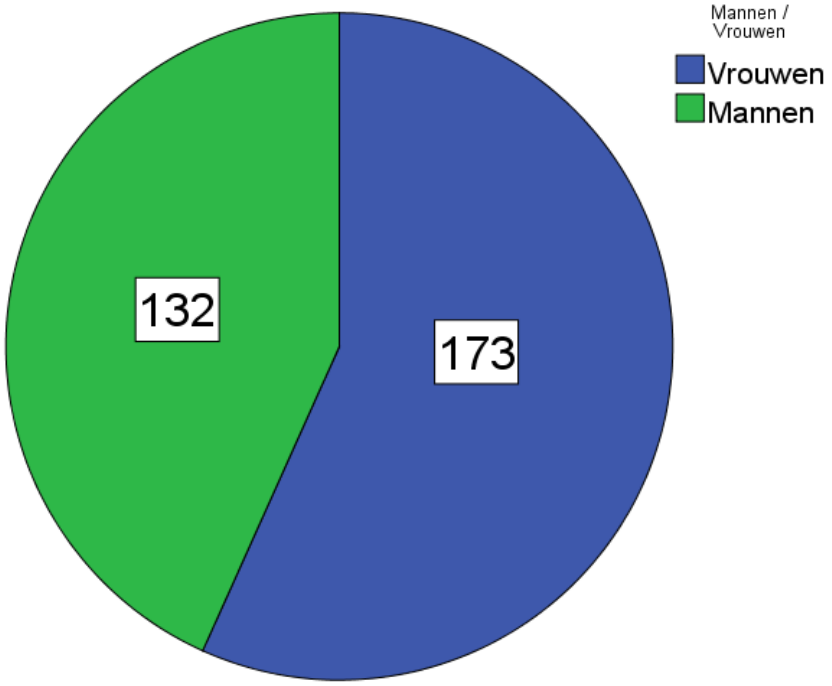
File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Extensions Window Help

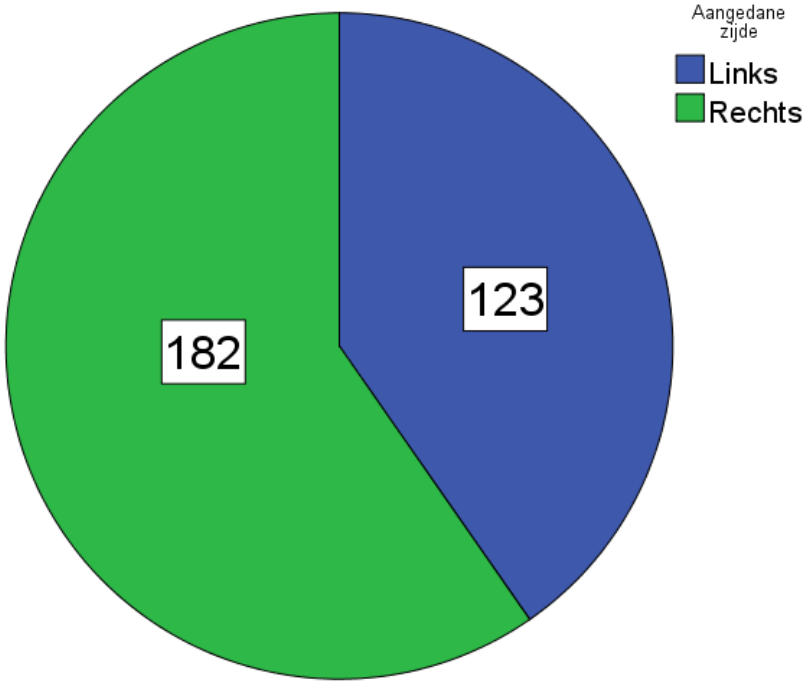
	GPEpatient	SpadiPijn2	SpadiBep2	SpadiTot2	DrieStotaal2	DrieSPsych2	DrieSklasse2	GPELikertPT	Container	BehDuur	AantalBeh	BiologSubstraat	BioDeelsPs	BiolPsychgelijk	Psychubstra
271	3	44	21	33	6	3	0	3	1	3	2	0	1	0	0
272	3	20	36	28	7	2	0	2	1	3	2	0	1	0	0
273	3	78	90	84	2	1	0	3	1	1	1	1	0	0	0
274	3	44	48	46	0	0					1	999	999	999	999
275	3	26	25	26	5							0	1	0	0
276	3	44	58	51								0	1	0	0
277	3	82	91	87									0	0	0
278	3	64	74										0	0	0
279	3	66	55											1	0
280	3	92	100											0	0
281	3	74	90											0	0
282	3	60	70											0	0
283	3	60	84											0	0
284	3	30	79											0	0
285	3	74	93											0	0
286	4	86	79										0	0	0
287	4	36	40										1	0	0
288	4	28	40	34									1	0	0
289	4	60	73	66								1	0	0	0
290	4	46	65	56	1	0					2	1	0	0	0
291	4	20	31	26	6	4	0	3	1	4	3	1	0	0	0
292	4	24	35	30	8	4	0	4	5	5	3	0	1	0	0
293	4	74	80	77	4	1	2	4	5	3	3	0	1	1	1
294	4	46	43	44	5	2	2	4	5	5	4	0	0	1	1
295	4	0	6	3	6	3	0	4	1	2	1	1	0	0	1
296	4	72	81	77	4	2	0	4	1	1	1	1	0	0	0
297	4	4	19	11	7	2	0	4	1	2	2	0	1	0	0
298	5	6	8	7	5	1	0	5	1	1	2	1	1	0	0
299	5	36	40	38	6	3	0	5	1	3	2	0	0	1	0
300	5	6	8	7	5	1	0	5	1	1	2	1	1	0	0
301	5	18	29	23	7	3	0	5	1	2	1	0	1	0	0
302	5	50	65	58	2	1	0	5	1	4	2	0	1	0	0
303	5	60	78	69	3	1	0	5	1	1	2	1	0	0	0
304	6	88	96	92	0	0	0	2	2	3	2	1	0	0	0
305	6	20	41	31	7	3	0	6	5	3	3	0	0	0	1
306															

N = 305 SP patiënten behandeld in de 1e lijn

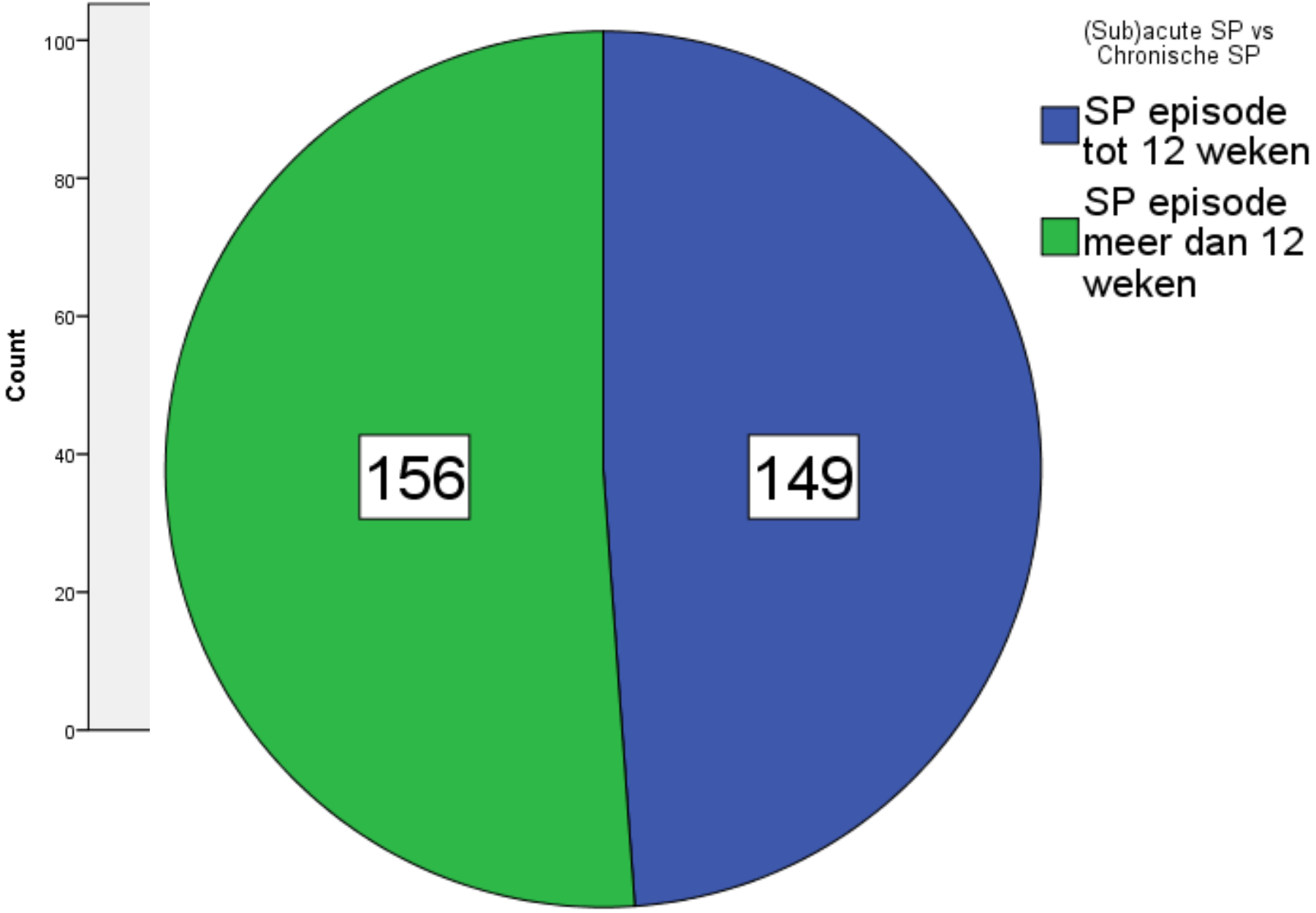

Descriptive
statistics

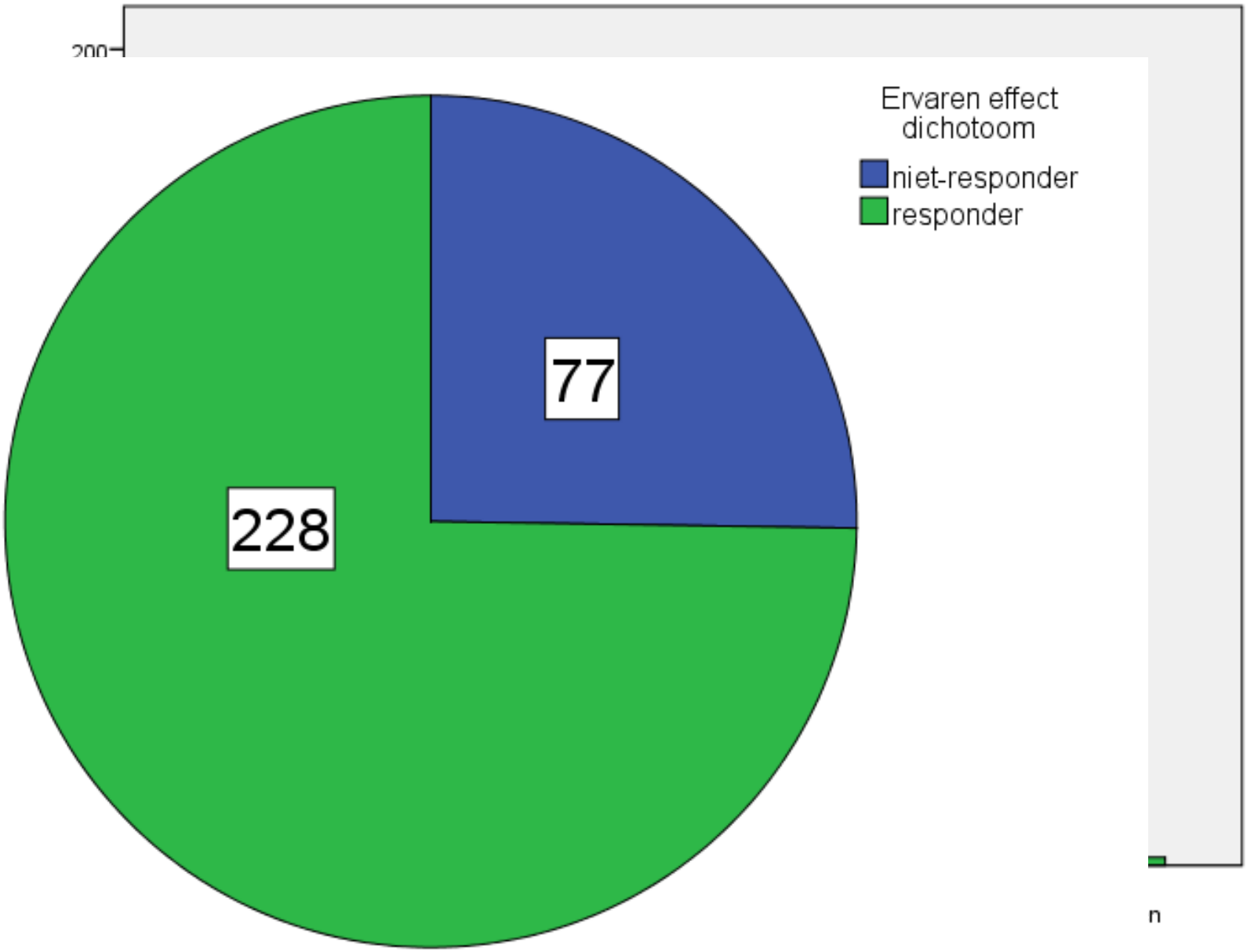

Normal
Mean = 53,18
Std. Dev. = 14,089
N = 304
Frequentie
25
20
15
10
5
0
20
40
60
80
Leeftijd

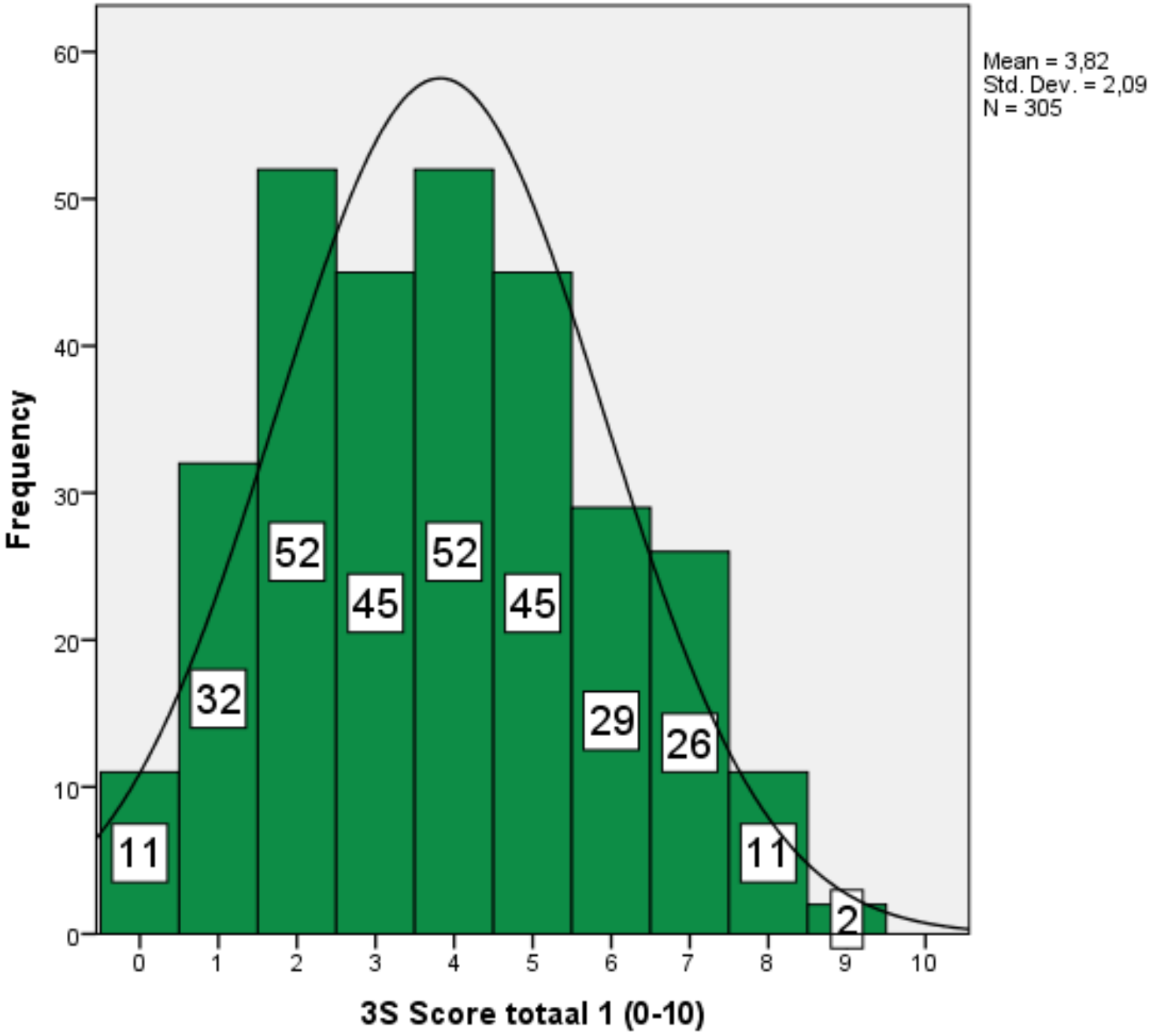


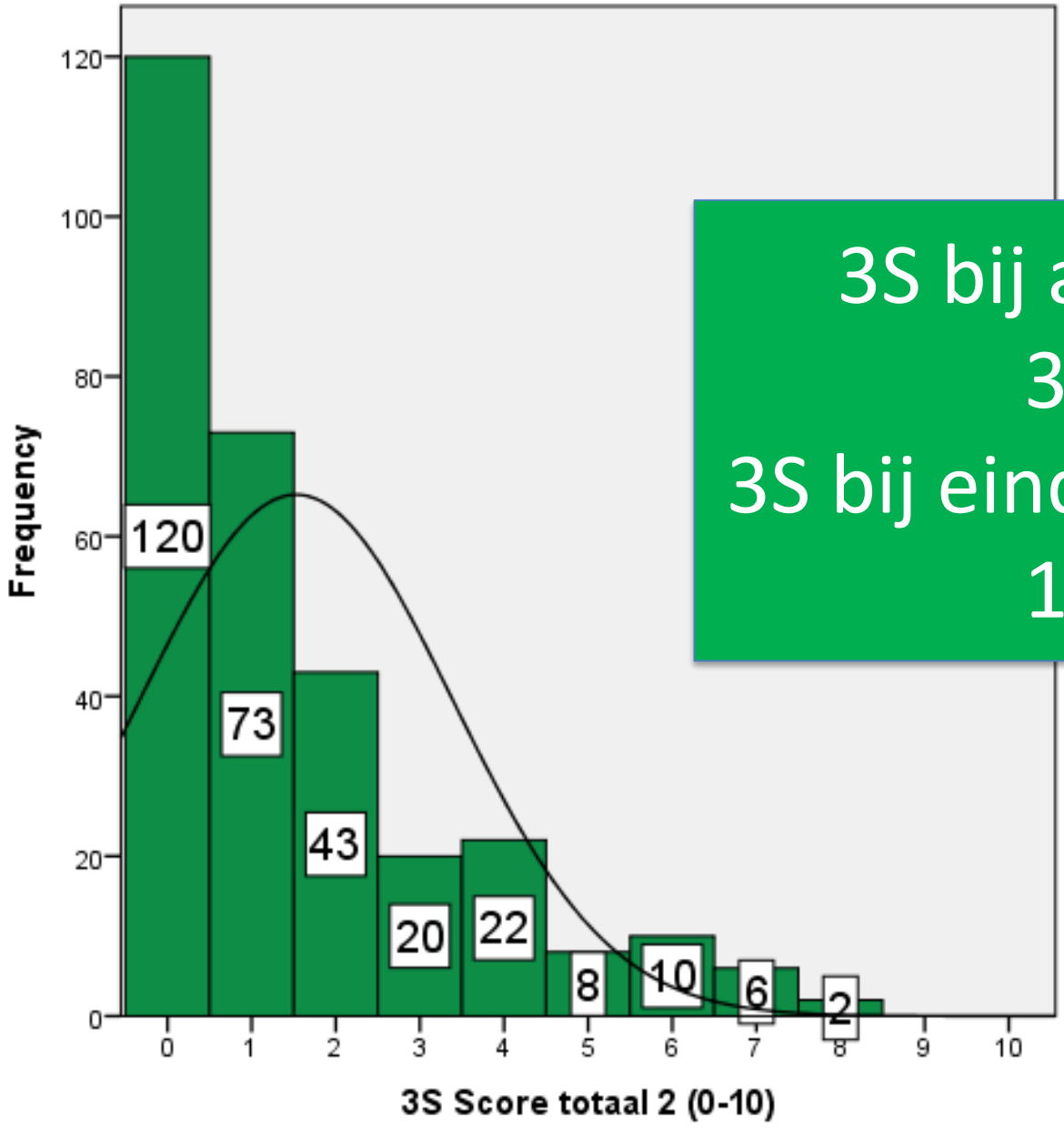


Dominante arm: 62%


(Sub)acute SP vs Chronische SP
SP episode tot 12 weken
SP episode meer dan 12 weken
Count
100
80
60
40
20
0
156
149


Ervaren effect dichotoom
niet-responder
responder
77
228
n


Mean = 3,82
Std. Dev. = 2,09
N = 305
Frequency
60
50
40
30
20
10
0
11
32
52
45
52
45
29
26
11
2
0
1
2
3
4
5
6
7
8
9
10
3S Score totaal 1 (0-10)



3S bij aanvang:
3.82
3S bij einde therapie:
1.53


Explanatory
statistics

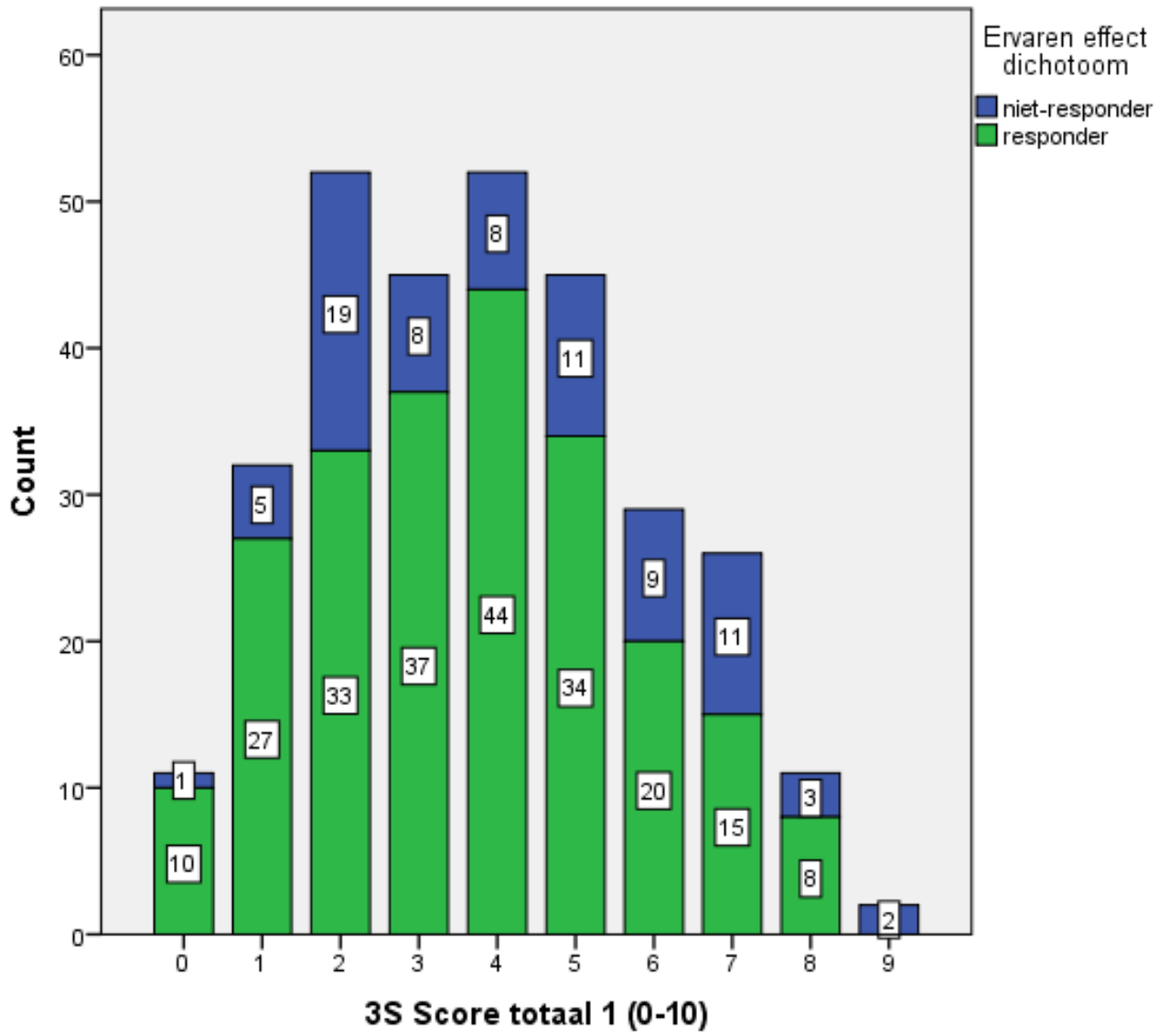
	Ervaren effect dichotoom	N	**Mean**	Std. Dev.	SE Mean
3S Score totaal 1 (0-10)	niet-responder	77	**4,25**	2,249	,256
	responder	228	**3,68**	2,019	,134

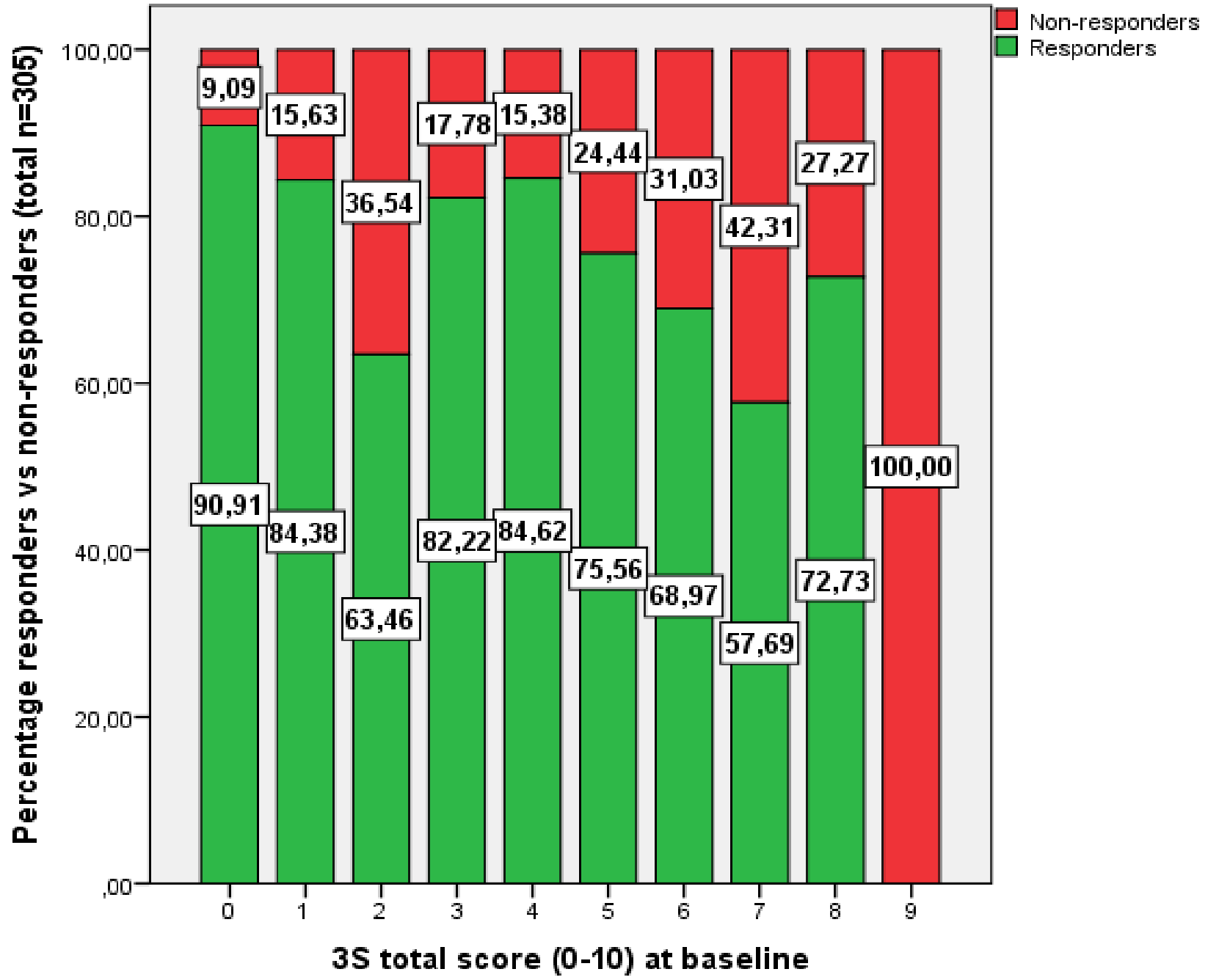
Independent Samples T test:

Mean Difference= 0,567 punten / equal variances assumed (Levene): YES

95% BI: 0,028 – 1,106 / p waarde= 0,039 (berust dus niet op toeval)

- Responders scoren bij aanvang 3,68 punten niet responders 4,25 punten
- De verschilscore van 0,57 punten berust weliswaar niet op toeval (p= 0,039) maar is in klinisch perspectief niet relevant


Ervaren effect dichotoom
niet-responder
responder
Count
60
50
40
30
20
10
0
19
8
8
11
9
11
5
3
1
10
27
33
37
44
34
20
15
8
2
0
1
2
3
4
5
6
7
8
9
3S Score totaal 1 (0-10)

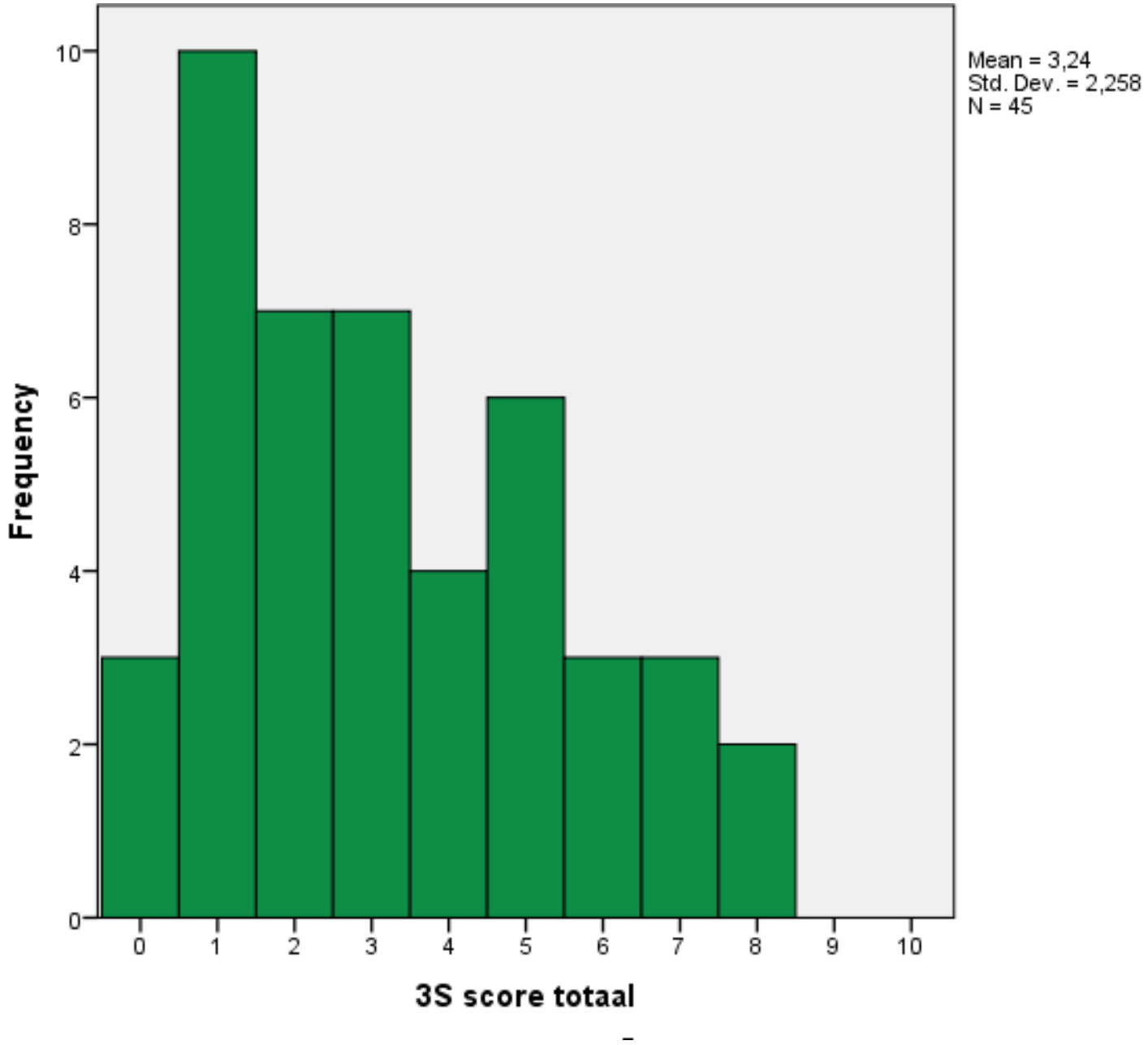

Non-responders
Responders
Percentage responders vs non-responders (total n=305)
100,00
80,00
60,00
40,00
20,00
,00
9,09
15,63
36,54
17,78
15,38
24,44
31,03
42,31
27,27
100,00
90,91
84,38
63,46
82,22
84,62
75,56
68,97
57,69
72,73
0
1
2
3
4
5
6
7
8
9
3S total score (0-10) at baseline

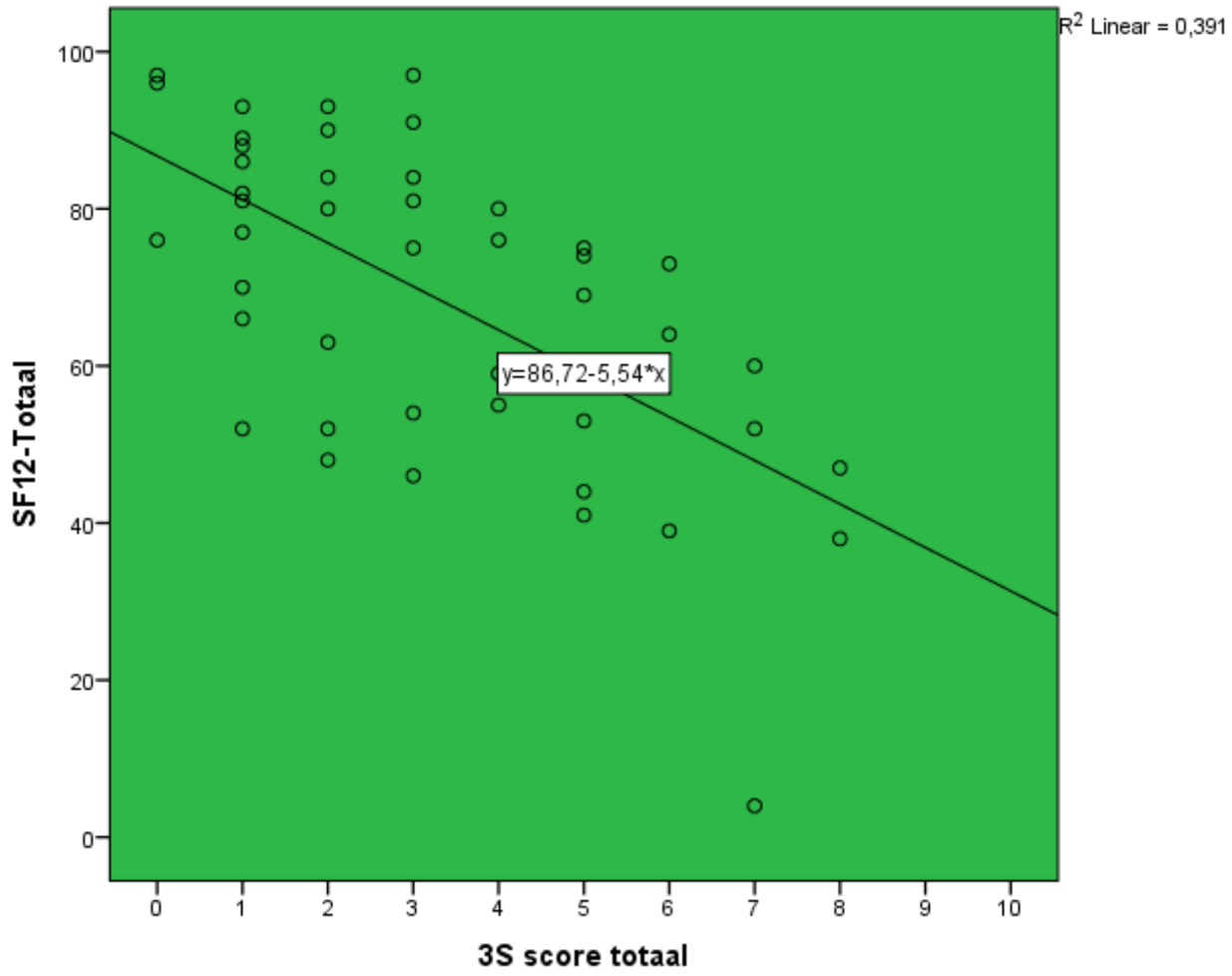
3S study about ‘validity’

- Een transversale diagnostische studie
  - inclusie: 1e lijns SP patiënten (middle)
  - sociodemografische gegevens
  - informed consent
- 1e invulling 3S vragenlijst
- Andere vragenlijst: SF 12

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
3S score totaal	45	8	0	8	3,24	2,258
SF12-PCS	45	100,0	,0	100,0	64,200	23,2746
SF12-MCS	45	92,0	8,0	100,0	73,533	19,9404
SF12-Totaal	45	93	4	97	68,76	19,994
Leeftijd	45	52	21	73	44,00	16,185


Mean = 3,24
Std. Dev. = 2,258
N = 45
Frequency
0
2
4
6
8
10
0
1
2
3
4
5
6
7
8
9
10
3S score totaal


R2 Linear = 0,391
y=86,72-5,54*x
SF12-Totaal
3S score totaal
100
80
60
40
20
0
0
1
2
3
4
5
6
7
8
9
10

Correlations

		3SSUB6-10	3S score totaal	SF12-PCS	SF12-MCS	SF12-Totaal
3SSUB6-10	Pearson Correlation	1	,870**	-,474**	-,650**	-,602**
	Sig. (2-tailed)		,000	,001	,000	,000
	N	45	45	45	45	45
3S score totaal	Pearson Correlation	,870**	1	-,540**	-,621**	-,625**
	Sig. (2-tailed)	,000		,000	,000	,000
	N	45	45	45	45	45
SF12-PCS	Pearson Correlation	-,474**	-,540**	1	,716**	,937**
	Sig. (2-tailed)	,001	,000		,000	,000
	N	45	45	45	45	45
SF12-MCS	Pearson Correlation	-,650**	-,621**	,716**	1	,915**
	Sig. (2-tailed)	,000	,000	,000		,000
	N	45	45	45	45	45
SF12-Totaal	Pearson Correlation	-,602**	-,625**	,937**	,915**	1
	Sig. (2-tailed)	,000	,000	,000	,000	
	N	45	45	45	45	45

**. Correlation is significant at the 0.01 level (2-tailed).

De 3S betrouwbaarheids-studie

- Een transversale diagnostische studie
  - inclusie: 1e lijns SP patiënten (Noord Nederland)
  - sociodemografische gegevens
  - informed consent
- 1e invulling 3S vragenlijst
- Andere vragenlijst, performance test, meer sociodemografische gegevens, NPRS
- 2e invulling 3 S vragenlijst
  (lijst met gewijzigde volgorde van de vragen)

	Intraclass Correlation 2,1	95% Confidence Interval	
		Lower Bound	Upper Bound
Single Measures	**0,949**	0,889	0,977

Two-way random effects model where both people effects and measures effects are random.

- De 3S betrouwbaarheid wordt vastgesteld door de ICC 2,1 te berekenen
- Deze bedraagt 0,949
  (ICC waardes boven de 0,75 worden beschouwd als goed)

Variance Estimates	
Component	Estimate
Var(Serie)	0,003
Var(Patnr)	4,483
Var(Error)	**0,237**

Dependent Variable: SNNtotbeide; Method: Restricted Maximum Likelihood Estimation

- Berekenen van de 3S meetfout met behulp van SPSS ‘error variance’.
- De SEM (Standard Error of Measurement) = √ (foutvariantie) = √ 0,24 = 0,48
- De MDC (Minimal Detectable Change) = 1.96 * √2 * SEM = 2.77 * SEM = 1.35 punten (n.b. verschil in 3S studie begin–eind = 2.19).

5. And now ……

- The 3S 2019 – 2020 version……

Plek 3Slijst KR model

- Het aangepaste SNN KR model kent 9 levels
- In het ‘oude’ model stond screenen naar persoonskenmerken op level 5
- In het nieuwe SNN KR model schuift deze klinische beslissing naar level 2
- Fasen in het gebruik van de 3S lijst:
  - onderzoekfase: afgerond december 2017
  - implementatiefase: nu t/m maart 2019
  - nieuwe onderzoek fase onder SNN leden

KR schema bevat in totaal 8 levels & 9e level (voor therapie advies)

Level 1	•Is er sprake van indicatie FT? •Relevante rode / gele vlaggen?
Level 2	• Prognostische factoren • 3S vragenlijst
Level 3	•Welke SCH container? •Gestoorde functie/ oorzaak •Medische ICD aandoening? (patho-anatomie)
Level 4	•Eerste subcategorie •Gebaseerd op substraat •Patho-kinesiologisch beeld
Level 5	•Tweede subcategorie •Gebaseerd op substraat •Patho-kinesiologisch beeld
Level 6	•Functionele aspecten, SSMP's •Kinesio-pathologisch beeld
Level 7	•Mate van reactiviteit laag – midden - hoog
Level 8	•Overleg met SP patiënt, plan van aanpak past bij mening patiënt

1. SOMATIC DISFUNCTIONS:

- Lesions in RC tendons
- Stiff / restricted GH joint
- Capsulitis, bursitis
- Instability GH / ST / shoulder girdle
- Insufficient muscle strength
- Scapula diskinesis
- Chain ↓ CT-Thor-Lumbar-Leg

2. MENTAL DISFUNCTIONS:

- Too less self-confidence, too little self-efficacy
- Insufficient resilience
- Insufficient positive life attitude
- KinesioPhobia or Perseverance
- Catastrophing beliefs about SP and prognosis

Acute / subacute / persistent

SCHOULDER PAIN

3. COGNITIVE DISFUNCTIONS:

- Insufficient insight in cause of SP
- Dis-functional health beliefs
- Insufficient insight pain system
- Think that acute = chronic SP
- Poor expectations about influencable aspects / poor expectations therapy

4. PROCESS-BASED DISFUNCTIONS:

- Sensitisation Central Nervous Syst.
  - segmental: referred pain, active MTP's
  - general: arousal, central dis-stress
- Altered motor control / AROM
- Insufficient fittness / endurance
- (too) External copingstyle, behaviour
- (too) Inactive in ADL / (too) low QoL

1. SOMATIC DISFUNCTIONS:

- I… RC tendon…
- …
- Capsu…
- Instabi… …lder girdle
- I…
- S… …skinesis
- Cl… ↓ CT-Thor-Lumbar-…

2. MENTAL DISFUNCTIONS:

- Too less self-confidence, too little self-efficacy
- Insufficient resilience
- Insufficient positive life attitude
- KinesioPhobia or Perseverance
- Catastrophing beliefs about SP and prognosis

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1. SOMATIC DISFUNCTIONS:

- I… RC tendon…
- …
- Capsu…
- Instabi… …lder girdle
- In…
- S… …skinesis
- Cl… ↓ CT-Thor-Lumbar-…

2. MENTAL DISFUNCTIONS:

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- Insufficient resilience
- Insufficient positive life attitude
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- Insufficient fittness / endurance
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- (too) Inactive in ADL / (too) low QoL

Stappen in FT handelen bij patienten met SP.

1. Terecht bij FT? (rode vlaggen, co-morbiditeit)
2. Ernst SP bij aanvang.
3. *Score 3S lijst (prognostische factoren)*
4. FT multimodale analyse
   (zie SNN KR model)
5. + Reductie tests / SSMP‘s
6. Fitheid mentaal (optimisme, veerkracht, lef…)
7. Fitheid fysiek (kracht, cardio, werk, sport ….)

5. Conclusions

- Methodological quality is satisfying.
- Practical use is goed;
  it’s simple and not time consuming.
- With clear implication for practice
- 3S screens up on 10 relevant modifiable prognostic factors.
- 3S helps the PT as a coat-rack to realize multimodal assessment
- 3S can be used in all SP patients