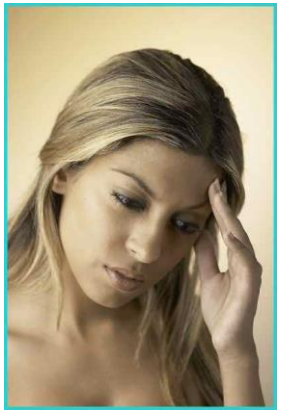
Cosa è il dolore cronico? Aspetti fisiopatologici

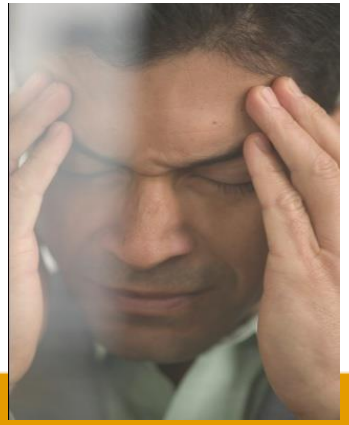
Francesco Landi, MD, PhD
Catholic University, Geriatric Center, Gemelli Hospital - Rome, Italy

What is pain?

- ***Pain is a difficult word to define***
- ***Patients use different words to describe pain***

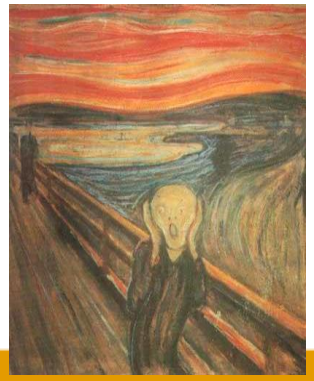


Aching, Pins and needles, Annoying, Pricking, Biting, Hurting, Radiating, Blunt, Intermittent, Burning, Sore, Miserable, Splitting, Cutting, Nagging, Stabbing, Crawling, Stinging, Crushing, Tender, Dragging, Numbness, Throbbing, Dull, Overwhelming, Tingling, Electric-shock like, Penetrating, Tiring, Excruciating, Piercing, Unbearable



What is pain?

"Una spiacevole esperienza sensitiva ed emotiva associata ad un reale e/o potenziale danno tissutale, o descritta come tale. Il dolore è sempre un'esperienza soggettiva. Ogni individuo apprende il significato di tale parola attraverso le esperienze correlate ad una lesione durante i primi anni di vita. Sicuramente si accompagna ad una componente somatica ma ha anche un carattere spiacevole, e perciò , ad una carica emozionale"



International Association for the Study of Pain.

What is pain?

- Pain is
  - subjective
  - protective
  - and it is modified by developmental, behavioral, personality and cultural factors
- It is a symptom
- Associated signs are crying, sweating, increased heart rate, blood pressure, behavioral changes.

Pain: the 5th vital sign

JAMA March 17, 1999;281(11):978

The US Department of Veterans Affairs (VA) is instructing physicians and nurses who treat veterans to regard pain as a "fifth vital sign" to be routinely assessed along with blood pressure, pulse, temperature, and respiration.

June 2001;56A(7):M397-9

"Whenever a person has contact with the health care industry, they need to be asked if they have pain. …..
If an abnormal pain vital sign shows up in a patient's charts, it should be considered as serious as a heart attack …."

ABCs of pain assessment

- **A**sk about and **A**ssess pain regularly.
- **B**elieve the patient and family in their reports of pain and what relieves it.
- **C**hoose pain control options appropriate for the patient, family, and setting.
- **D**eliver interventions in a timely, logical, and coordinated fashion
- **E**mpower patients and families. **E**nable them with as much control as possible.

Why focus on Pain?

- Pain is a symptom most expected and most feared by dying patients
- Unrelieved pain can have enormous physiological and psychological effects on patients and their loved ones
- Pain negatively affects quality of life by impairing daily functions, social relationships, sleep and/or self worth

Why focus on Pain?

I MECCANISMI DEL DOLORE

- The Specificity theory of pain

Renè Descartes 1664

- Gate Control theory

Melzack and Wall 1965

- Neuromatrix theory of pain

Melzach 2001

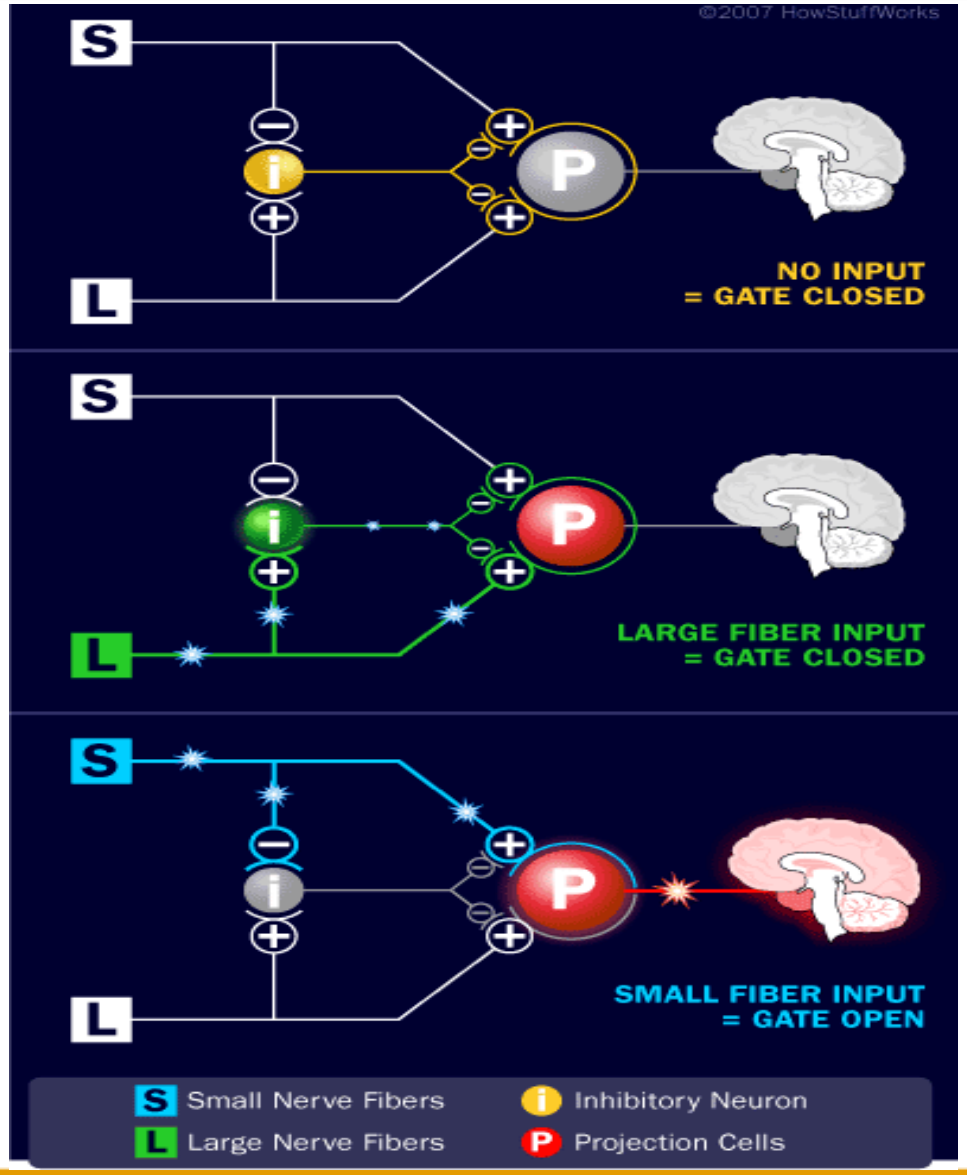
The Specificity theory of pain

- 4 types of sensory receptors: heat, cold, touch, pain
- A nerve responded to only one type
- Nerve was continuous from the periphery to the brain

Gate Control theory

- With this theory, pain depends on the relative amount of traffic in two different sensory pathways which carry information from the sense organs to the brain.
  - **Slow/Small fibers**
    - No myelin sheaths, so messages delivered more slowly. Very intense stimuli (like that caused by a tissue injury) send strong signals on these slow fibers.
    - Slow/small fibers open the gate = you feel pain
  - **Fast/Large fibers**
    - Deliver most sensory information to the brain. Covered by fatty myelin sheaths so delivery is faster.
    - Fast/large fibers close the gate = block pain signals

Gate Control theory



Pain modulation

Gate Control theory

Factors which can open the gate

- **Physical conditions**
  - **Extent of injury**
  - **Nature of injury**
- **Emotional states**
  - **Anxiety**
  - **Worry**
  - **Tension**
  - **Depression**
- **Cognitive states**
  - **Focusing on the pain**
  - **Boredom**
- **Lack of activity**
  - **Fitness, Exercise**

Gate Control theory

Factors which can close the gate

- **Physical conditions**
  - **Medication**
  - **Counter stimulation (e.g. heat, massage, acupuncture)**
- **Emotional state**
  - **Positive emotions (e.g., happiness, optimism)**
  - **Relaxation**
  - **Rest**
- **Mental state**
  - **Intense concentration or distraction**
  - **Involvement and interest in activities**
- **Activity**
  - **Fitness, Exercise**

BODY SELF NEUROMATRIX

The neuromatrix theory, stipulates that every human being has an innate network of neurons that they named the “body-self neuromatrix”

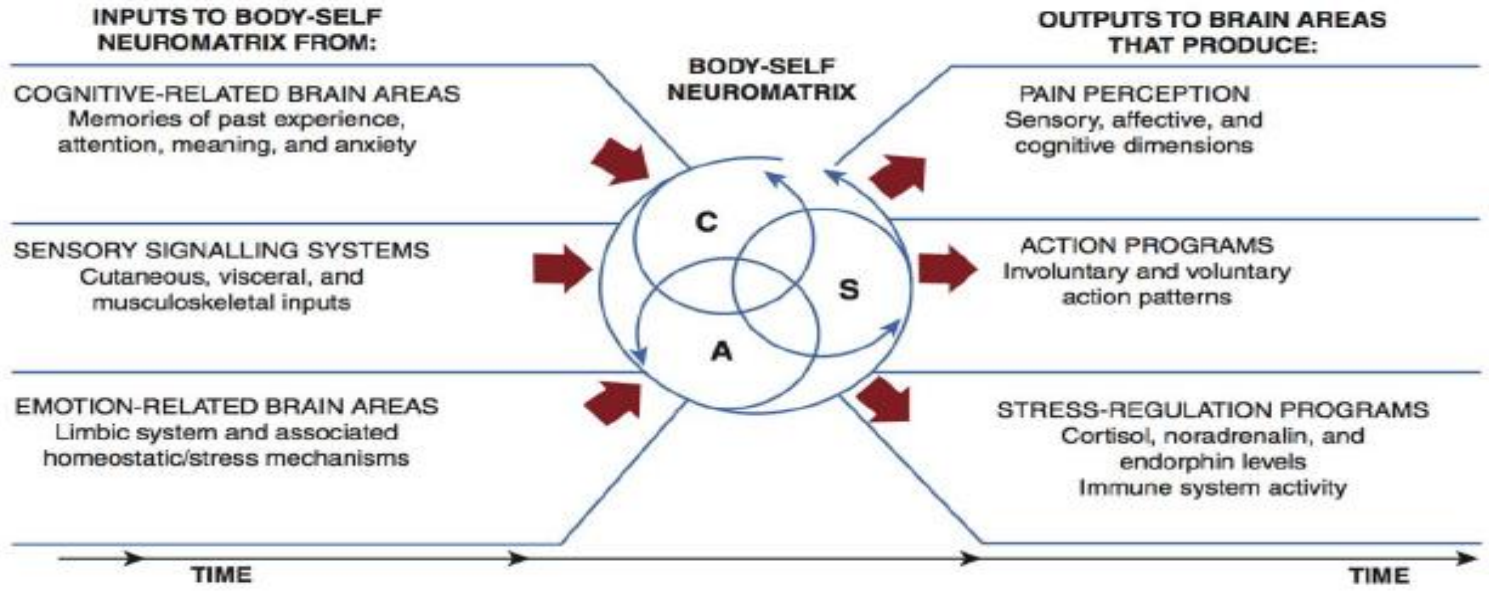


Fig. 1.3 Factors that contribute to the patterns of activity generated by the body-self neuromatrix, which is composed of sensory, affective, and cognitive neuromodules. The output patterns from the neuromatrix produce the multiple dimensions of pain experience, as well as concurrent homeostatic and behavioral responses. *(From Melzack R: Pain and the neuromatrix in the brain, J Dent Educ 65:1378–1382, 2001.)*

IMAGE: Updated Neuromatrix Model. Waldman SD; Pain Management, 2nd Ed. (Saunders) 2011
p. 5. Ch. 1: A Conceptual Framework for Understanding Pain in the Human. Joel Katz and Ronald Melzack

Melzack J Dent Educ. 2001 Dec;65(12):1378-82.

Why focus on Pain?

CLASSIFICAZION DEL DOLORE

- **DOLORE NOCICETTIVO/NEUROPATICO/ IDIOPATICO**
- **DOLORE TRANSITORIO/ACUTO/CRONICO**
- **DOLORE ONCOLOGICO/NON ONCOLOGICO**

DOLORE CRONICO

- Si definisce dolore cronico un dolore persistente da almeno 3 mesi

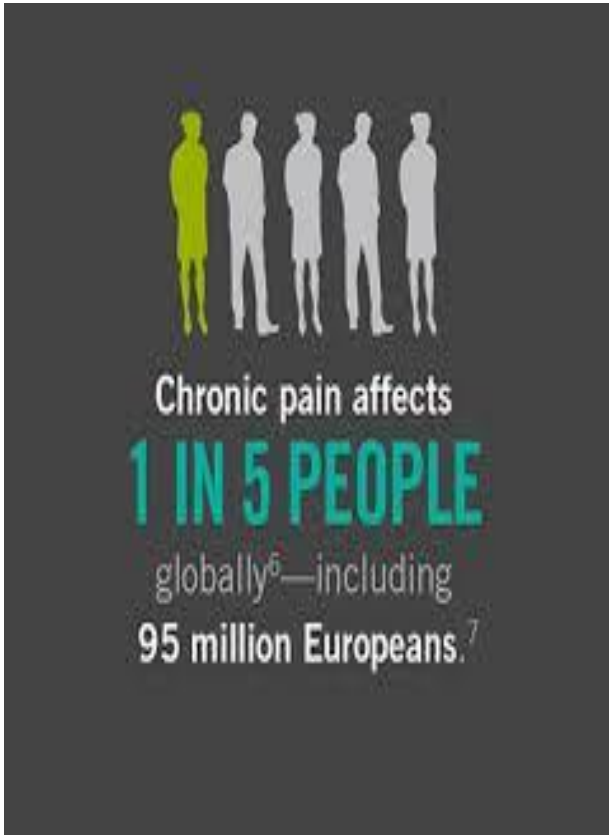
- Il dolore cronico può essere conseguenza di una patologia, di un trattamento terapeutico o idiopatico

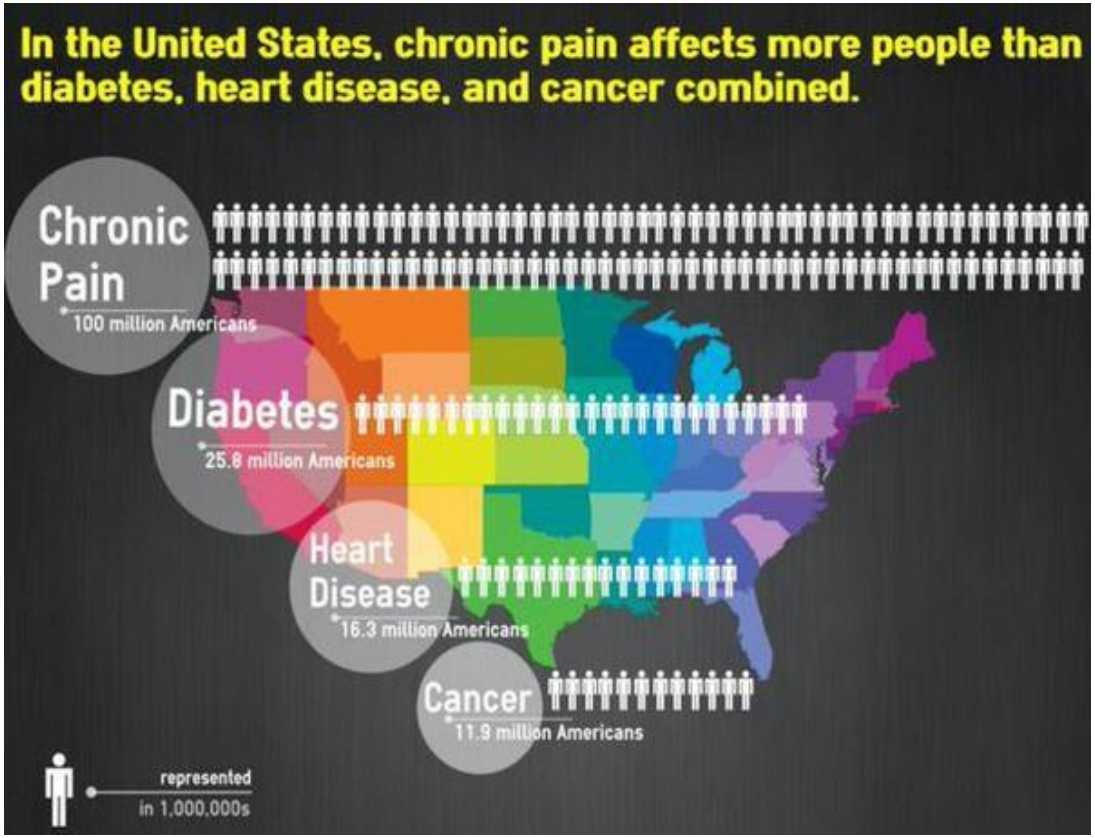
- **Il dolore è soggettivo ed ha un forte impatto sulla qualità della vita e sull'autonomia del paziente**

**= Lukas et al., "Pain characteristics and pain control in European nursing homes: cross-sectional and longitudinal results from the Services and Health for Elderly in Long TERm care (SHELTER) study."J Am Med Dir Assoc. 2013 Jun.*

DOLORE CRONICO

HOW MANY PEOPLE ARE AFFECTED BY CHRONIC PAIN?





World Health Organization

DOLORE CRONICO

- **E' stato stimato che il 57% degli anziani sia affetto da dolore cronico**

Localizzazione del dolore*	Frequenza%
Gambe (muscoli e ginocchia)	**62%**
Sacro	44%
Braccia e spalle	36%
Mani	29%
Piedi	27%
Torace/addome	26%
Testa	21%
Fianchi	18%
Caviglie	5%
Altro	12%

***= Liz Cairncross et al., "A hidden problem: pain in older people", Picker Institute Europe March 2007.**

Pain in Italy

General characteristics and prevalence of pain in 5372 elderly subjects in home care program

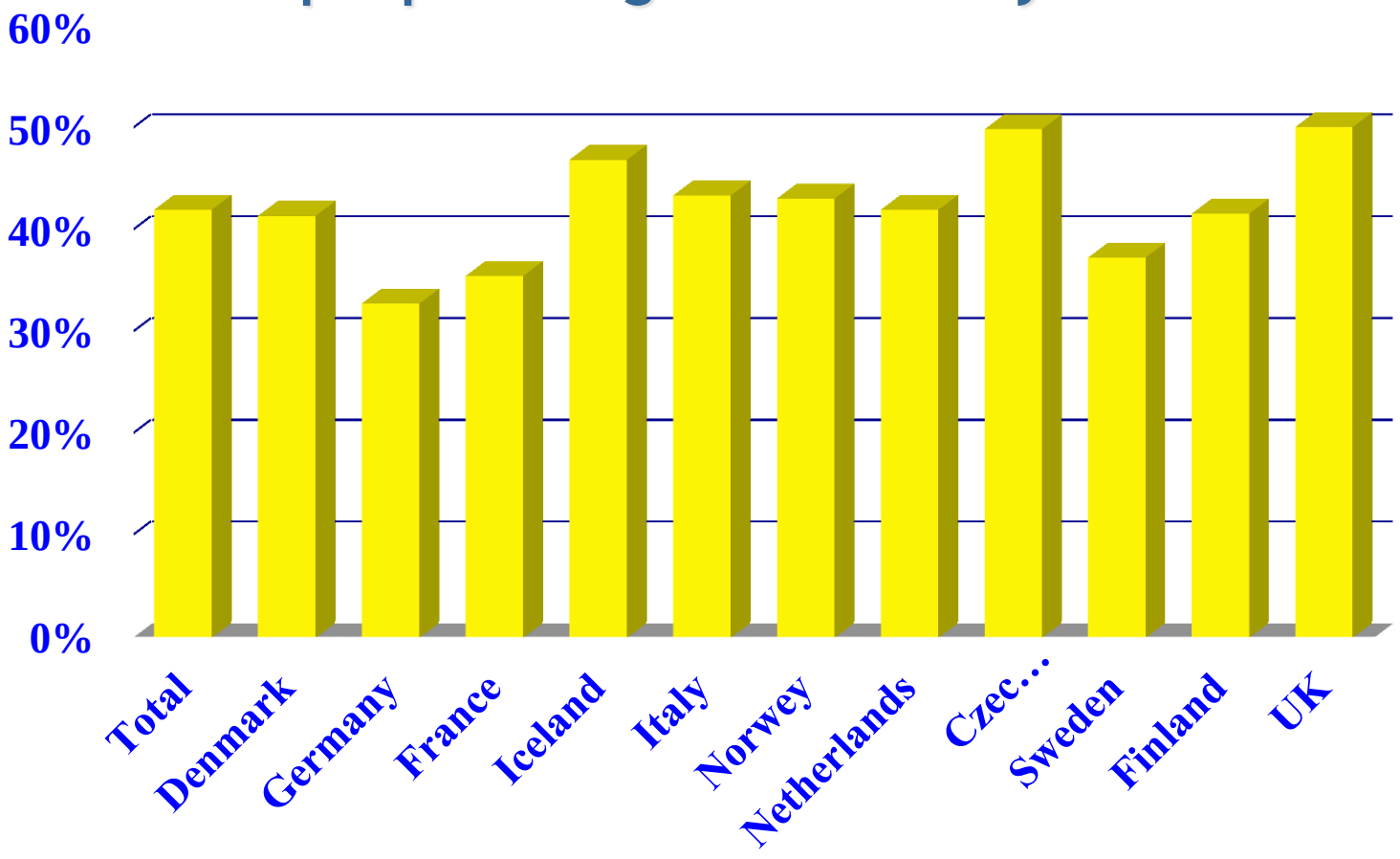
Characteristics	*Total (n=3046)*	*65-74 years (n=994)*	*75-84 years (n=1175)*	*≥85 years (n=877)*
Male	1810 (59)	519 (52)	706 (60)	585 (67)
Marital status				
Married	1372 (46)	535 (53)	603 (51)	234 (26)
Widowed	1265 (41)	300 (30)	455 (38)	510 (58)
Never married	409 (13)	159 (17)	117 (11)	133 (16)
ADL (mean ± SD)	4.3 ± 2.5	3.8 ± 2.6	4.2 ± 2.5	5.0 ± 2.0
CPS (mean ± SD)	2.3 ± 2.2	1.7 ± 2.1	2.3 ± 2.1	3.1 ± 2.1
Comorbidity (mean ± SD)	3.2 ± 2.3	2.7 ± 1.9	3.3 ± 2.3	3.5 ± 2.5
Daily pain	1341 (44)	397 (39)	581 (49)	363 (41)

ARCHIVES OF INTERNAL MEDICINE

Landi et al. 2001;161:2721-24

Pain in Europe

Prevalence of pain in Europe among frail elderly people living in community



interRAI

M. Soldato et al. / Pain 129 (2007) 304–310

DOLORE CRONICO

VALUTAZIONE DEL DOLORE

- **INTERROGARE IL SOGGETTO E LA FAMIGLIA**
- **ESAME CLINICO**
- **INDAGINI STRUMENTALI (RX, TAC, RMN)**

Scala del dolore

- **Scale unidimensionali (VAS, NRS, VRS)**

misurano l'intensità del dolore indicata dal paziente stesso

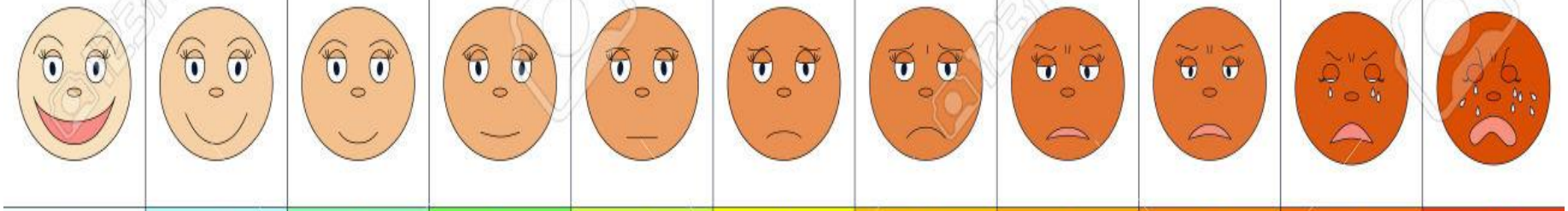
- **Scale Multidimensionali (Mc. Gill Pain Questionary, Wisconsin-Madison, Brief Pain Inventory, ecc)**

misurano le diverse componenti del dolore: sensoriale, affettiva e cognitiva, sono compilate dal personale medico

***= E. J. Dansie et al., "Assessment of patients with chronic pain",**
British Journal of Anaesthesia 111 (1): 19–25 (2013)

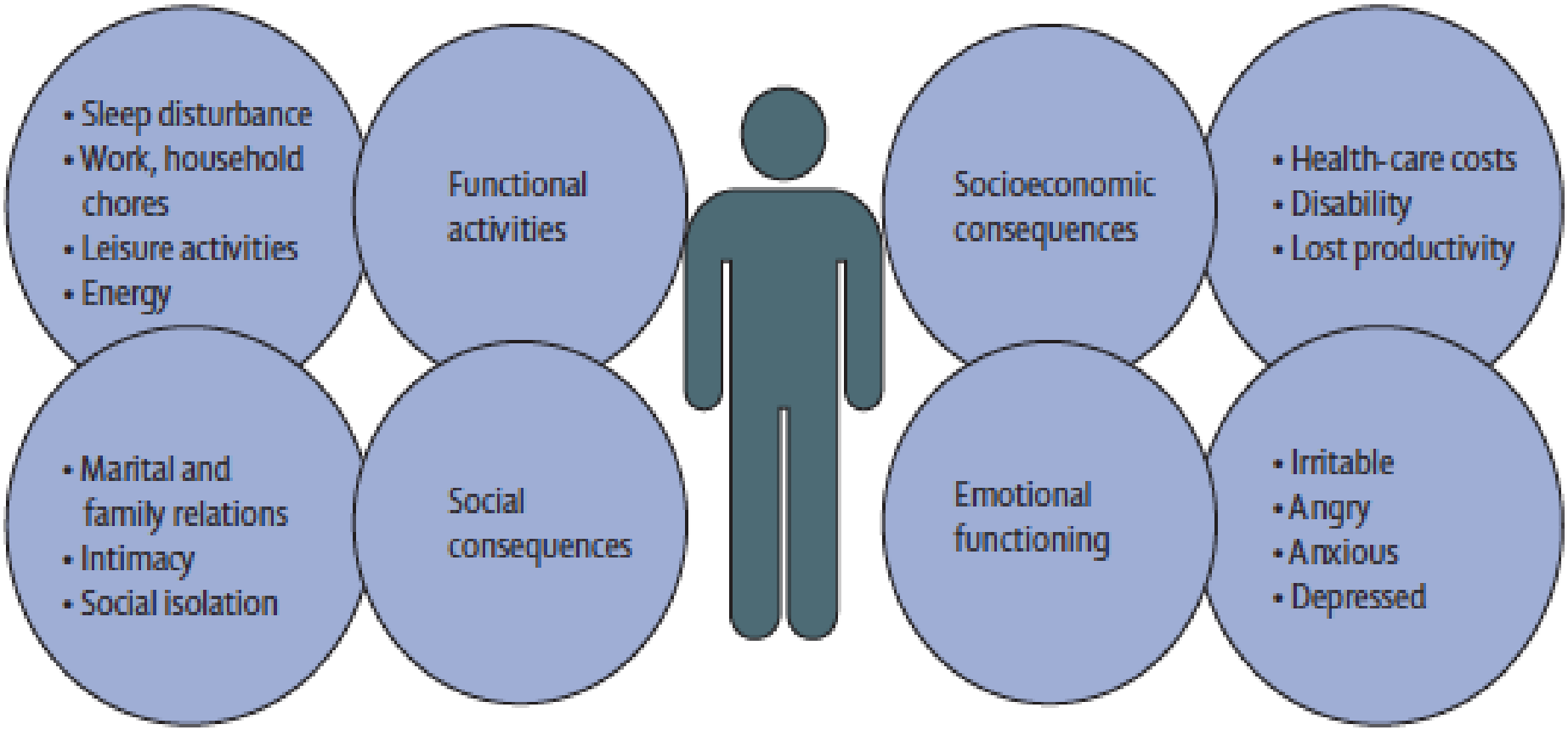
Scala del dolore

COMPARATIVE PAIN SCALE CHART (Pain Assessment Tool)



0 Pain Free	1 Very Mild	2 Discomforting	3 Tolerable	4 Distressing	5 Very Distressing	6 Intense	7 Very Intense	8 Utterly Horrible	9 Excruciating Unbearable	10 Unimaginable Unspeakable
No Pain	**Minor Pain**			**Moderate Pain**			**Severe Pain**			
Feeling perfectly normal	Nagging, annoying, but doesn't interfere with most daily living activities. Patient able to adapt to pain psychologically and with medication or devices such as cushions.			Interferes significantly with daily living activities. Requires lifestyle changes but patient remains independent. Patient unable to adapt pain.			Disabling; unable to perform daily living activities. Unable to engage in normal activities. Patient is disabled and unable to function independently.			

Conseguenze del dolore



Impact of pain on disability among older Americans

the Journals of gerontology BIOLOGICAL SCIENCES AND MEDICAL SCIENCES

June 2001;56A(7):M400-4

Odds of Unable to Perform Three Measures of Lower-Body Function at Follow-up Among Nondisabled Subjects at Baseline

Characteristics	Tandem Balance (*n* 1693)	8-ft Walk (*n* 1805)	Chair Stands (*n* 1308)
75–84 years	2.09 (1.48–2.96)	1.68 (1.19–2.37)	2.13 (1.55–2.93)
84+ years	3.57 (1.62–7.87)	3.18 (1.55–6.52)	2.46 (1.09–5.01)
Female	1.03 (0.72–1.48)	1.29 (0.89–1.84)	1.35 (0.98–1.86)
Unmarried	0.73 (0.51–1.03)	0.77 (0.55–1.09)	1.71 (0.87–1.59)
Arthritis	0.89 (0.61–1.30)	1.04 (0.72–1.52)	1.09 (0.77–1.52)
Any Pain	**1.76 (1.20–2.61)**	**1.49 (1.02–2.18)**	**1.63 (1.14–2.33)**
Depression (CES-D of 16)	3.42 (2.33–5.04)	3.12 (2.16–4.52)	1.45 (0.94–2.24)
Cancer	1.51 (0.79–2.86)	1.27 (0.66–2.44)	1.75 (0.93–3.29)

Association Between Pain and Depression Among Older Adults in Europe: Results From the Aged in Home Care (AdHOC) Project: A Cross-Sectional Study

Graziano Onder, M.D., Ph.D.; Francesco Landi, M.D., Ph.D.; Giovanni Gambassi, M.D.; Rosa Liperoti, M.D., M.P.H.; Manuel Soldato, M.D.; Chiara Catananti, M.D.; Harriet Finne-Soveri, M.D.; Cornelius Katona, M.D.; Iain Carpenter, M.D.; and Roberto Bernabei, M.D.

Table 4. Association of Depression With Pain Severity, Pain Frequency, and Number of Painful Sites Among Older Adults in Europe[a]

	Men (N = 1028)		Women (N = 2948)	
Variable	Depression Rate, N/N (%)	Adjusted OR (95% CI)[b]	Depression Rate, N/N (%)	Adjusted OR (95% CI)[b]
Pain severity				
No pain	69/513 (13.5)	1.00 (reference)	112/1083 (10.3)	1.00 (reference)
Mild	27/175 (15.4)	0.95 (0.56 to 1.59)	74/481 (15.4)	1.57 (1.12 to 2.20)
Moderate	36/226 (15.9)	1.04 (0.63 to 1.71)	171/835 (20.5)	2.44 (1.83 to 3.26)
Severe	24/90 (26.7)	1.53 (0.83 to 2.83)	93/426 (21.8)	2.32 (1.65 to 3.25)
Excruciating	6/24 (25.0)	2.12 (0.72 to 6.18)	33/118 (28.0)	3.38 (2.02 to 5.66)
Pain frequency				
No pain	69/513 (13.5)	1.00 (reference)	112/1083 (10.3)	1.00 (reference)
Less than daily	23/189 (12.2)	0.78 (0.45 to 1.34)	86/527 (16.3)	1.58 (1.14 to 2.20)
Daily, single episode	17/95 (17.9)	1.15 (0.61 to 2.17)	75/368 (20.4)	2.20 (1.56 to 3.10)
Daily, multiple episodes	52/226 (23.0)	1.53 (0.94 to 2.47)	206/954 (21.6)	2.53 (1.90 to 3.37)
Painful sites				
No pain	69/513 (13.5)	1.00 (reference)	112/1083 (10.3)	1.00 (reference)
Single site	45/301 (15.0)	0.95 (0.60 to 1.49)	154/940 (16.4)	1.83 (1.37 to 2.43)
Multiple sites	45/200 (22.5)	1.32 (0.82 to 1.13)	208/891 (23.3)	2.42 (1.83 to 3.20)

[a]Data were missing on pain severity for 5 participants, on pain frequency for 21 participants, and on number of painful sites for 48 participants.
[b]Adjusted for age, living alone, a flare-up of a chronic or recurrent condition, activities of daily living disability, cognitive impairment, ischemic heart disease, congestive heart failure, hypertension, stroke, peripheral vascular disease, chronic obstructive pulmonary disease, osteoarthritis, diabetes, cancer, Parkinson's disease, recent fractures, number of medications, use of antidepressants, and site.
Abbreviations: CI = confidence interval, OR = odds ratio.

Vol. 29 No. 3 March 2005 *Journal of Pain and Symptom Management* 255

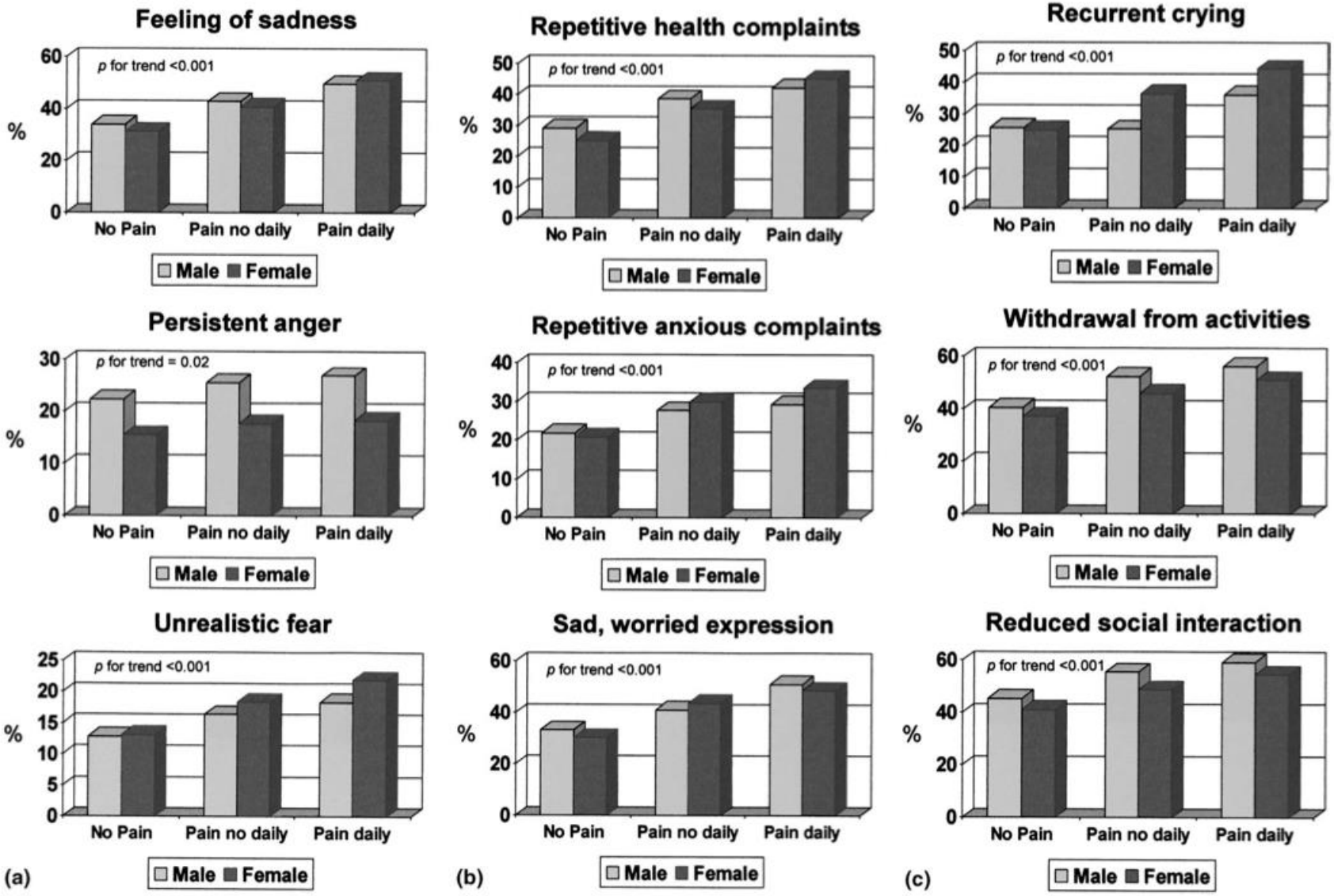
Original Article

Pain and Its Relation to Depressive Symptoms in Frail Older People Living in the Community: An Observational Study

Francesco Landi, MD, PhD, Graziano Onder, MD, Matteo Cesari, MD, Andrea Russo, MD, Christian Barillaro, MD, and Roberto Bernabei, MD, on behalf of the SILVERNET-HC Study Group

Istituto di Medicina Interna e Geriatria (F.L., G.O., M.C. A.R., C.B., R.B.), Università Cattolica del Sacro Cuore, Rome, Italy; and Sticht Center on Aging (G.O., M.C.), Wake Forest University-Baptist Medical Center, Winston-Salem, North Carolina, USA

DOLORE CRONICO



Pain 129 (2007) 304–310

PAIN

www.elsevier.com/locate/pain

Non malignant daily pain and risk of disability among older adults in home care in Europe

Manuel Soldato [a,*], Rosa Liperoti [a], Francesco Landi [a], Harriet Finne-Sovery [b], Iain Carpenter [c], Daniela Fialova [d,e], Roberto Bernabei [a], Graziano Onder [a]

[a] *Department of Gerontology, Catholic University of Sacred Heart, Roma, Italy*
[b] *National Research and Development Center for Welfare and Health (Center for Health Economics – CHESS), Helsinki, Finland*
[c] *Centre for Health Services Studies, University of Kent, UK*
[d] *Department of Geriatrics and Gerontology, 1st Medical Faculty, Charles University, Prague, Czech Republic*
[e] *Department of Social and Clinical Pharmacy, Faculty of Pharmacy, Charles University, Hradec Králové, Czech Republic*

Received 22 January 2006; received in revised form 16 October 2006; accepted 16 October 2006

DOLORE CRONICO

Pain and risk of disability

	N of events	Crude incident rate per persons-year	Crude hazard ratio (95% CI)	Adjusted[a] hazard ratio (95% CI)
Pain frequency				
No daily pain	123/825 (14.9)	0.16	1 (Reference)	1 (Reference)
Daily pain	132/695 (19.0)	0.20	1.35 (1.05–1.72)	1.36 (1.05–1.78)
Pain severity				
No daily pain	123/825 (14.9)	0.16	1 (Reference)	1 (Reference)
Mild	17/129 (13.2)	0.14	0.84 (0.50–1.39)	1.09 (0.65–1.83)
Moderate-severe	101/510 (19.8)	0.21	1.43 (1.10–1.87)	1.39 (1.05–1.85)
Excruciating	11/47 (23.4)	0.26	1.72 (0.93–3.18)	1.77 (0.93–3.35)
Painful sites				
No pain	123/825 (14.9)	0.16	1 (Reference)	1 (Reference)
Single site	57/366 (15.6)	0.16	1.04 (0.76–1.42)	1.23 (0.89–1.71)
Multiple sites	74/323 (22.9)	0.25	1.76 (1.32–2.35)	1.56 (1.13–2.15)

[a] Adjusted for age, gender, site, a flare up of a chronic or recurrent condition, number of coexisting conditions, ischemic heart disease, peripheral vascular disease, stroke, COPD, osteoarthritis, depression, physical activity, number of medications.

Pain 121 (2006) 53–59

PAIN

www.elsevier.com/locate/pain

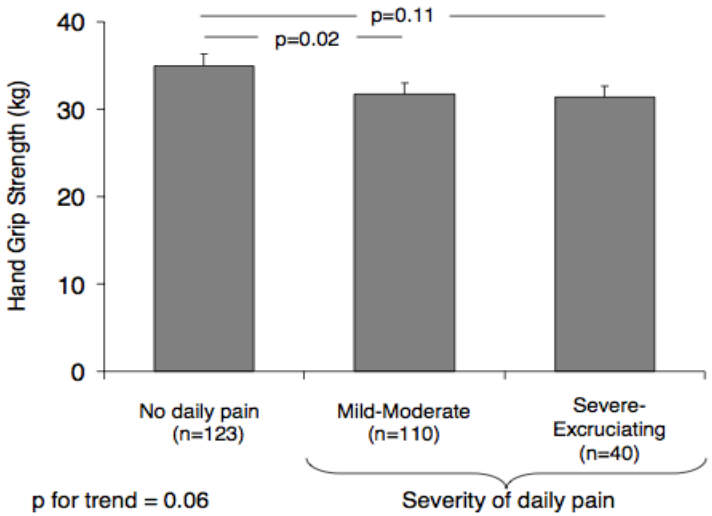
Association between daily pain and physical function among old–old adults living in the community: Results from the ilSIRENTE study

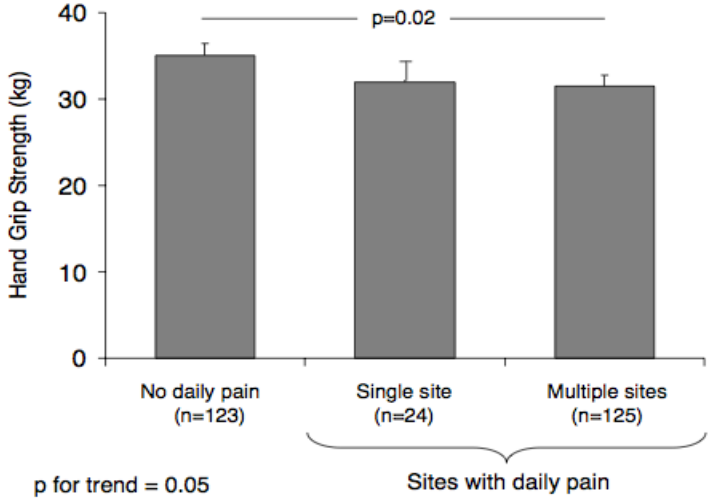
Graziano Onder [a,*], Matteo Cesari [a,b], Andrea Russo [a], Valentina Zamboni [a], Roberto Bernabei [a], Francesco Landi [a]

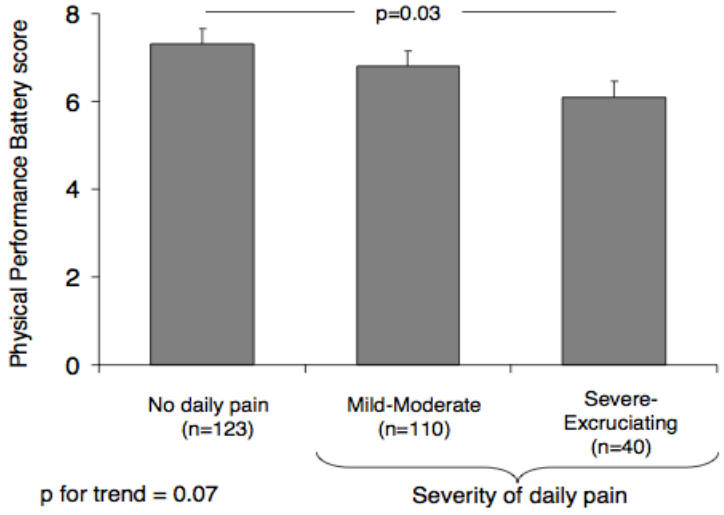
[a] *Department of Gerontology, Catholic University of Sacred Heart, Rome, Italy*
[b] *Department of Aging and Geriatric Research, University of Florida, College of Medicine, Gainesville, FL, USA*

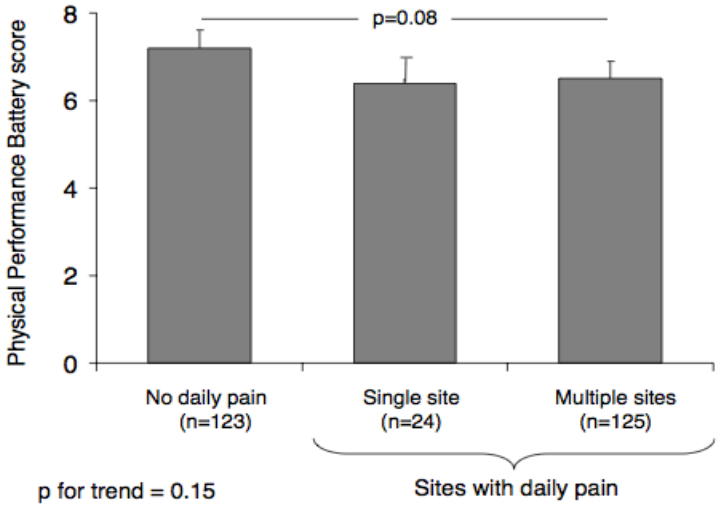
Received 12 April 2005; received in revised form 18 November 2005; accepted 5 December 2005

DOLORE CRONICO









350 *Journal of Pain and Symptom Management* *Vol. 38 No. 3 September 2009*

Original Article

Daily Pain and Functional Decline Among Old-Old Adults Living in the Community: Results from the ilSIRENTE Study

Francesco Landi, MD, PhD, Andrea Russo, MD, PhD, Rosa Liperoti, MD, MPH, Paola Danese, MD, Elisa Maiorana, MD, Marco Pahor, MD, Roberto Bernabei, MD, and Graziano Onder, MD, PhD

Department of Gerontology, Geriatrics and Physiatry (F.L., A.R., R.L., P.D., E.M., R.B., G.O), Catholic University of the Sacred Heart, Rome, Italy; and Department of Aging and Geriatric Research (M.P.), University of Florida College of Medicine, Gainesville, Florida, USA

DOLORE CRONICO

Risk of Incident Disability According to Pain Frequency, Pain Severity, and Number of Painful Sites

Pain Characteristics	Incident Disability *n* (%)	Crude Model OR (95% CI)	Adjusted Model[a] OR (95% CI)
Pain frequency			
No daily pain ($n=101$)	14 (14)	1 (reference)	1 (reference)
Daily pain ($n=103$)	25 (24)	1.99 (1.01–4.28)	1.87 (0.92–4.26)
Pain severity			
No daily pain ($n=101$)	14 (14)	1 (reference)	1 (reference)
Mild ($n=80$)	14 (17)	1.31 (0.58–2.95)	1.35 (0.65–3.28)
Moderate to severe ($n=23$)	11 (48)	5.69 (2.10–15.39)	6.94 (2.00–23.01)
Painful sites			
No daily pain ($n=101$)	14 (14)	1 (reference)	1 (reference)
Single site ($n=22$)	3 (14)	1.04 (0.27–4.02)	1.33 (0.43–5.37)
Multiple sites ($n=81$)	22 (27)	2.34 (1.11–4.94)	2.10 (0.99–4.97)

[a]Adjusted for age, gender, education, BMI, osteoarthritis, hypertension, depression, and number of diseases.

IASP

PAIN® 153 (2012) 305–310

PAIN®

www.elsevier.com/locate/pain

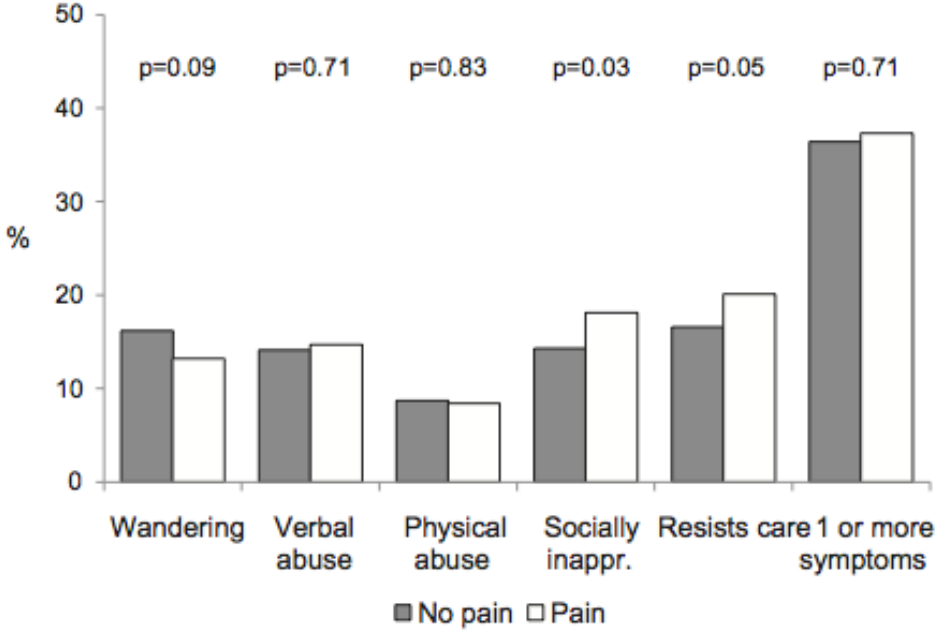
Association of pain with behavioral and psychiatric symptoms among nursing home residents with cognitive impairment: Results from the SHELTER study

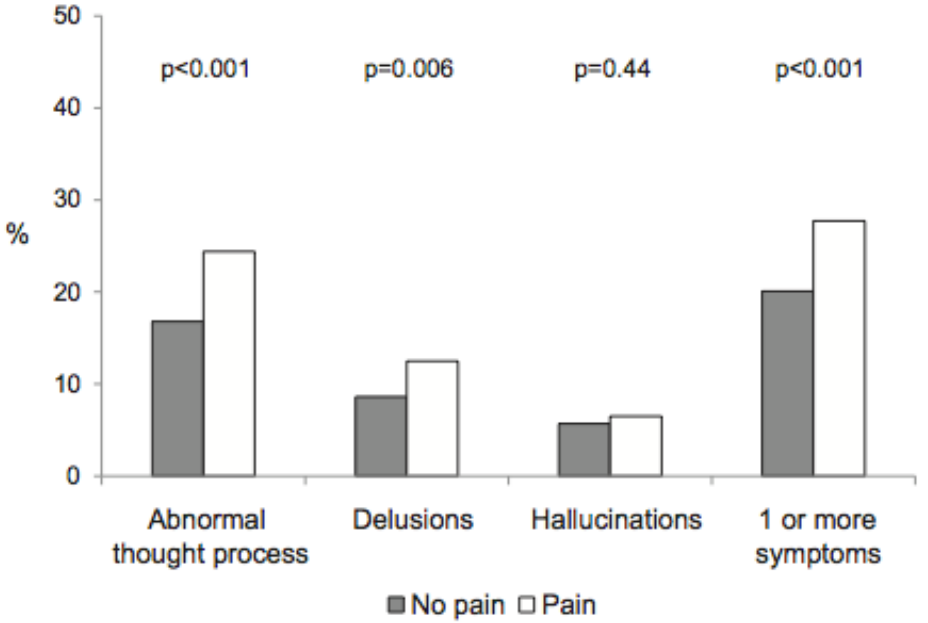
Matteo Tosato [a,1], Albert Lukas [b,1], Henriette G. van der Roest [c,1], Paola Danese [a,1], Manuela Antocicco [a,1], Harriet Finne-Soveri [d,1], Thorsten Nikolaus [b,1], Francesco Landi [a,1], Roberto Bernabei [a,1], Graziano Onder [a,*,1]

[a] *Centro Medicina dell'Invecchiamento, Università Cattolica Sacro Cuore, Dipartimento di Scienze Gerontologiche, Geriatriche e Fisiatriche, Largo F. Vito 1, 00168 Rome, Italy*
[b] *AGAPLESION Bethesda Clinic, Competence Center of Geriatrics and Aging Research, University of Ulm, Zollernring 26, D-89073 Ulm, Germany*
[c] *EMGO Institute for Health and Care Research, Department of Nursing Home Medicine, VU University Medical Center, Van der Boechorststraat 7, 1081 BT Amsterdam, The Netherlands*
[d] *Ageing and Services Unit, National Institute for Health and Welfare, P.O. Box 30, FI-00271 Helsinki, Finland*

DOLORE CRONICO

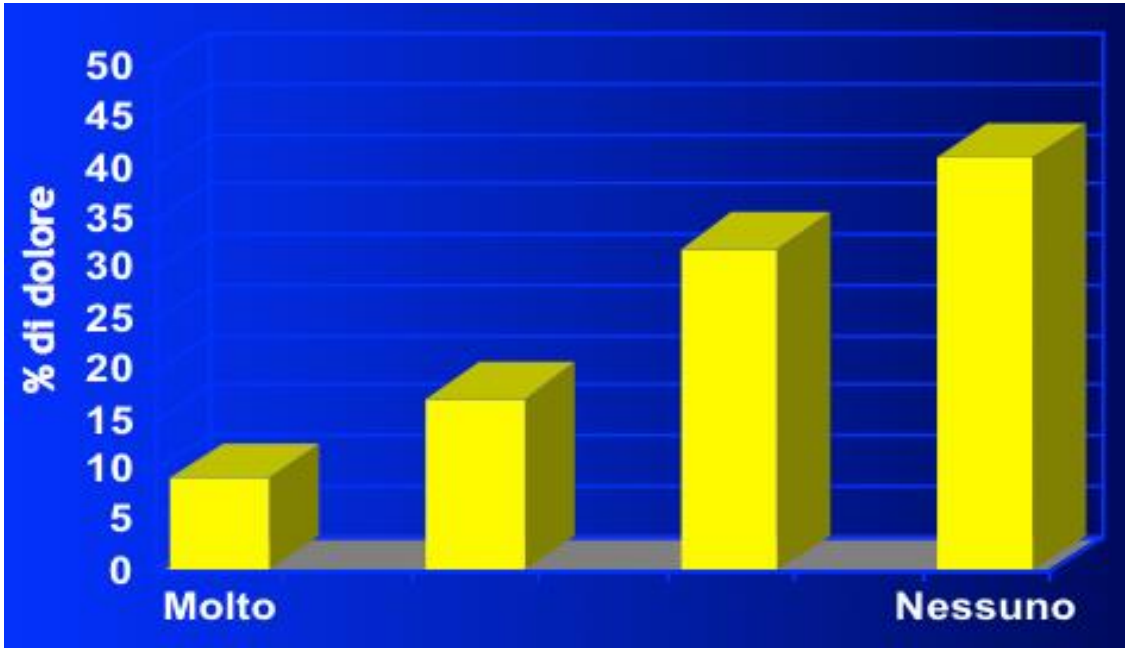
Prevalence of behavioural and psychiatric symptoms (bottom) according to presence of pain.





Dolore … e solitudine

Correlazione tra il tempo impiegato in attività e la presenza di dolore



Dolore … e catetere/contenzione

	Dolore quotidiano (n=4003)	*Nessun dolore* (n=9610)*	*ODDS RATIO*	*95% CI*
Donne	2472	5283	1.32	(1.21-1.44)
Stato civile				
Celibe/Nubile	1836	4455	1.0	
Vedovo	2167	5155	1.24	(1.10-1.39)
Compromissione nelle ADL	2875	6513	1.19	(1.08-1.31)
Depressione	1026	1568	1.56	(1.41-1.72)
Uso di catetere	827	1502	1.16	(1.04-1.30)
Mezzi di contenzione	3069	6774	1.21	(1.10-1.33)

JAMA

Bernabei et al. JAMA 1998; 279: 1877-1882

EJP European Journal of Pain

ORIGINAL ARTICLE

Effects of a psychosocial intervention programme combined with exercise in community-dwelling older adults with chronic pain: A randomized controlled trial

T. Hirase[1], H. Kataoka[2], J. Nakano[1], S. Inokuchi[1], J. Sakamoto[1], M. Okita[3]

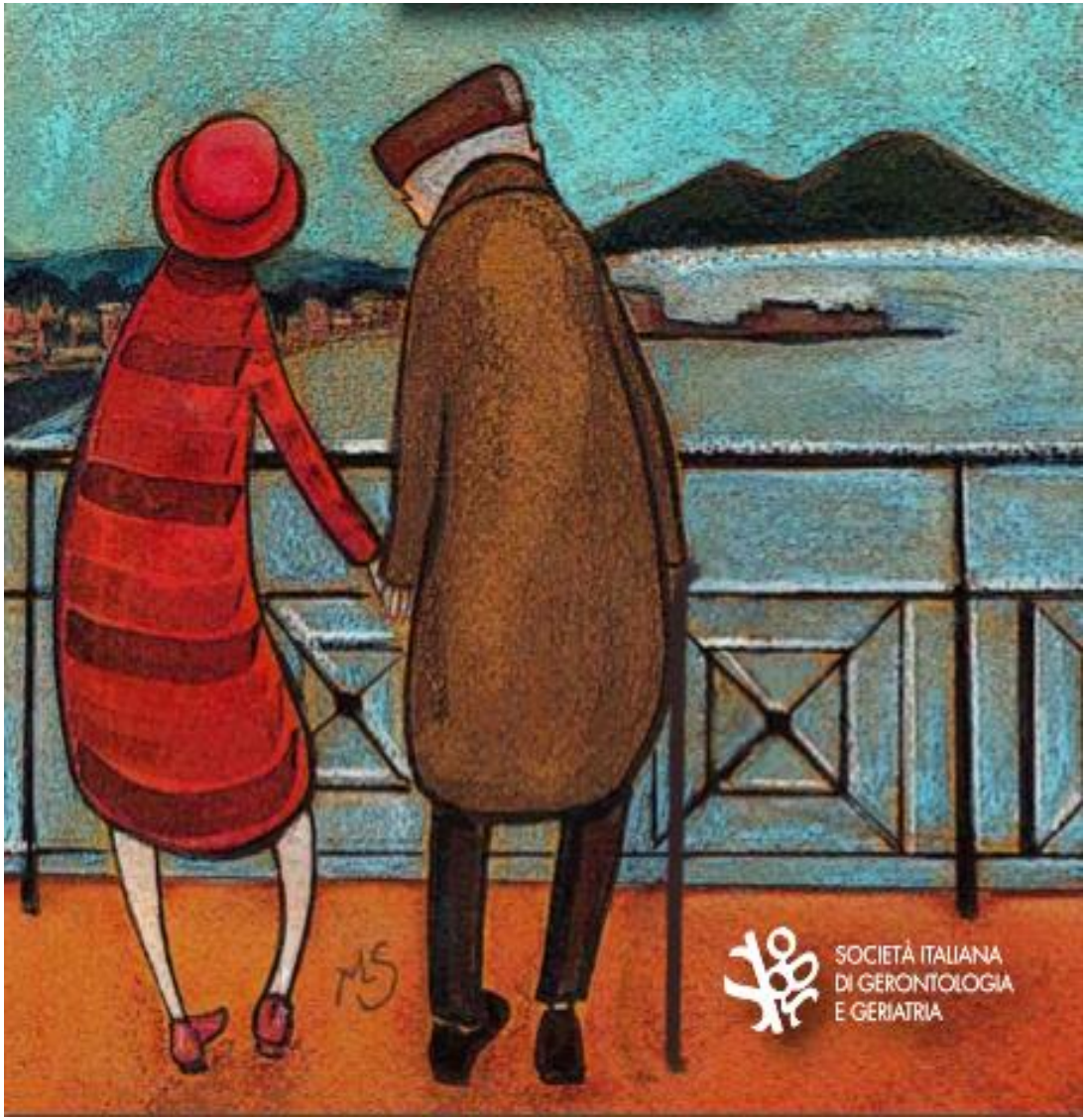
1 Department of Physical Therapy Sciences, Nagasaki University Graduate School of Biomedical Sciences, Japan
2 Department of Rehabilitation, Nagasaki Memorial Hospital, Japan
3 Department of Locomotive Rehabilitation Science, Nagasaki University Graduate School of Biomedical Sciences, Japan

DOLORE CRONICO

Item	Intervention group (n = 63)			Control group (n = 62)			Time-by-Group interaction	
	Pre-intervention	After 12 weeks	Effect size	Pre-intervention	After 12 weeks	Effect size	F-value	p-Value
Total number of pain sites	2.9 ± 1.8	2.5 ± 1.8	0.27	2.9 ± 2.0	2.7 ± 1.5	0.11	0.570	0.452
NRS at the site of maximum pain	4.9 ± 2.1	3.8 ± 2.0[ab]	0.61	5.2 ± 2.4	4.8 ± 1.9	0.17	3.220	0.075
PDAS (points)	13.6 ± 10.6	12.5 ± 10.3	0.16	13.3 ± 9.4	15.5 ± 10.8[b]	0.30	7.099	0.009
CST (s)	8.9 ± 2.9	8.0 ± 2.7[b]	0.67	8.8 ± 3.1	8.0 ± 2.8[b]	0.56	0.158	0.692
TUG (s)	8.5 ± 2.1	7.9 ± 1.9[b]	0.55	8.5 ± 2.2	7.9 ± 2.1[b]	0.43	0.000	0.991
GDS-15 score (points)	3.3 ± 3.5	2.8 ± 3.2	0.23	3.2 ± 3.1	3.4 ± 3.1	0.11	2.912	0.090
PCS total score (points)	31.1 ± 10.4	27.2 ± 9.9[b]	0.54	29.0 ± 10.6	29.5 ± 11.6	0.06	9.027	0.003
Rumination score (points)	13.6 ± 4.3	12.0 ± 4.5[b]	0.46	12.7 ± 4.0	13.5 ± 5.6	0.16	10.078	0.002
Helplessness score (points)	10.9 ± 4.1	9.5 ± 4.4[b]	0.42	10.0 ± 4.4	9.8 ± 4.6	0.05	3.346	0.070
Magnification score (points)	6.6 ± 3.2	5.8 ± 3.0[b]	0.31	6.4 ± 3.2	6.2 ± 3.2	0.07	1.906	0.170
Daily step counts (steps)	3653.1 ± 2181.7	4110.9 ± 2597.5[ab]	0.30	3741.2 ± 2110.4	3276.1 ± 1777.1[b]	0.35	13.102	0.000
Mild activity times (s)	2252.6 ± 1248.3	2460.6 ± 1319.9	0.26	2323.4 ± 1290.3	2028.7 ± 1166.8[b]	0.33	9.732	0.002
Moderate activity times (s)	197.7 ± 340.9	270.5 ± 488.8[b]	0.29	212.1 ± 277.7	163.7 ± 162.3	0.25	8.141	0.005
Heavy activity times (s)	12.2 ± 30.2	9.8 ± 23.3	0.16	13.1 ± 27.1	17.5 ± 29.4	0.17	3.173	0.077

Values are expressed as mean ± standard deviation (SD). Effect sizes were calculated as the standardized mean difference from pre- to post-intervention within each group. NRS, Numerical Rating Scale; CST, Chair Stand Test; PDAS, Pain Disability Assessment Scale; TUG, Timed Up and Go test; GDS-15, 15-item version of the Geriatric Depression Scale; PCS, Pain Catastrophizing Scale.

DOLORE CRONICO



UNIVERSITÀ CATTOLICA del Sacro Cuore

SPRINTT Trial

62° CONGRESSO NAZIONALE SIGG NAPOLI2017 29 novembre - 2 dicembre INVECCHIAMENTO: SCENARIO 2.0

Facebook SPRINTT Italia