Conséquences psychologiques d'un séjour en réanimation

Maité Garrouste-Orgeas

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OUTCOMEREA

Fondation Diaconesses de Reuilly

HÔPITAL FRANCO-BRITANNIQUE

“A story with gaps”: An interpretative phenomenological analysis of ICU survivors’ experience

Cécile Flahault[1], Christel Vioulac[1], Léonor Fasse[1], Sébastien Bailly[2], Jean-François Timsit[3,4,5], Maité Garrouste-Orgeas[3,6,7]*

PLOS ONE 2022

The nightmare of the ICU experience: From an impression of vagueness to dispossession

In dreadful violence, I saw my daughter slaughtered in front of me, twice. And I, I have. . . the friends who came to see me, or all of the people close to me. . . had disasters at home, were responsible for fatal accidents or themselves seriously injured, or. . . really terrible things, terrible, terrible. » M, female, 65 years old

« I feel like the anesthetics had. . . some kind of power to. . . to. . . to make our emotions. . . much more intense. Because when I was euphoric, I was euphoric when there was no reason to be. But on the other hand, when I was stressed, uh. . . mind you, I am not stressed by nature. But when I was stressed, I was really stressed. » E, male, 36 years old

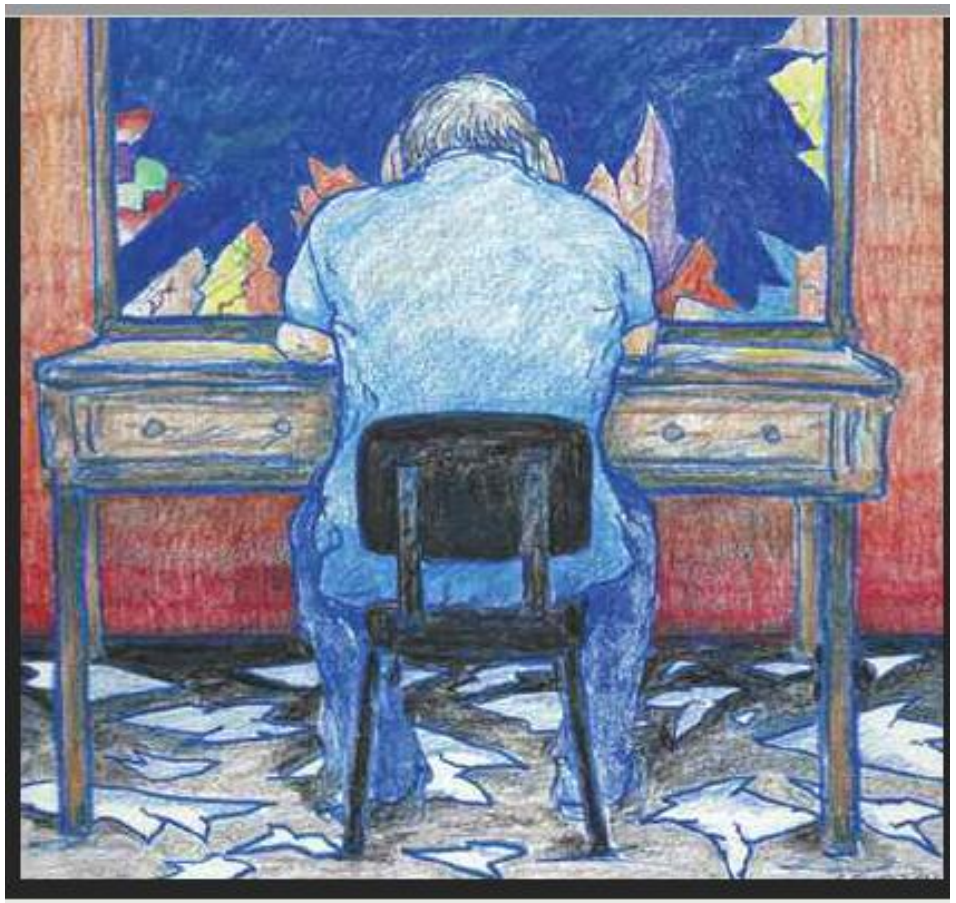
« *I was out of it, I was delirious. . .once. . . I thought I was seeing my wife next to me, close, not far away. But it was not real, she was not there. » P, male, 65 years old*

“I was out of it” were mentioned by several participants depicting an experience of dissociation or dispossession.

« I am telling you, either I was completely out of it. I was saying nonsense, because I was seeing things. » B, female, 72 years old

The positive image of health-care workers during intensive care

female, 72 years old: « The staff: caregivers. . . were absolutely wonderful. I think I told you. Very attentive to me, of course, with all the devices I was connected to. And, it seems, very kind to my family



A survivor's story

More than 3 years have passed since I left the hospital. I now live with an adjusted quality of life and a "new normal" that I must accept as I do my best to be productive and happy. I'm

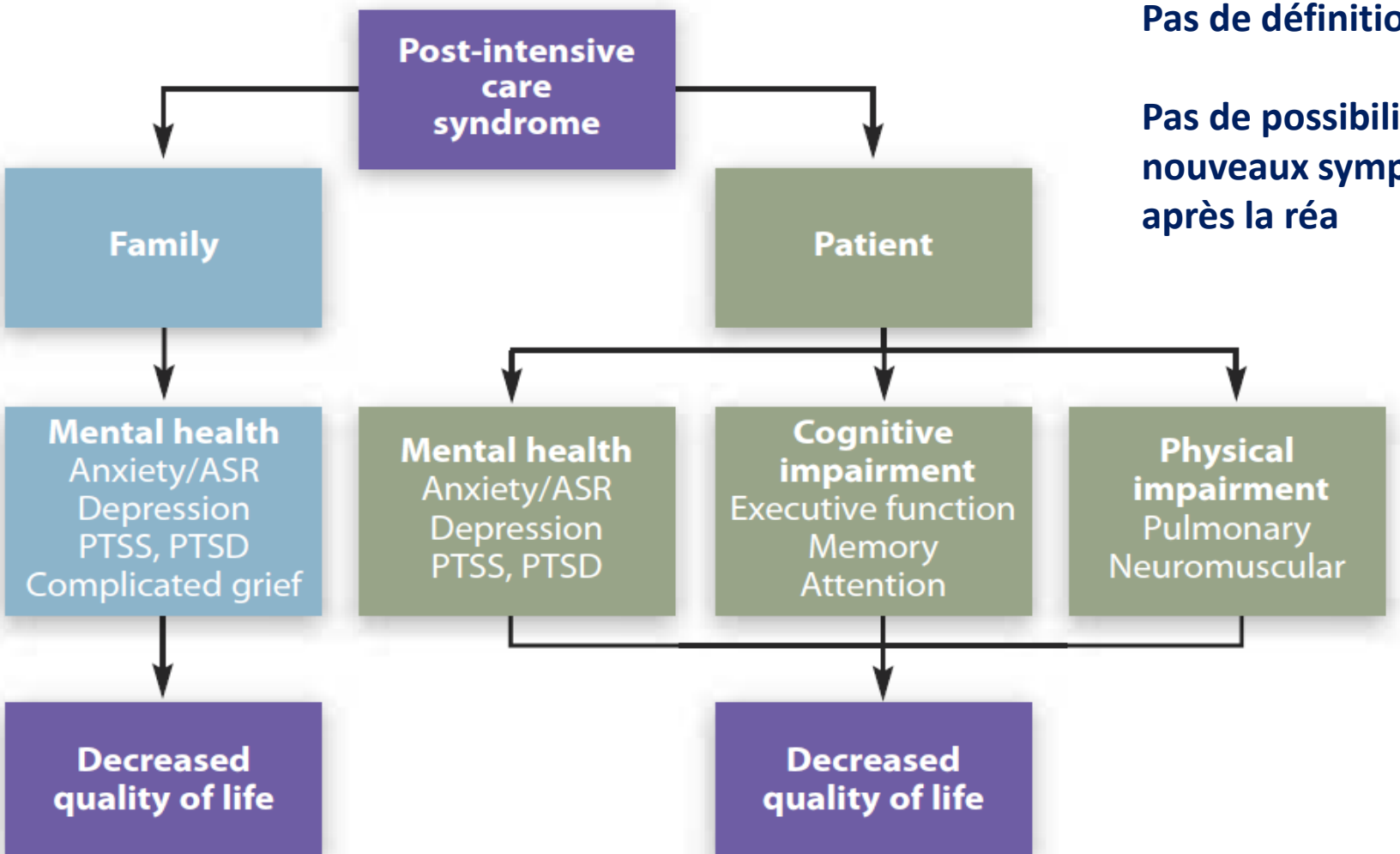
La vie d’après…….

1 an après la sortie

- -Plus de consultations avec les MG 1 an avant et après la sortie (étude cas control)(Van Beusekom, Plos one 2019).
- -Augmentation des ré-admissions (Van Beusekom, Plos one 2019, Shankar Hari M, ICM 2020)
- -30% des patients ont leur revenus diminués (Griffiths J CC 2013)
- -50% ne retravaillent pas (Griffiths J CC 2013)
- -25% ont des difficultés avec les actes de la vie quotidienne (Inoue S Acute Med Surg 2019)

Year	Title of Original Research Article	First Author	Citations	Citations (First Three Years)
2012	Improving long-term outcomes after discharge from intensive care unit: Report from a stakeholders' conference	DM Needham	939	91

PICS model



Pas de définition officielle

Pas de possibilité de connaitre les nouveaux symptômes apparus après la réa

Long-term outcomes after critical illness: recent insights

Anne-Françoise Rousseau[1], Hallie C. Prescott[2], Stephen J. Brett[3,4], Björn Weiss[5,6], Elie Azoulay[7], Jacques Creteur[8], Nicola Latronico[9,10], Catherine L. Hough[11], Steffen Weber-Carstens[5,6], Jean-Louis Vincent[8] and Jean-Charles Preiser[8,12*]

CRITICAL CARE

2021

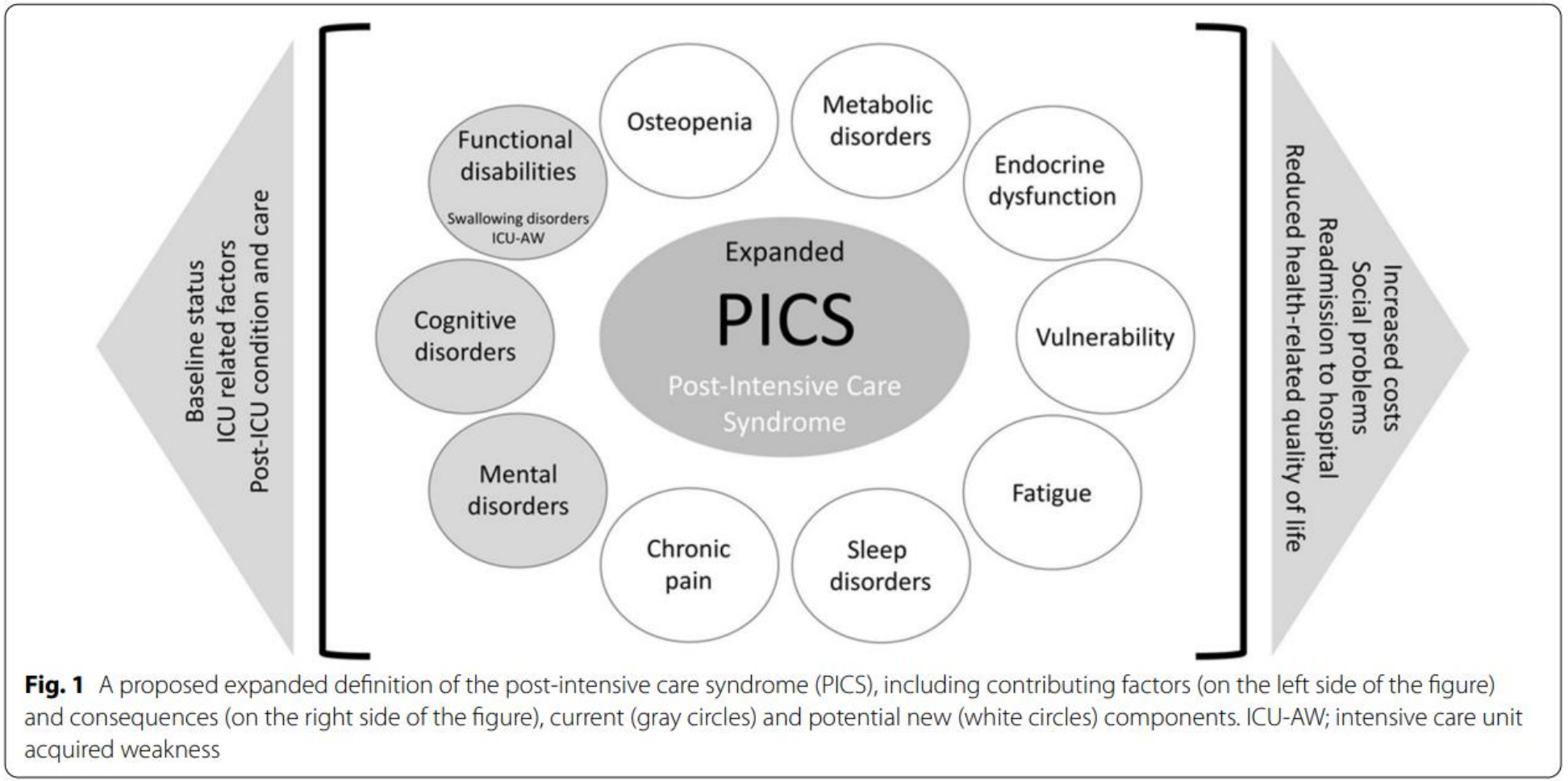


Fig. 1 A proposed expanded definition of the post-intensive care syndrome (PICS), including contributing factors (on the left side of the figure) and consequences (on the right side of the figure), current (gray circles) and potential new (white circles) components. ICU-AW; intensive care unit acquired weakness

Plan

- La réalité des conséquences psychologiques
- La détection des patients à risque à la sortie du service
- Les mesures de prévention

Frequency and risk factors of post-intensive care syndrome components in a multicenter randomized controlled trial of German sepsis survivors

Kosilek R.P. [a,*], K. Schmidt [b,c], Baumeister S.E. [d,e], J. Gensichen [a], for the SMOOTH Study Group

Journal of Critical Care 65 (2021) 268–273

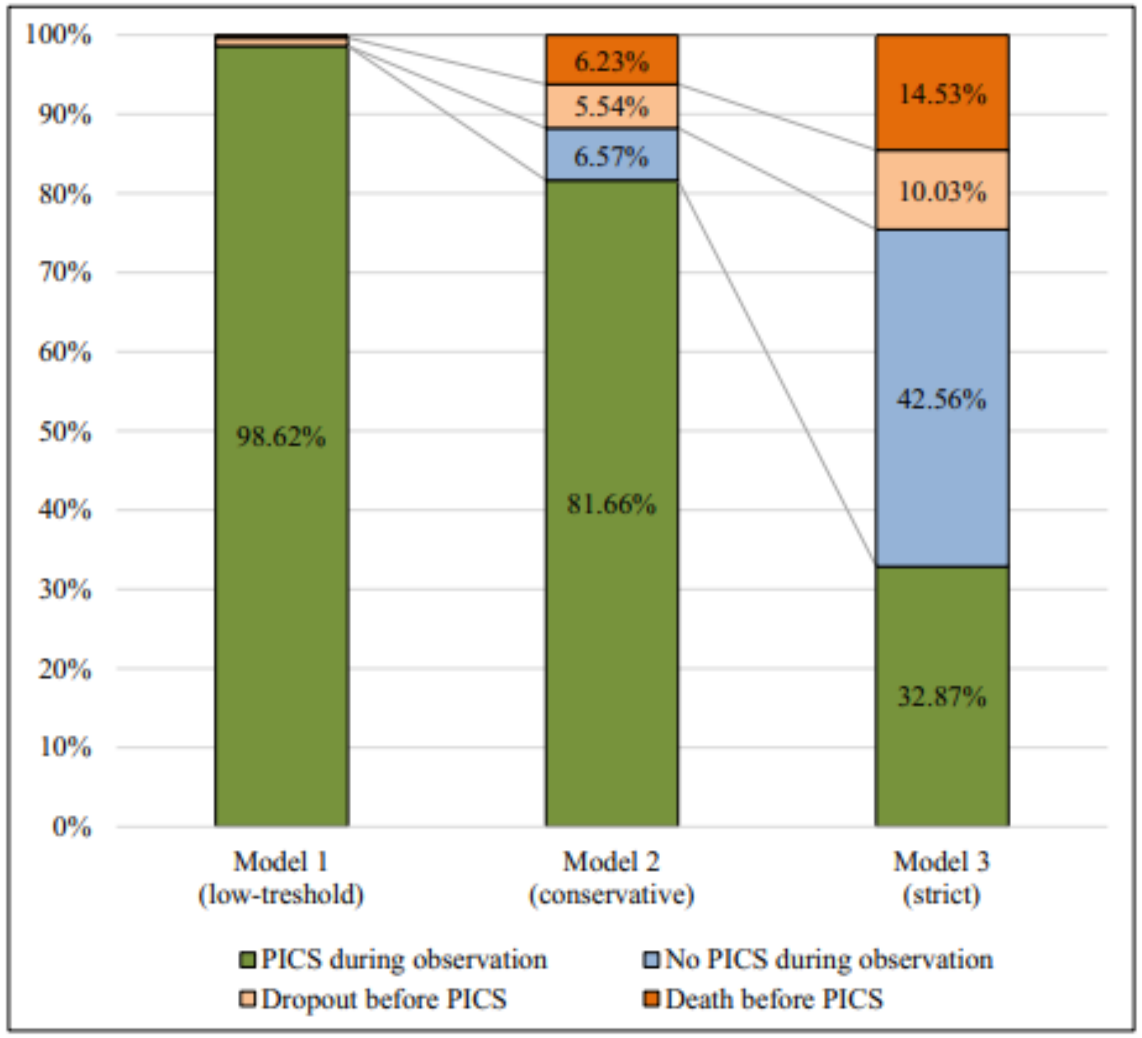
2021

24 months post-ICU

Model 1: impairment in mental or cognitive or physical

Model 2: one impairment in the combined neuropsychiatric (depression, PTSD, cognition) AND physical domain

Model 3: impairment in mental (depression, PTSD) AND cognition AND physical domain



Posttraumatic Stress Disorder in Critical Illness Survivors: A Metaanalysis*

Ann M. Parker, MD[1,2]; Thiti Sricharoenchai, MD[3]; Sandeep Raparla, MD[4]; Kyle W. Schneck, BA[5]; O. Joseph Bienvenu, MD, PhD[2,6]; Dale M. Needham, FCA, MD, PhD[1,2,7]

Critical Care Medicine

2015

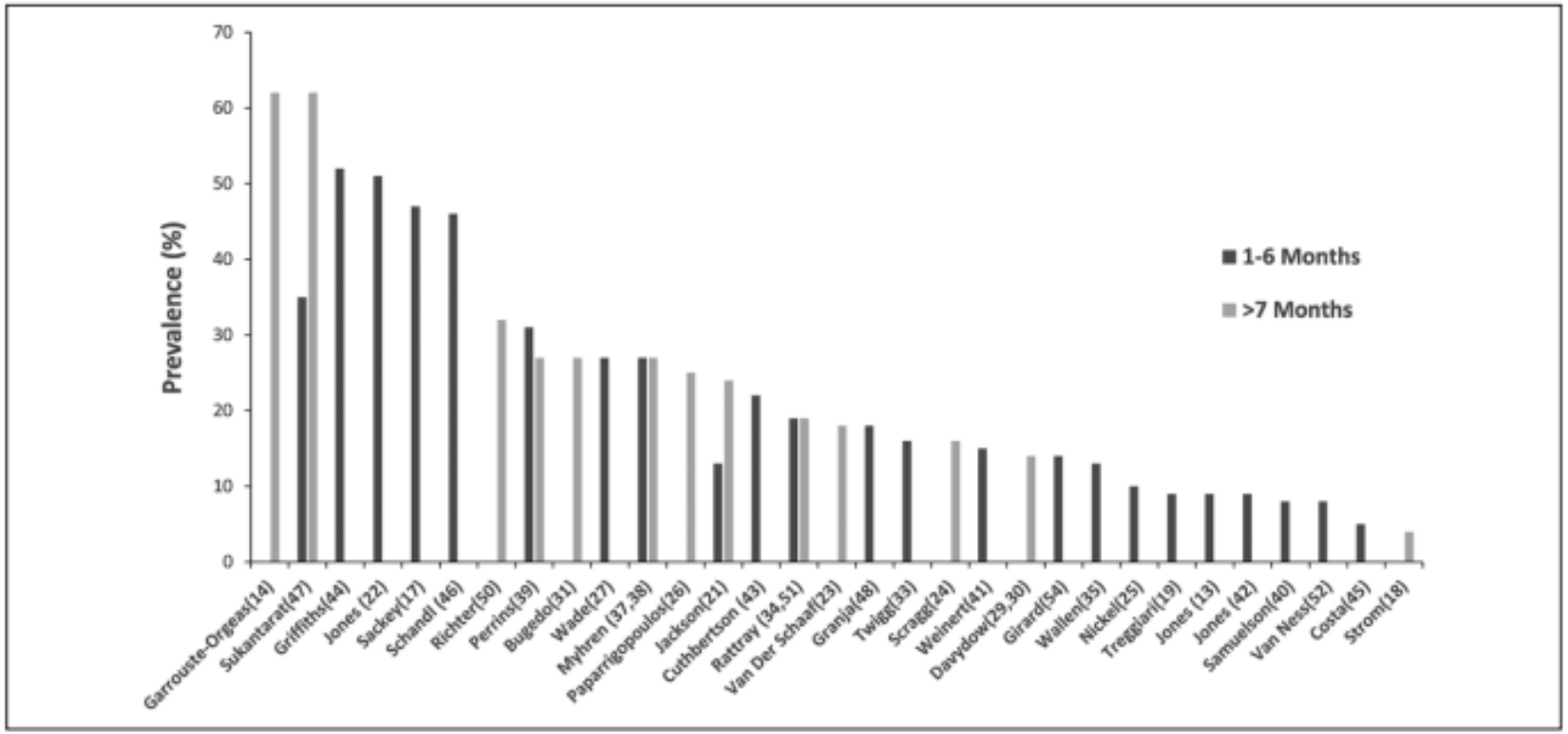


Figure 2. Posttraumatic stress disorder symptom prevalence in critical illness survivors by study and follow-up time period.

1 à 6 mois:

IES-R score > 35: 25% (18-34)
IES-R score > 20: 44% (36-52)

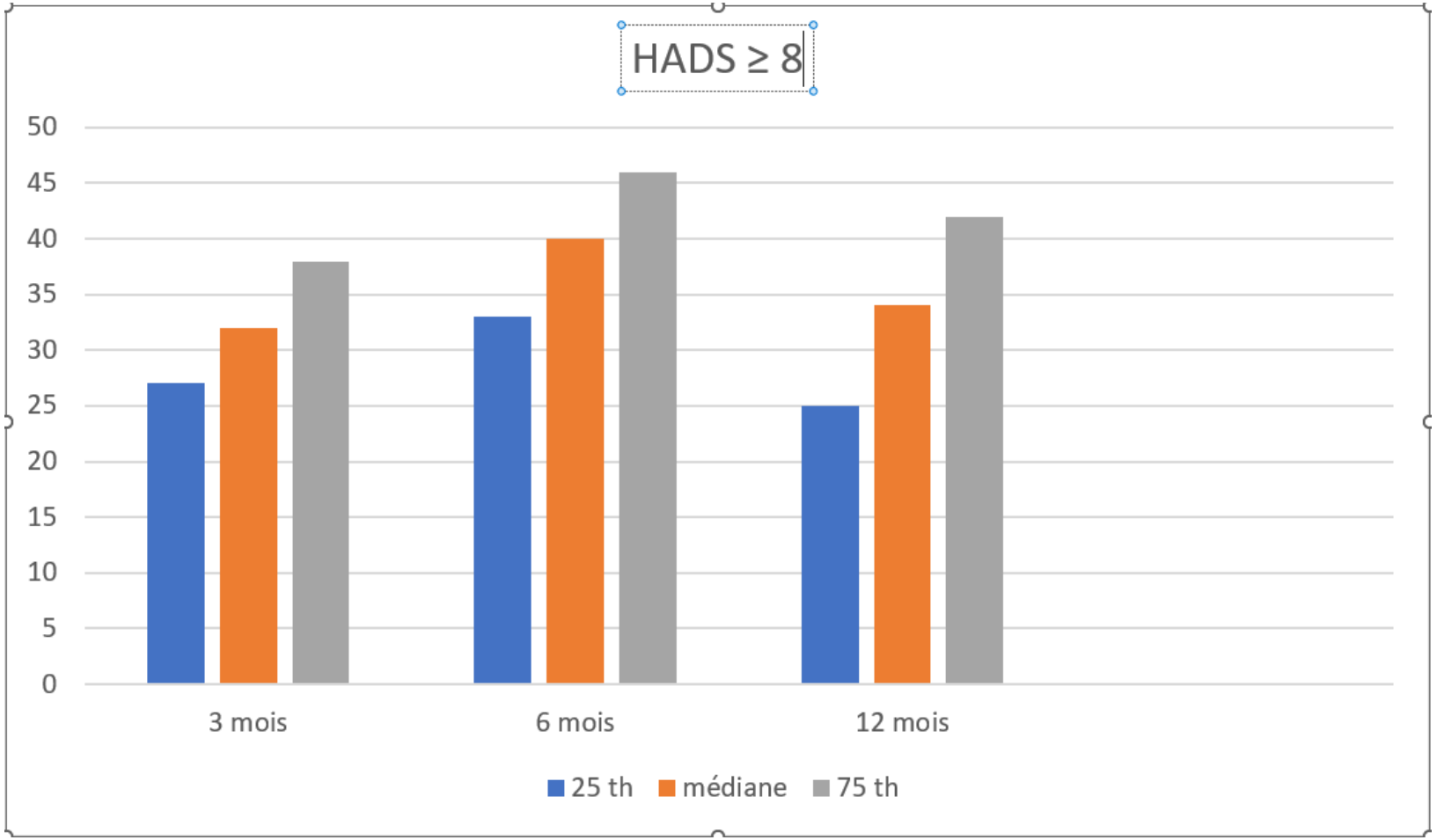
> 6 mois:
IES-R score > 35: 17% (10-26)
IES-R score > 20: 34% (22-50)

Anxiety symptoms in survivors of critical illness: a systematic review and meta-analysis☆

Sina Nikayin, M.D. [a,b], Anahita Rabiee, M.D. [a,b], Mohamed D. Hashem, M.D. [a,b], Minxuan Huang, Sc.M. [a,b], O. Joseph Bienvenu, M.D., Ph.D. [a,c], Alison E. Turnbull, D.V.M., M.P.H., Ph.D. [a,b,d], Dale M. Needham, F.C.P.A., M.D., Ph.D. [a,b,e,*]

2016

27 études publiées > 2000
2880 patients



Depression, post-traumatic stress disorder, and functional disability in survivors of critical illness in the BRAIN-ICU study: a longitudinal cohort study

THE LANCET Respiratory Medicine

2014

	3 month follow-up cohort (n=448)	12 month follow-up cohort (n=382)
Psychological		
Depression (Beck Depression Inventory II)		
Data available	406	347
Score	10·0 (5·0–17·0)	10·0 (4·6–16·5)
Somatic score	8 (5–13)	8 (4–13)
Cognitive–affective score	2 (0–4)	1 (0–5)
No depression (score of 0–13)	257 (63%)	231 (67%)
Mild depression (score of 14–19)	66 (16%)	43 (12%)
Moderate depression (score of 20–28)	47 (12%)	48 (14%)
Severe depression (score of ≥29)	36 (9%)	25 (7%)

Even though somatic items account for only 21 of 63 points on the BDI II, test scores on the BDI II were higher on the somatic than the cognitive–affective scale at 3 months and 12 months.

Association of COVID-19 Acute Respiratory Distress Syndrome With Symptoms of Posttraumatic Stress Disorder in Family Members After ICU Discharge

JAMA® 2022

Elie Azoulay, MD, PhD[1]; Matthieu Resche-Rigon, MD, PhD[2]; Bruno Megarbane, MD, PhD[3]; et al

eTable 5. Day 90 Outcomes in 307 Surviving Patients

N (%) or Median [interquartile range]	**COVID-19**	**Non-COVID-19**	***P* value**
Patients	**N=178**	**N=129**	
Impact of Event Scale - Revised	8 [3-19]	7 [3-18]	.59
Proportion of patients with PTSD-related symptoms (IES-R>22)	30/150 (20%)	16/105 (15%)	.24
HADS anxiety subscale	3 [1-6]	5 [2-8]	.01
Proportion of patients with symptoms of anxiety (subscale≥7)	38/154 (25%)	38/108 (35%)	.07
HADS depression subscale	2 [1-6]	3 [1-6]	.25
Proportion of patients with symptoms of depression (subscale≥7)	32/148 (22%)	26/107 (24%)	.65
Quality of life (SF-36)			
Mental health component	54.7 [46.7-60.3]	53.3 [43.3-58.0]	.20
Physical health component	41.7 [31.9-49.8]	39.3 [24.8-48.7]	.14

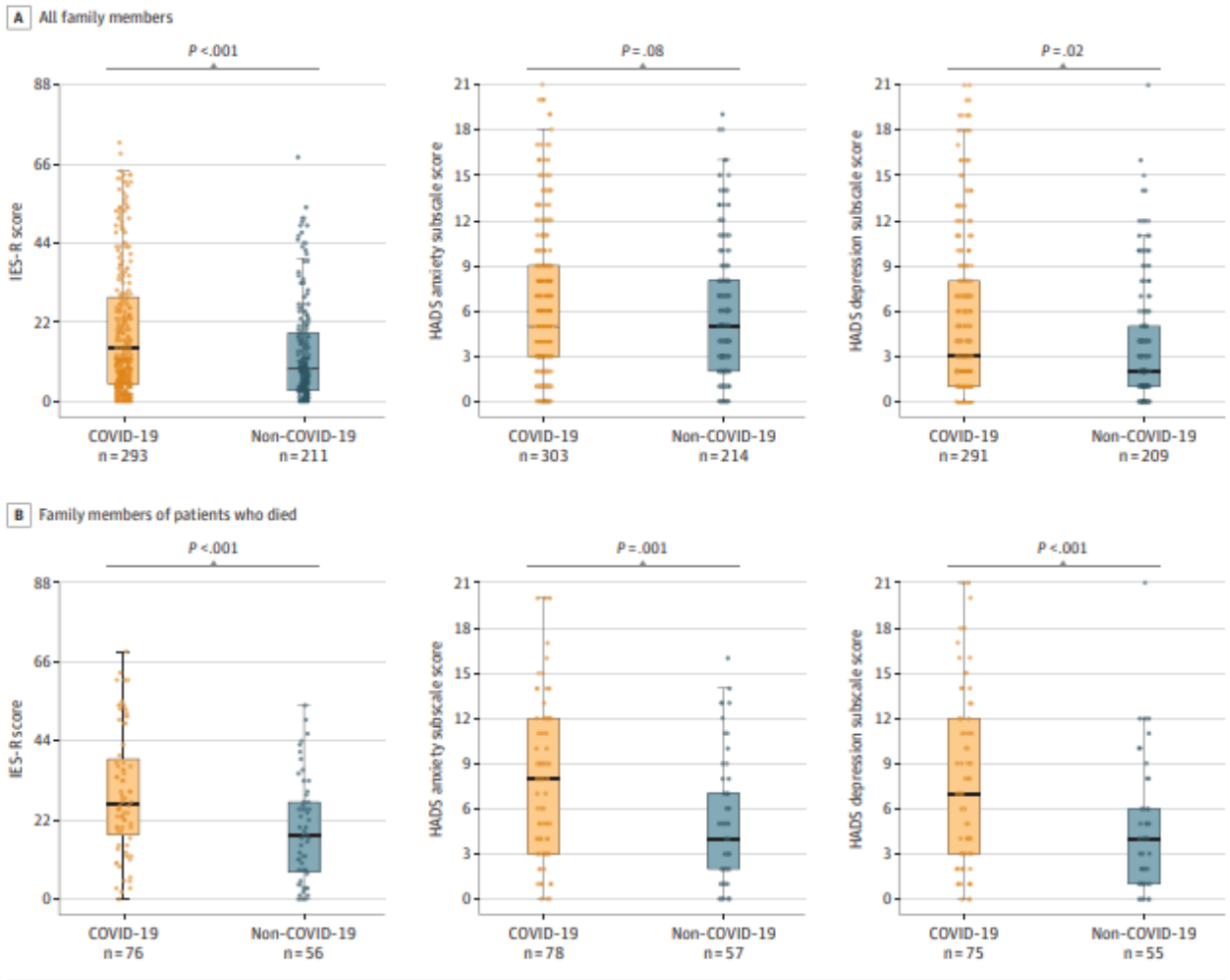
The presence of PTSD-related symptoms was defined by the proportion of patients with an IES-R>22

Association of COVID-19 Acute Respiratory Distress Syndrome With Symptoms of Posttraumatic Stress Disorder in Family Members After ICU Discharge

Elie Azoulay, MD, PhD[1]; Matthieu Resche-Rigon, MD, PhD[2]; Bruno Megarbane, MD, PhD[3]; et al

JAMA® 2022

Figure 2. Symptoms of Posttraumatic Stress Disorder, Anxiety, and Depression in Family Members of Patients With COVID-19 ARDS vs Non–COVID-19 ARDS



Association of social deprivation with 1-year outcome of ICU survivors: results from the FROG-ICU study

Kathleen Bastian[1,2,3], Alexa Hollinger[1,2,3], Alexandre Mebazaa[1,2,4], Elie Azoulay[1,4], Elodie Féliot[1], Karine Chevreul[5,6], Marie-Céline Fournier[1,2], Bertrand Guidet[7], Morgane Michel[6], Philippe Montravers[4,8], Sébastien Pili-Floury[9,10], Romain Sonneville[11], Martin Siegemund[3] and Etienne Gayat[1,2,4*] on behalf of the FROG-ICU Study Investigators

2018

Table 3 Relation between socioeconomic status and health-related quality of life/psychological impact among ICU survivors

	All patients, $n=1447$	FDep nondeprived, $n=972$	FDep deprived, $n=475$	p value*	% of missing values
HADS-A ≥ 8	323 (22.3%)	218 (22.4%)	105 (22.1%)	0.899	588 (40.6%)
HADS-D ≥ 8	270 (18.7%)	189 (19.4%)	81 (17.1%)	0.348	587 (40.6%)
IES-R > 22	219 (15.1%)	149 (31.6%)	70 (14.7%)	0.931	757 (52.3%)
SF-36 3 months					
MCS	560	44.9 [32.2; 65.3]	43.8 [30.5; 67.2]	0.865	887 (61.3%)
PCS	560	39.4 [24.4; 58.8]	39.7 [23.8; 58.6]	0.643	887 (61.3%)
SF-36 6 months					
MCS	556	50 [34.2; 69.9]	50.1 [34.5; 74.7]	0.856	891 (61.6%)
PCS	559	45 [30; 69.1]	44.1 [28.8; 63.1]	0.643	888 (61.4%)
SF-36 12 months					
MCS	555	59.3 [37; 78.1]	54.2 [37.2; 74.5]	0.189	892 (61.6%)
PCS	566	54.4 [35; 78.8]	47.5 [30; 68.8]	0.010	881 (60.9%)

FDep French Deprivation Index, *HADS* Hospital Anxiety and Depression Scale, *HADS-A* anxiety subscale, *HADS-D* depression subscale, *IES-R* Impact of Event Scale-Revised, *MCS* mental component scale, *PCS* physical component scale, *SES* socioeconomic status, *SF-36* Medical Outcome Survey Short Form-36

*From non-parametric Chi-squared test

Risk factors for psychological sequellae

2021

Psychological		
	Depressive symptoms	Female sex
		Older age
		Poor physical functioning before ICU admittance
		Admission to surgical ICU
		Maximum organ dysfunction score
		High mean daily benzodiazepine dose
	PTSD	Preexisting mental health problems
		Negative ICU experiences
		High disease severity
	Anxiety	Negative ICU experiences
		Older age
		Female
		Preexisting anxiety
		ICU hypoxemia
		ICU hypoglycemia
		ICU hypotension
		ICU duration of mechanical ventilation

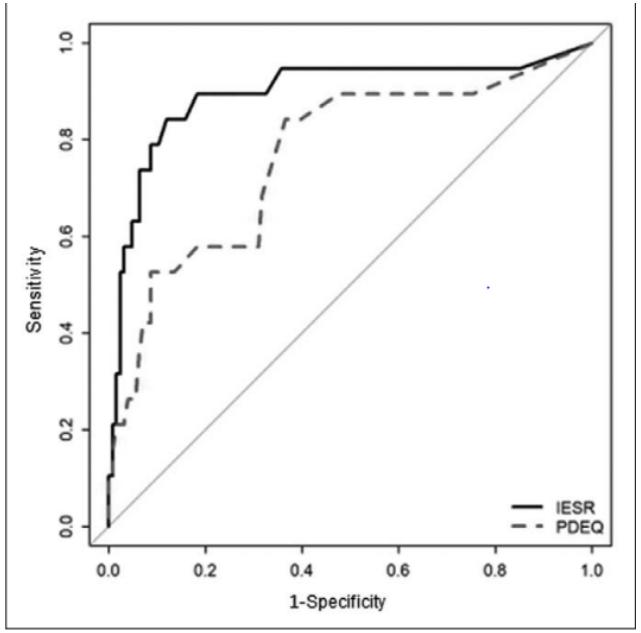
Patient-related		
	Demographics	Age
		Sex
		Financial status
		Social support system
	Personality traits	Coping mechanisms
	Comorbidities (prior to ICU admission)	
ICU-related		
	Diagnosis	Sepsis, trauma, respiratory disease, burns, etc.
	ICU treatment	Ventilation, sedatives, analgesics, vasopressors, antibiotics, etc.
	Complications	Delirium, pain, etc.

Early Detection of Patients at Risk of Developing a Post-Traumatic Stress Disorder After an ICU Stay*

Critical Care Medicine

2020

Emilie Wawer, MD[1,2]; Marie Viprey, PharmD, PhD[3,4]; Bernard Floccard, MD[5]; Mohamed Saoud, MD, PhD[2]; Fabien Subtil, PhD[6,7]; Hashim Wafa, MD[4]; Elodie Rheims, MD[2]; Thomas Rimmelé, MD, PhD[5]; Emmanuel Poulet, MD, PhD[1]

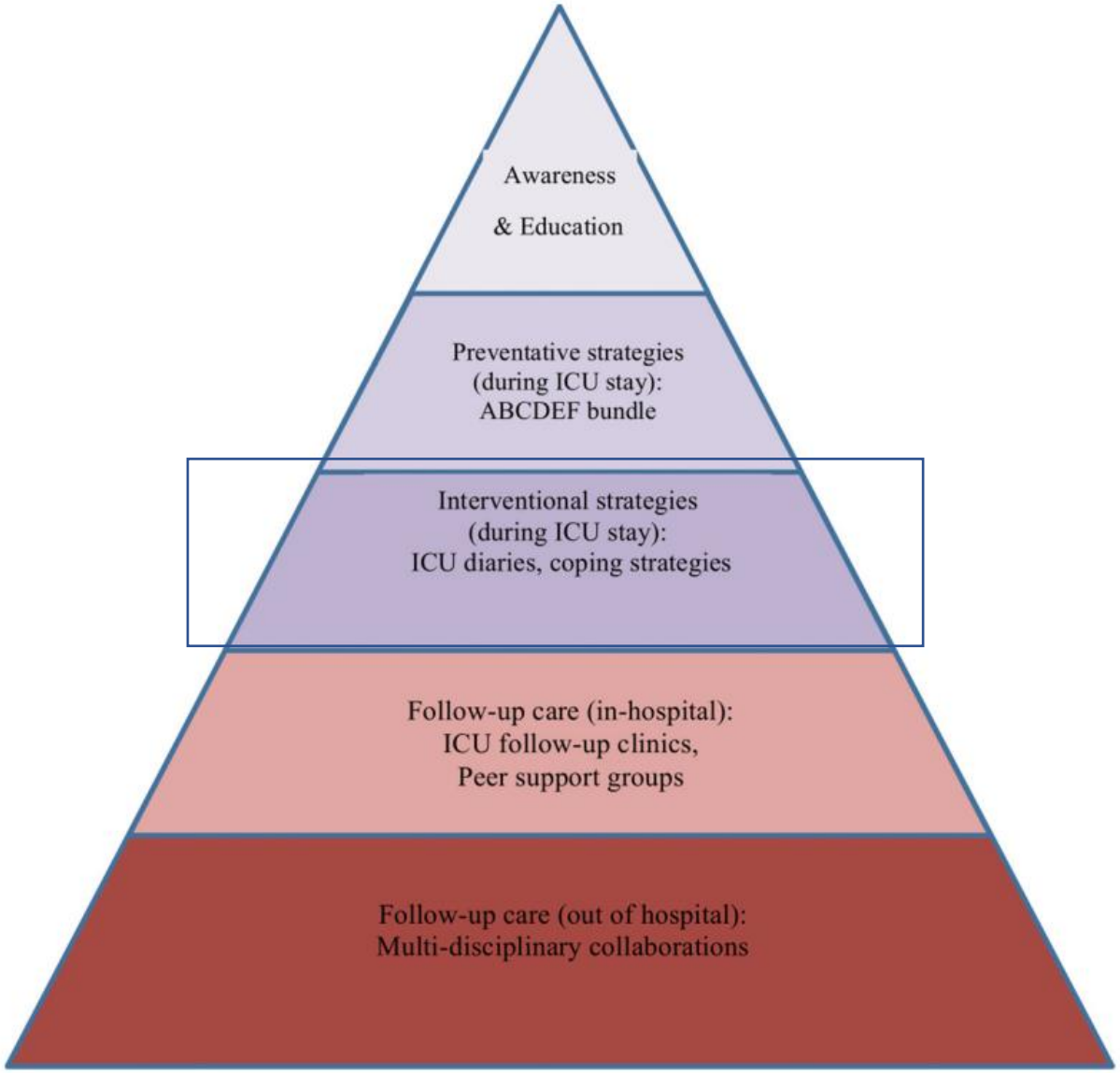


AUC IES-R > 12: 0,90, 95 CI: 0,80-0,99)
(one week ICU discharge):

Risk Factors	Patients Assessed Univariate Analysis OR (95% CI)	p	Patients Assessed Multivariate Analysis[a] OR (95% CI)	p
Female gender	1.71 (0.62–4.73)	0.31		
Age, yr		0.20		
40–60/≤ 40	3.18 (0.63–16.03)			
> 60/≤ 40	1.41 (0.28–7.12)			
Psychiatry history				
Depression	2.85 (1.07–7.63)	0.04		
Anxiety disorder	4.12 (1.51–11.30)	0.01	3.70 (1.24–11.05)	0.02
Post-traumatic stress disorder	7.14 (1.93–26.46)	0.01		
Addiction	2.89 (1.03–8.09)	0.04		
Ongoing psychotropic treatment	2.75 (1.03–7.35)	0.04		
Delusional memories	1.95 (0.72–5.27)	0.18		
Administration of benzodiazepines	2.38 (0.85–6.67)	0.09		
Peritraumatic Dissociative Experiences Questionnaire score within 8 d after ICU discharge ≥ 15	8.11 (2.25–29.27)	< 0.001		
Impact Event Scale-Revisited score within 8 d after ICU discharge ≥ 12	17.62 (3.89–79.91)	< 0.001	16.57 (3.59–76.46)	< 0.001

Prévention

Conceptual framework of preventative and interventional strategies to decrease the burden of PICS



Effect of a Nurse-Led Preventive Psychological Intervention on Sympto… Among Cri… A Randomi…

Dorothy M. Wade, PhD; Pa…
Richard D. Grieve, PhD; Ly…
Sheila E. Harvey, PhD; Davi…
Chris Whitman, BSc; Kathr…

2019

Interv…

- Prom…
- Stres…

Inclus… …et +1
Mean…

Table 2. Primary and Secondary Outcomes

	Intervention ICUs			Control ICUs					
	Baseline Period, Mean (95% CI)	Intervention Period, Mean (95% CI)	Difference (95% CI)	Baseline Period, Mean (95% CI)	Intervention Period, Mean (95% CI)	Difference (95% CI)	Difference in Difference[a]	*P* Value	ICC (95% CI)
Primary Outcome at 6 mo[b]									
No. of patients	245	314		259	415				
PSS-SR symptom severity score[c]	11.8 (10.3 to 13.3)	11.5 (10.0 to 12.9)	−0.40 (−2.46 to 1.67)	10.1 (8.7 to 11.6)	10.2 (9.1 to 11.3)	0.06 (−1.74 to 1.85)	−0.03 (−2.58 to 2.52)	.98	0.01 (0.00 to 0.40)
Secondary Outcomes									
Short-term									
No. of patients	283	340		284	446				
Days alive and free from sedation to day 30	23.0 (22.1 to 23.9)	23.3 (22.4 to 24.1)	0.24 (−0.98 to 1.47)	24.3 (23.6 to 25.0)	24.0 (23.4 to 24.7)	−0.30 (−1.29 to 0.69)	0.47 (−1.03 to 1.96)	.54	0.00 (0.00 to 0.94)
Duration of ICU stay, d	14.0 (12.1 to 15.8)	14.6 (12.7 to 16.4)	0.61 (−2.02 to 3.23)	12.2 (10.6 to 13.8)	13.5 (12.2 to 14.8)	1.31 (−0.79 to 3.41)	−0.28 (−3.45 to 2.88)	.86	0.00 (0.00 to 0.00)
At 6 mo[b]									
No. of patients	245	314		259	415				
PSS-SR >18 points[c]	23.9 (18.1 to 29.7)[d]	24.1 (18.8 to 29.4)[d]	1.01 (0.66 to 1.56)[e]	19.8 (14.5 to 25.3)[d]	17.6 (13.6 to 22.0)[d]	0.87 (0.56 to 1.35)[e]	1.32 (0.66 to 2.67)[f]	.43	0.00 (0.00 to 1.00)
HADS anxiety score[g]	6.9 (6.2 to 7.6)	6.3 (5.7 to 7.0)	−0.60 (−1.57 to 0.37)	5.9 (5.3 to 6.7)	5.7 (5.2 to 6.2)	−0.26 (−1.13 to 0.62)	−0.24 (−1.50 to 1.01)	.70	0.01 (0.00 to 0.50)
HADS depression score[g]	6.0 (5.3 to 6.7)	5.8 (5.1 to 6.4)	−0.28 (−1.21 to 0.65)	5.3 (4.7 to 6.0)	5.3 (4.8 to 5.8)	0.01 (−0.82 to 0.84)	−0.22 (−1.40 to 0.95)	.71	0.00 (0.00 to 1.00)
EQ-5D-5L utility score[h]	0.66 (0.62 to 0.70)	0.67 (0.63 to 0.71)	0.01 (−0.05 to 0.06)	0.70 (0.66 to 0.74)	0.69 (0.66 to 0.72)	−0.01 (−0.06 to 0.04)	0.01 (−0.06 to 0.08)	.85	0.02 (0.01 to 0.07)

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of an ICU Diary on Posttraumatic Stress Disorder Symptoms Among Patients Receiving Mechanical Ventilation
A Randomized Clinical Trial

Maité Garrouste-Orgeas, MD; Cécile Flahault, PhD; Isabelle Vinatier, MD; Jean-Philippe Rigaud, MD, PhD; Nathalie Thieulot-Rolin, MD; Emmanuelle Mercier, MD; Antoine Rouget, MD; Hubert Grand, MD; Olivier Lesieur, MD, PhD; Fabienne Tamion, MD, PhD; Rebecca Hamidfar, MD; Anne Renault, MD; Erika Parmentier-Decrucq, MD; Yannick Monseau, MD; Laurent Argaud, MD, PhD; Cédric Bretonnière, MD; Alexandre Lautrette, MD, PhD; Julio Badié, MD; Eric Boulet, MD; Bernard Floccard, MD; Xavier Forceville, MD, PhD; Eric Kipnis, MD, PhD; Lilia Soufir, MD; Sandrine Valade, MD; Naike Bige, MD; Alain Gaffinel, MD; Olfa Hamzaoui, MD; Georges Simon, MD; Marina Thirion, MD; Lila Bouadma, MD, PhD; Audrey Large, MD; Jean-Paul Mira, MD, PhD; Nora Amdjar-Badidi, MD; Mercé Jourdain, MD, PhD; Paul-Henri Jost, MD; Virginie Maxime, MD; François Santoli, MD; Stéphane Ruckly, MSc; Christel Vioulac, PhD; Marie Annick Leborgne, MSc; Lucie Bellalou, MSc; Léonor Fasse, PhD; Benoit Misset, MD; Sébastien Bailly, PharmD, PhD; Jean-François Timsit, MD, PhD

Grant from

Fondation de France

JAMA. 2019;322(3):229-239.

OUTCOMEREA

RESEARCH

Objectives

To assess the effect of an ICU diary on the occurrence of psychological consequences in patients and families in the ICU setting

Design and setting

Assessor-blinded, multicenter (35 French ICUs), randomized CT

Intervention group: ICU diary opened at admission filled in by ICU staff and families members

Control group: Usual ICU care without ICU diary

Randomization: 1:1 ratio into two groups, stratification by center, secure web-base (block size 4)

Study participants

Inclusion criteria

Adults> 18 years old

Mechanical ventilation ≥ 48 hours initiated within 48 hours of ICU admission

Family member present at admission and susceptible to visit the patient

French language skills for patient and families members

Exclusion criteria

Preadmission diagnosis of dementia, psychosis

Cardiac arrest at admission

Acute neurologic diseases at admission

Mute or deaf patients

Probable death or withdrawal of life support within 48 hours of admission

Under Legal guardianship

Patients or families included in other study with a telephone interview after ICU discharge

Outcomes and measures

Primary

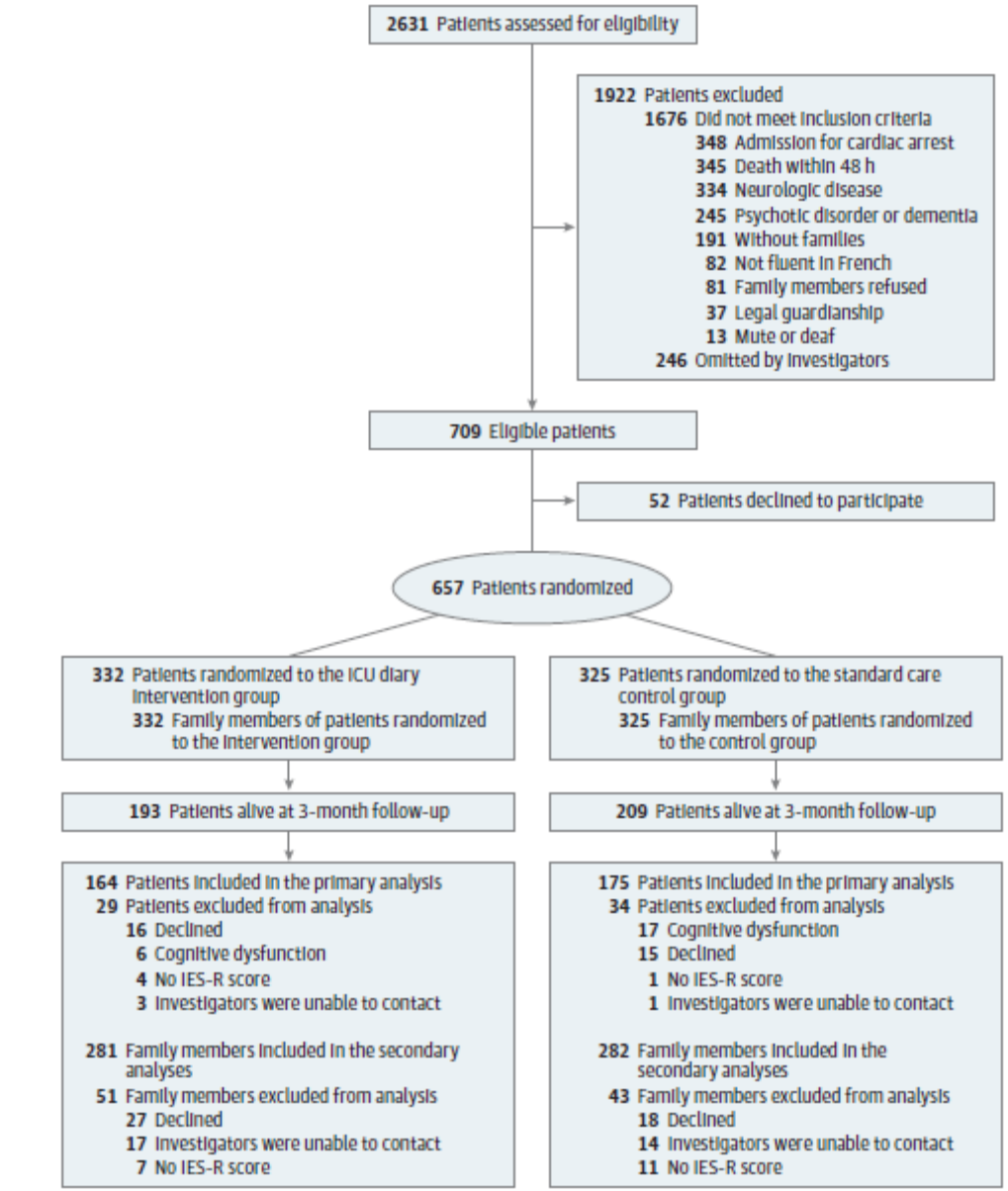
PTSD symptoms in patients 3 months after ICU discharge: IES-R score > 22 (range 0-88)

Prespecified secondary

- PTSD symptoms in families 3 months after ICU discharge: IES-R score > 22 (range 0-88)
- Anxiety and Depression symptoms in patients and families 3 months after ICU discharge (HAS, HAD > 8 (range 0-21)
- Recollection of memories of patients 3 months after ICU discharge: Memory tool questionnaire
- Content analysis of ICU diaries with a grid built with Delphi techniques by a panel of 11 members that described 6 categories.

Post hoc secondary outcomes

- Number of times the patient reported reading the diary during an interview 6 months after ICU discharge
- PTSD, HAD, HAS in families of deceased patients


2631 Patients assessed for eligibility
1922 Patients excluded
1676 Did not meet inclusion criteria
348 Admission for cardiac arrest
345 Death within 48 h
334 Neurologic disease
245 Psychotic disorder or dementia
191 Without families
82 Not fluent in French
81 Family members refused
37 Legal guardianship
13 Mute or deaf
246 Omitted by investigators
709 Eligible patients
52 Patients declined to participate
657 Patients randomized
332 Patients randomized to the ICU diary intervention group
332 Family members of patients randomized to the intervention group
325 Patients randomized to the standard care control group
325 Family members of patients randomized to the control group
193 Patients alive at 3-month follow-up
209 Patients alive at 3-month follow-up
164 Patients included in the primary analysis
29 Patients excluded from analysis
16 Declined
6 Cognitive dysfunction
4 No IES-R score
3 Investigators were unable to contact
281 Family members included in the secondary analyses
51 Family members excluded from analysis
27 Declined
17 Investigators were unable to contact
7 No IES-R score
175 Patients included in the primary analysis
34 Patients excluded from analysis
17 Cognitive dysfunction
15 Declined
1 No IES-R score
1 Investigators were unable to contact
282 Family members included in the secondary analyses
43 Family members excluded from analysis
18 Declined
14 Investigators were unable to contact
11 No IES-R score

Primary outcomes in patients at 3 months of follow-up

	No. (%)				
Variables	**Intervention Group N=164**	**Control Group N=175**	**Risk Difference [a] (95% CI)**	**Difference [a] (95% CI)**	**p-value**
Primary outcomes					
Presence of PTSD [b] symptoms	49 (29.9)	60 (34.3)	-4% (-15% to 6%)		0.39
IES-R score [b], median (IQR)	12 (5-25)	13 (6-27)		-1.47 (-1.93 to 4.87)	0.38
PTSD symptoms, median (IQR)					
Intrusion	5 (2-9)	5 (2-11)		-0.25 (-1.64 to 1.12))	0.74
Avoidance	4 (1-9.5)	5 (2-10)		-1.01 (-2.35 to 0.33)	0.08
Hyperarousal	2 (0-6)	2 (0-5)		-0.08 (-1.11 to 0.94)	0.64

[a] Risk difference and difference were not adjusted and correspond to intervention minus control

[b] Measured using the IES-R score (overall range, 0-88; **intrusion** range: 0-32; **avoidance** range: 0-28; **hyperarousal** range: 0-24; a higher score indicates more severe symptoms)

Secondary outcomes in patients at 3 months of follow-up

	No. (%)				
Variables	**Intervention Group N=164**	**Control Group N=175**	**Risk Difference (95% CI)**	**Difference (95% CI)**	**p-value**
HADS	N=163	N=173			
HADS score, median (IQR)	9 (5-14)	9 (5-13)		-0.75 (-2.27 to 0.78)	0.30
HAS score, median (IQR)	5 (2-8)	6 (2-8)		-0.36 (-1.22 to 0.50)	0.72
HAD score, median (IQR)	4 (1-7)	3 (2-7)		-0.39 (-1.29 to 0.52)	0.66
Symptoms of anxiety (%)			0.7% (-9% to 11%)		0.91
Yes	51 (31.3)	53 (30.6)			
Symptoms of depression (%)			5% (-5% to 13%)		0.35
Yes	31 (19)	41 (23.7)			
Memories of the ICU stay [a]	N=158	N=161			
Factual memories	141 (89.2)	143 (88.8)	0.4% (-7% to 8%)		0.90
median (IQR)	5 (2-8)	6 (3-8)		-0.32 (-1.03 to 0.39)	0.44
Memories of sensations	119 (75.3)	127 (78.9)	4% (-6% to 13%)		0.45
median (IQR)	2 (1-4)	2 (1-4)		-0.15 (-0.58 to 0.27)	0.51
Delusional memories	106 (67.1)	108 (67.1)	0% (-11% to 11%)		>.99
median (IQR)	1 (0-2)	2 (0-2)		-0.07 (-0.35 to 0.22)	0.57

[a] The memory tool questionnaire asked patients about specific **factual** (faces, family, alarms, voices, lights, darkness, clock, breathing tube, suctioning, tube in nose, and wards rounds), **emotional** (panic, pain, being uncomfortable, feeling confused, feeling anxious or frightened, and feeling down) or **delusional** (dreams, nightmares, hallucinations, and someone trying to harm) memories

Secondary outcomes in families at 3 months follow-up

	No. (%)				
Variables	**Intervention Group N=281**	**Control Group N=282**	**Risk difference [a] 95% CI**	**Difference [a] 95% CI**	**p-value**
Presence of PTSD symptoms	134 (47.7)	127 (45)	3% (-6% to 11%)		0.53
IES-R score, median (IQR)	20 (11-35)	20 (10-37)		0.48 (-2.51 to 3.47)	0.87
Symptoms of PTSD, median (IQR)					
Intrusion	10 (5-16)	10 (5-16)		0.15 (-1.08 to 1.37)	0.87
Avoidance	6 (2-11)	5 (2-11)		0.14 (-0.91 to 1.20)	0.72
Hyperarousal	3 (1-8)	3 (1-8)		0.17 (-0.76 to 1.12)	0.99
	N=286	**N=286**			
HADS score, median (IQR)	14 (9-20)	14 (9-22)		0.33 (-0.96 to 1.63)	0.45
HAS score, median (IQR)	7 (5-11)	7 (5-11)		0.28 (-0.47 to 1.04)	0.65
HADscore, median (IQR)	4 (1-7)	4 (1-7)		0.05 (-0.67 to 0.78)	0.96
Anxiety symptoms in family members	141 (49.3)	134 (46.9)	2% (-6% to 11%)		0.56
Depression symptoms in family members	70 (24.5)	67 (23.4)	1% (-6% to 8%)		0.77

[a] Risk difference and difference were not adjusted and correspond to intervention minus control

Diaries characteristics of a random sample (n=46)

Among the 325 diaries of the intervention group, 60 (20%) were photocopied.
20 were unreadable and 46 were analysed

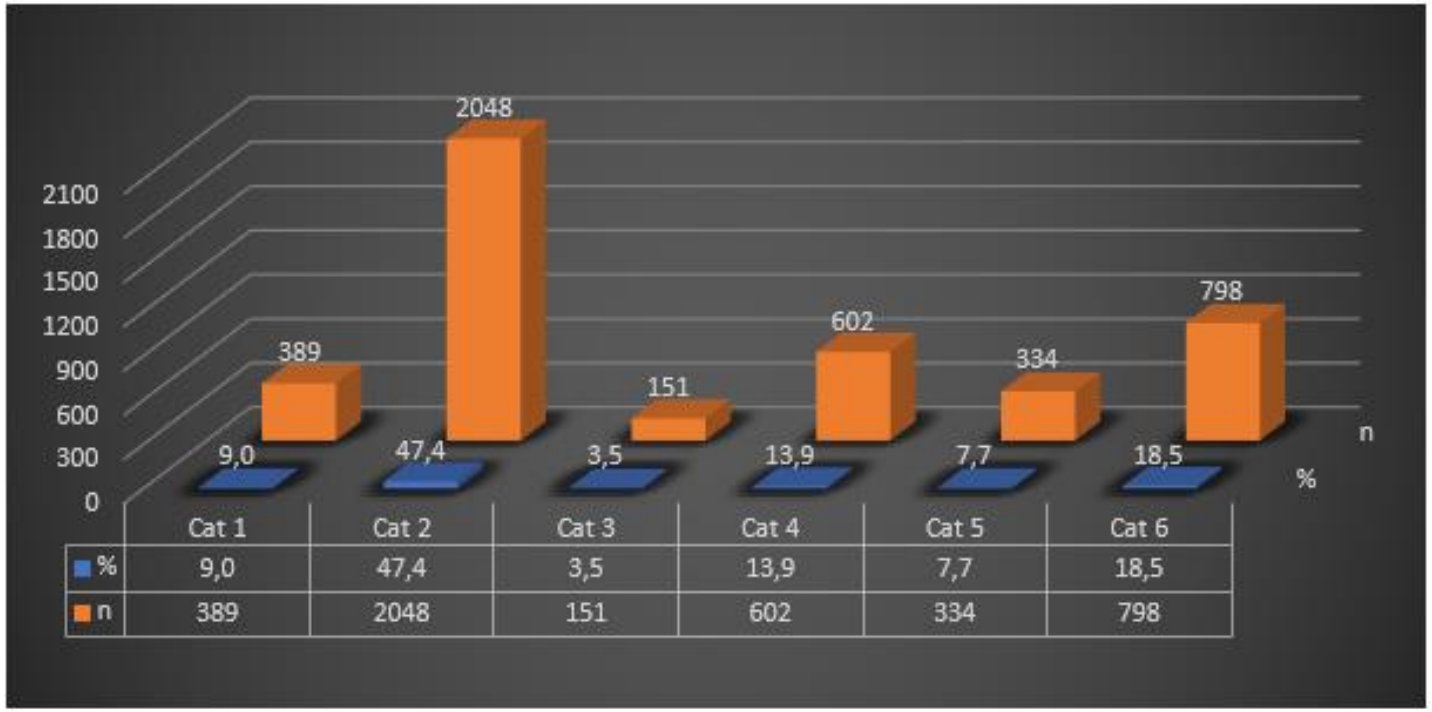
Number of readings in 106/164 analyzed patients assessed at 6 months: median 3, range :2-4

Variables	N=46 diaries	Per diary	95% CI
Pages, n	979	13.5	7-21
Days, n	518	9.5	5.2-12

Variables	N	Category	N (%) in each category
Meaningful segment in 46 diaries	8888	Physicians Nurses, N/A Families	1303 (14,7%) 3022 (34%) 4563 (51,3%)

The unit of analysis was the thematic segment. Each sentence or sequence of sentences was divided into meaningful segments

Content analysis of ICU diaries: distribution of meaningful segments written by clinicians in a random sample of 46 diaries

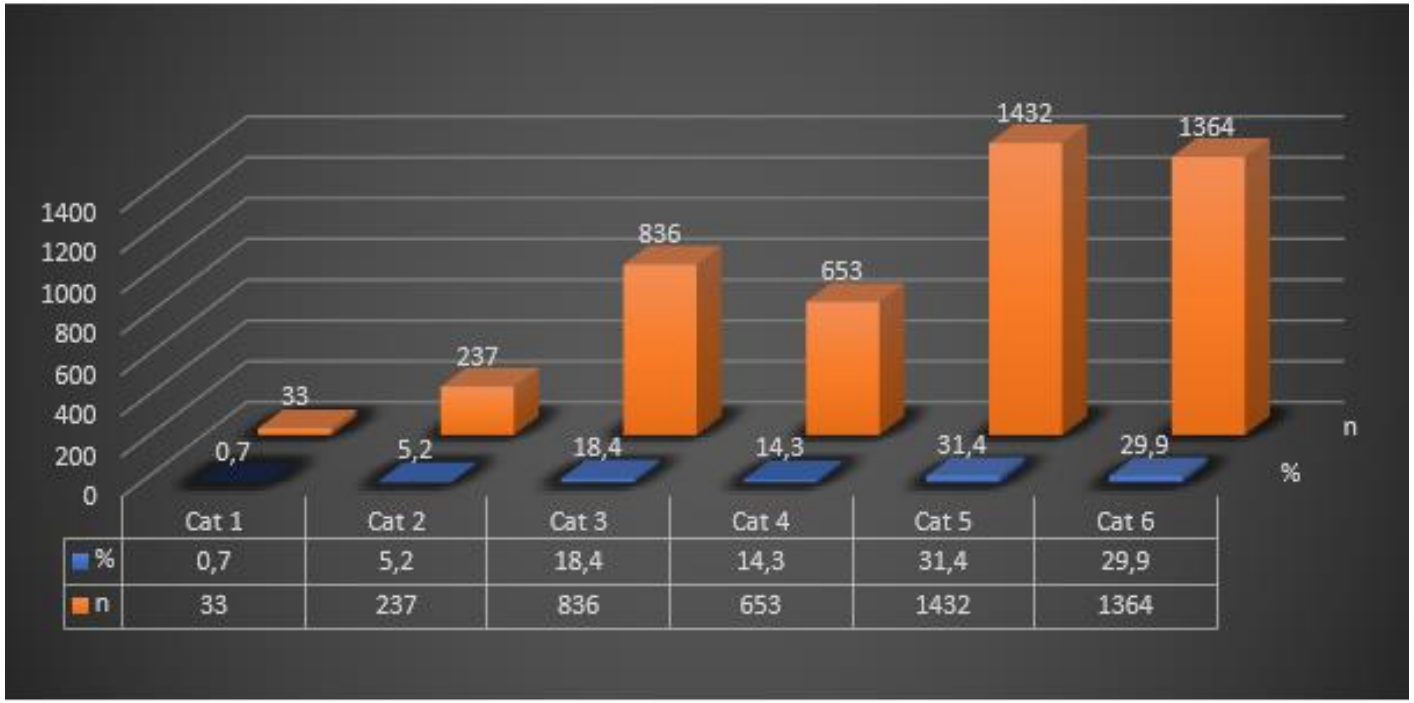


	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6
%	9,0	47,4	3,5	13,9	7,7	18,5
n	389	2048	151	602	334	798

4,322 meaningful segments were found in 6 categories.

Category 1: Defining places, spaces, and people
Category 2: Building a time-line of medical events
Category 3: To replace the time-line of the patient's experience within the time-line of family, community, and world events
Category 4: To demonstrate the continuity of the patient's life
Category 5: To express feelings and emotions
Category 6: To explicitly demonstrate the presence, commitment, and support of clinicians and family

Content analysis of ICU diaries: distribution of meaningful segments written by families in a random sample of 46 diaries



	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6
%	0,7	5,2	18,4	14,3	31,4	29,9
n	33	237	836	653	1432	1364

4,322 meaningful segments were found in 6 categories.

Category 1: Defining places, spaces, and people
Category 2: Building a time-line of medical events
Category 3: To replace the time-line of the patient's experience within the time-line of family, community, and world events
Category 4: To demonstrate the continuity of the patient's life
Category 5: To express feelings and emotions
Category 6: To explicitly demonstrate the presence, commitment, and support of clinicians and family

Using Qualitative Synthesis to Explore Heterogeneity of Randomized Trials on ICU Diaries

Critical Care Medicine

2022

Brandao-Baretto

Characteristics of the Randomized Controlled Trials Included in the Systematic Review

Author	Year	Subjects	Sample Size	Country	Diary Delivery	Follow-up	Tools
Wang et al (21)	2020	Patients	126	China	1 wk after ICU discharge	3 mo after ICU discharge	IES-R
Sayde et al (19)	2020	Patients	35	United States	Always with the patient	4 wk after ICU discharge	IES-R
Torres et al (20)	2020	Patients	134	United States	Always with the patient	30 d after hospital discharge	IES-R
Garrouste-Orgeas et al (8)	2019	Patients and relatives	657	France	ICU discharge	90 d after ICU discharge	HADS and IES-R
Nielsen et al (18)	2020	Patients and relatives	116	Western Denmark	ICU discharge	90 d after ICU discharge	HADS, PTSS-14, and Modified Medical Outcomes Short Form
Jones et al (15)	2012	Relatives	36	Sweden and United Kingdom	30 d after ICU discharge	90 d after ICU discharge	PTSS-14
Jones et al (7)	2010	Patients	352	Denmark, Italy, Norway, Portugal, Sweden, and United Kingdom	30 d after ICU discharge	90 d after ICU discharge	Posttraumatic Stress Disorder Diagnostic Scale and PTSS-14
Knowles and Tarrier (16)	2009	Patients	36	United Kingdom	30 d after ICU discharge	3 wk	HADS

HADS = Hospital Anxiety and Depression Scale, IES-R = Impact of Event Scale-Revised, PTSS-14 = Posttraumatic Stress Symptoms screening tool.

Using Qualitative Synthesis to Explore Heterogeneity of Randomized Trials on ICU Diaries

Critical Care Medicine

2022

Brandao-Baretto

Author	Year	MV at least 3 days?	Written by relatives?	Photo?	Characteristics of an effective ICU diary: Written by staff?	Delivery after hospital discharge?	Read with ICU staff?	Outcome
Knowles et al. [16]	2009	Yes	No	No	Yes	Yes	Yes	Positive
Jones et al.[7]	2010	Yes	Yes	Yes	Yes	Yes	Yes	Positive
Garrouste-Orgeas et al[8]	2019	Yes	Yes	No	Yes	No	No	Negative
Nielsen et al[18]	2020	Yes	Yes	Yes	No	No	No	Negative
Sayde et al[19]	2020	Yes	Yes	No	Yes	No	No	Negative
Torres et al[20]	2020	No[a]	Yes	No	Yes	No	No	Positive
Wang et al[21]	2020	No	No	Yes[b]	Yes	No	Yes	Negative

ICU: Intensive Care Unit; MV: mechanical ventilation
a) Patients wrote in the diary
b) Photographs from patients' perspective

ICU Survivors Experience of ICU Diaries: An Ancillary Qualitative Analysis of the ICU Diary Study

2021

Flahault et al

Telephone interview de 101/199 patients alive at 6 months

Theme 1: reading the diary between emotion and pain
-overwhelming emotion when reading (76/101, 75,2%)
-painful experience when reading 40/101 (39,6%)
-bring back difficult memories 30/101 (29,7%)

Theme 2: how the diary helped
-testimony to a particular period of their existence 52/101 (51,4%)
-coted for its informative function 64/101 (63,3%)
-no help to remember their ICU stay 53/101 (52,5%)
-brings patient to the reality of the severity of their situation 45/101 (44,6%)

Theme 3: bittersweet representation of the diary
-good memory of difficult time 55/101 (54,5%)
-ambivalence about it 28/101 (27,8%)
-painful representation of a time to be forgotten 37/101 (36,6%)
-total disinterest of the diary 12/101 (12%)

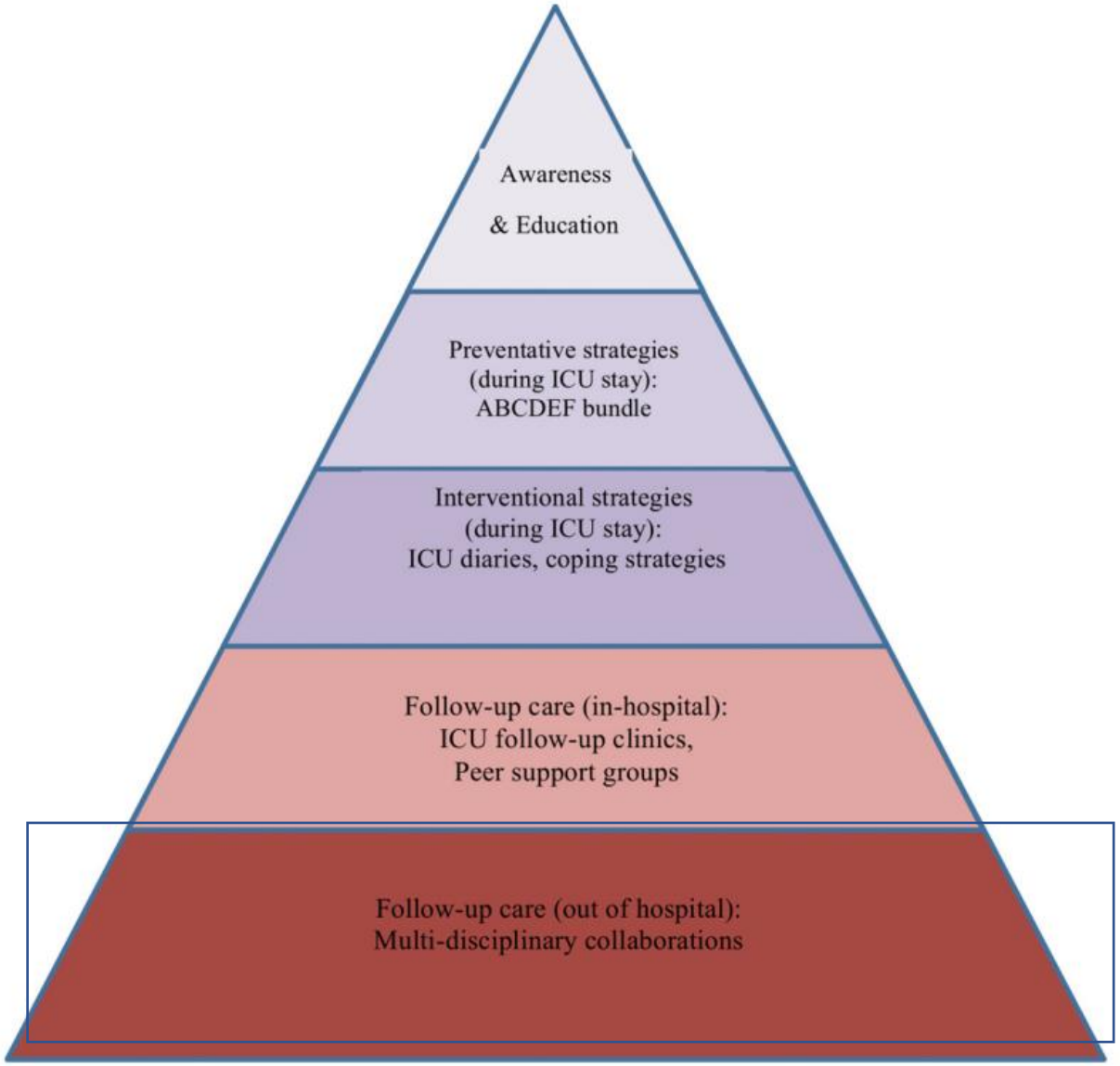
191 patients alive at 6-months

29 patients excluded from the 3-month quantitative analysis and not contacted for the 6-month evaluation

61 patients excluded from the 6-month analysis
- 2 died
- 17 declined
- 12 investigators were unable to contact them
- 14 not able to have an interview
  - 7 Cognitive dysfunctions
  - 4 Current hospitalization
  - 2 Aphasia
  - 1 Ischemic stroke
- 10 did not read the ICU diary
- 3 did not receive the ICU diary
- 3 did not complete the interview

101 patients included in the qualitative analysis

Conceptual framework of preventative and interventional strategies to decrease the burden of PICS



Cochrane Library

Cochrane Database of Systematic Reviews

Follow-up services for improving long-term outcomes in intensive care unit (ICU) survivors (Review)

Schofield-Robinson OJ, Lewis SR, Smith AF, McPeake J, Alderson P

2018

Effects of a Telephone- and Web-based Coping Skills Training Program Compared with an Education Program for Survivors of Critical Illness and Their Family Members

A Randomized Clinical Trial

AMERICAN JOURNAL OF Respiratory and Critical Care Medicine®

2018

Cuthbertson et al

Inclusion criteria: all patients receiving level 3 dependency (ICU) care at any time during their hospital stay and who survived until hospital discharge

86 patients received 6 telephone sessions (relaxation exercices, pleasant activities and activity-rest cycle, communication, cognitive restructuration, planning for sustainability

89 patients received an educational program (2 phone calls reviewing comprehension of video explaining critical illness)

		3 mo after Randomization				6 mo after Randomization			
	Baseline Estimate (SE)	CST Estimate (SE)	EP Estimate (SE)	Mean Difference in Change from Baseline between Groups (95% CI)	*P* Value	CST Estimate (SE)	EP Estimate (SE)	Mean Difference in Change from Baseline between Groups (95% CI)	*P* Value
Primary outcome									
HADS summary*	16.0 (0.6)	16.6 (0.9)	15.3 (0.9)	1.3 (−0.9 to 3.4)	0.24	15.6 (1.0)	15.9 (1.0)	−0.3 (−2.7 to 2.0)	0.78
HADS anxiety*	8.3 (0.4)	8.6 (0.6)	8.3 (0.6)	0.3 (−1.0 to 1.6)	0.65	8.3 (0.6)	8.5 (0.6)	−0.2 (−1.6 to 1.2)	0.78
HADS depression*	7.6 (0.4)	7.6 (0.5)	6.7 (0.5)	0.9 (−0.4 to 2.1)	0.16	7.0 (0.6)	7.2 (0.6)	−0.2 (−1.6 to 1.2)	0.76
Secondary outcomes									
IES-R*	31.6 (2.1)	31.0 (2.6)	27.9 (2.6)	3.1 (−1.9 to 8.1)	0.22	29.4 (2.9)	25.8 (2.9)	3.6 (−2.7 to 10.0)	0.26
Global physical health†	10.9 (0.3)	11.6 (0.4)	11.9 (0.4)	−0.3 (−1.3 to 0.6)	0.53	12.0 (0.4)	11.5 (0.4)	0.4 (−0.5 to 1.4)	0.36
Global mental health†	12.2 (0.4)	11.4 (0.5)	12.1 (0.5)	−0.7 (−1.8 to 0.3)	0.16	11.9 (0.5)	11.8 (0.5)	0.08 (−0.9 to 1.1)	0.88
EQ-5D quality of life†	63.7 (2.7)	62.3 (3.3)	65.3 (3.3)	−3.0 (−9.6 to 3.6)	0.37	61.0 (3.2)	60.7 (3.1)	0.3 (−5.9 to 6.6)	0.92
Brief COPE†	32.4 (0.8)	30.3 (1.0)	31.1 (1.0)	−0.8 (−3.0 to 1.4)	0.49	29.6 (1.1)	30.0 (1.1)	−0.4 (−2.9 to 2.1)	0.75
Self-efficacy†	5.8 (0.3)	5.8 (0.3)	5.4 (0.3)	0.3 (−0.3 to 1.0)	0.31	6.2 (0.3)	5.8 (0.3)	0.4 (−0.2 to 1.0)	0.23

Chronically Critically Ill Patients:

Health-Related Quality of Life and Resource Use After a Disease Management Intervention

AJCC American Journal of Critical Care

2007

Douglas et al

Inclusion criteria: patients who required mechanical ventilation for > 72 h, at high risk for death or prolonged hospitalisation with multi-organ dysfunction and continuing care needs after discharge from the hospital. No ventilator dependency before the index hospitalisation

231 randomized (analysed 180) to intervention: meeting with pt and fam before hospital discharge followed by visits at home for case management activities and needs
103 control (analyzed 103) usual care
Primary objective 2 months after hospital discharge QOL within SF-8

Variable at discharge	Experimental group (n = 231)			Control group (n = 103)				
	No.		%	No.		%	χ^2	*P*
	Mean	SD	CI	Mean	SD	CI	Z	*P*
Physical functioning[d]	30.6	8.7	29.2-32.0	35.8	10.5	33.0-38.6	-3.00	.003
Mental functioning[e]	41.9	12.8	39.8-44.1	42.9	13.3	39.5-46.5	-0.53	.59
Patient's ADL/IADL[f]	24.5	11.6	22.9-25.9	22.5	13.5	19.8-25.2	-0.97	.33

Gender differences in psychological morbidity and treatment in intensive care survivors - a cohort study

CRITICAL CARE 2012

Schandl et al

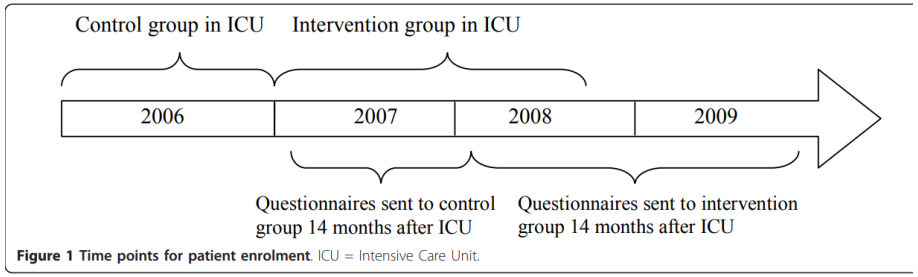


Figure 1 Time points for patient enrolment. ICU = Intensive Care Unit.

Inclusion criteria: patients ` 16 years of age, treated for > 96 h in the general ICU

Outcomes:

1. Mortality
2. Depression and anxiety (using HADS-D and HADS-A: at 14 months). Assessed at each consultation
3. PTSD (using IES at 14 months)

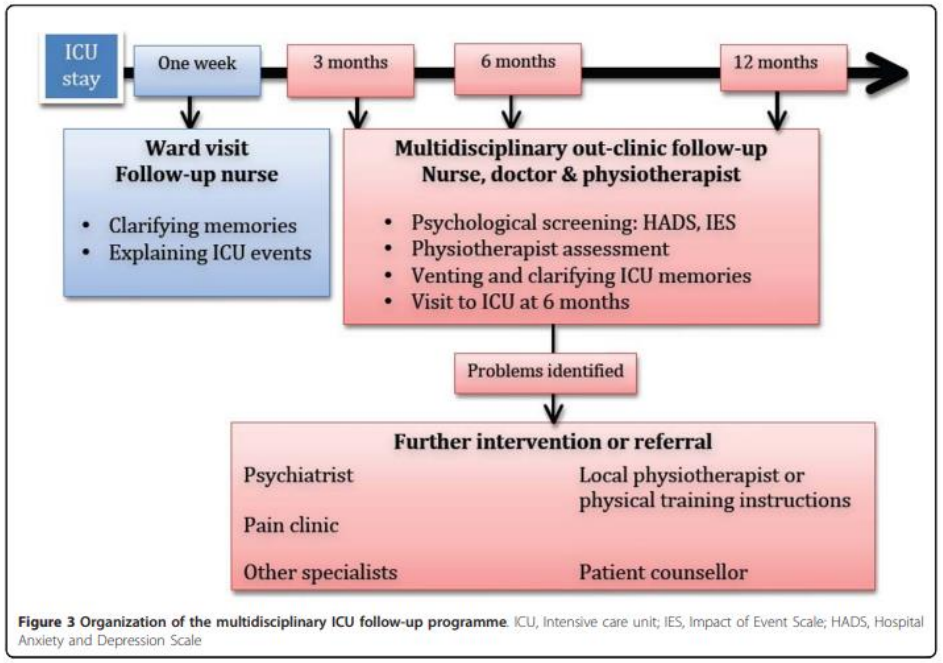


Figure 3 Organization of the multidisciplinary ICU follow-up programme. ICU, Intensive care unit; IES, Impact of Event Scale; HADS, Hospital Anxiety and Depression Scale

Table 3 Differences in questionnaire scores between control group and follow-up groups

	Differences between control group and follow-up group			
	Women		Men	
	Crude analysis	Adjusted analysis	Crude analysis	Adjusted analysis
25th percentile				
IES	-11*	-6.6	2.0	1.9
HADS-Anxiety	0	-1.8*	-1.0	-0.5
HADS-Depression	-1.0	-1.7	0	-0.2
50th percentile				
IES	-11*	-10.8*	6.1	1.8
HADS-Anxiety	-3.0	-1.2	1.0	0.4
HADS-Depression	-4.0*	-1.7	0	-0.9
75th percentile				
IES	-12.1*	-17.6*	-2.0	4.4
HADS-Anxiety	-5.0	-3.2	0	-0.8
HADS-Depression	-2.8	-5.4*	-2.0	-1.0

Results presented as crude analysis and analysis adjusted for age, length of intensive care unit stay and previous psychological problems. Differences were calculated using logistic quantile regression analysis. Negative values imply lower values in the follow-up group. *Statistical significance P <.05

IES, Impact of Event Scale; HADS, Hospital Anxiety and Depression Scale

A recovery program to improve quality of life, sense of coherence and psychological health in ICU survivors: a multicenter randomized controlled trial, the RAPIT study

Janet F. Jensen[1*], Ingrid Egerod[2], Morten H. Bestle[1], Doris F. Christensen[1], Ask Elklit[3], Randi L. Hansen[1], Heidi Knudsen[4], Louise B. Grode[5] and Dorthe Overgaard[6]

2016

- **Inclusion criteria:** Danish-speaking adults (` 18 years of age) who had been mechanically ventilated `48 h and who did not meet criteria for baseline dementia.
- Participants received an information pamphlet 'Life after ICU'. First, consultation at clinic with participant and close relative at 1-3 months post-ICU. Intention was to construct an illness narrative; dialogue was aided by using photographs of the participant taken by ICU nurses during participant recovery. Second and third consultations were at 5 and 10 months post-ICU, by telephone; prior to these telephone calls participants completed a reflective sheet by finishing pre-set sentences (e.g. "What I want most is...")
- **Primary outcome**: HQOL 12 months
- **Secondary outcomes**: HQOL, HADS 3 and 12 months

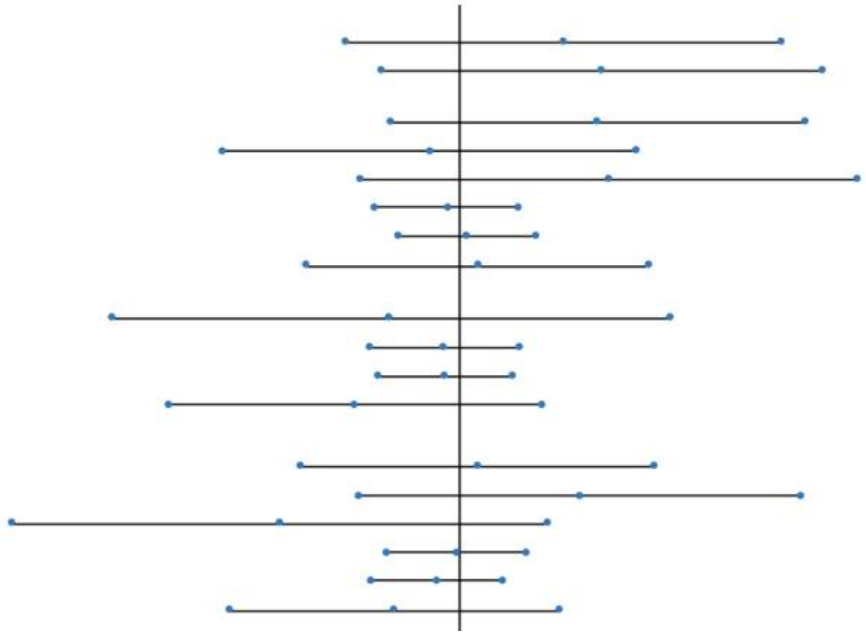
A recovery program to improve quality of life, sense of coherence and psychological health in ICU survivors: a multicenter randomized controlled trial, the RAPIT study

Janet F. Jensen[1*], Ingrid Egerod[2], Morten H. Bestle[1], Doris F. Christensen[1], Ask Elklit[3], Randi L. Hansen[1], Heidi Knudsen[4], Louise B. Grode[5] and Dorthe Overgaard[6]

2016

Complete cases

	SC vs. I [95% CI]	P-value	n_{sc}	n_i
Primary outcomes, 12 months after ICU discharge, ITT				
HRQOL, SF-36 Physical component score	1.41 [-1.53;4.35]	0.35	119	116
HRQOL, SF-36 Mental component score	1.92 [-1.06;4.90]	0.21	119	116
Secondary outcomes, 3 months after ICU discharge, ITT				
HRQOL, SF-36, Physical component score	1.87 [-0.93;4.67]	0.19	114	117
HRQOL, SF-36, Mental component score	-0.41 [-3.20;2.39]	0.78	114	117
SOC, Orientation to Life scale	2.02 [-1.35;5.38]	0.24	137	136
HADS, Anxiety	-0.16 [-1.15;0.82]	0.75	136	136
HADS, Depression	0.10 [-0.84;1.03]	0.84	136	136
HTQ-IV score (PTSD severity)	0.24[-2.07;2.55]	0.84	120	116
Secondary outcomes, 12 months after ICU discharge, ITT				
SOC, Orientation to Life scale	-0.93 [-4.72;2.85]	0.63	133	130
HADS, Anxiety	-0.21 [-1.22;0.80]	0.68	130	131
HADS, Depression	-0.20 [-1.12;0.72]	0.67	130	130
HTQ-IV score (PTSD severity)	-1.42 [-3.94;1.11]	0.27	109	116
Changes between 3-12 months, ITT				
HRQOL, SF-36, Physical component score	0.24 [-2.15;2.62]	0.85	90	93
HRQOL, SF-36, Mental component score	1.63 [-1.38;4.63]	0.29	90	93
SOC, Orientation to Life scale	-2.44 [-6.07;1.19]	0.19	115	116
HADS, Anxiety	-0.05 [-0.99;0.89]	0.92	114	118
HADS, Depression	-0.31 [-1.19;0.57]	0.48	114	117
HTQ-IV score (PTSD severity)	-0.89 [-3.13;1.35]	0.43	87	93



Effect of a Primary Care Management Intervention on Mental Health–Related Quality of Life Among Survivors of Sepsis
A Randomized Clinical Trial

JAMA®

2016

Inclusion criteria: adult (` 18 years of age) survivors of severe sepsis or septic shock, and were fluent in German

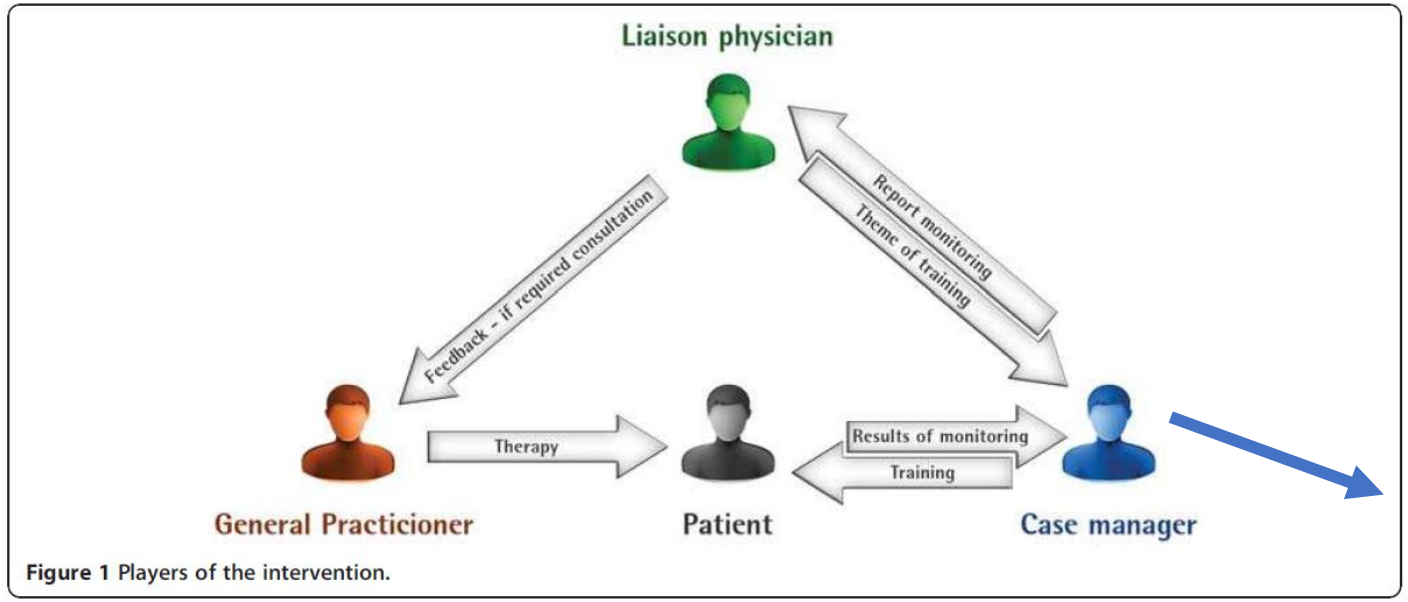


Figure 1 Players of the intervention.

Primary outcome
Change in HQOL mental component 6 and 12 months

Secondary outcomes
Change in HQOL physical component 6 and 12 months
Mortality 12 months
PTSD
ADL
Chronic pain
Malnutrition

1. the study course,
2. the monitoring program,
3. origin and therapy of sepsis,
4. possible sepsis sequelae,
5. physical and psychological impacts of intensive therapy and
6. coping strategies and self-efficacy.

Manuel rehabilitation book for pt and GP

Number and timing of follow-up clinics: initial training on sepsis sequelae 8 days post-ICU discharge, then monthly telephone follow-up for 6 months, then every 3 months for the subsequent 6 months

Effect of a Primary Care Management Intervention on Mental Health–Related Quality of Life Among Survivors of Sepsis

A Randomized Clinical Trial

JAMA®

2016

Variables	Intervention 148 randomized 104 included in primary analysis	Control 143 randomized 96 included in primary	Estimated treatment effect 95% CI	P-value
Menta score Baseli 6 mor				
Mean chang				0.28

eTable 3. Secondary Outcomes Analysis of Measures of Mental Health. Change scores ("Diff.") of outcomes including depressive symptoms (MDI), PTSD symptoms (PTSS-10) and cognition (TICS-M) between 6 or 12 months post-ICU and baseline are displayed as mean with standard deviations (SD) by group. The estimated treatment effect is provided as mean between-group difference with 95% confidence interval with the corresponding *P* value.

Outcome at Follow-up	Intervention	Control	NA (i; c)[a]	Estimated treatment effect (95% CI)[b]	*P* value[c]
Diff. MDI; MDI ranged from 0 to 50[2]					
6 months	-6.9 (10.3)	-6.9 (10.7)	0; 1	-0.0 (-2.8;2.8)	.99
12 months	-8.8 (10.4)	-7.4 (11.7)	2; 0	-1.4 (-4.5;1.7)	.36
Diff. PTSS-10; PTSS-10 ranged from 10 to 70[2]					
6 months	-2.0 (11.0)	-0.2 (11.2)	0; 1	-1.8 (-4.8;1.2)	.24
12 months	-2.1 (12.9)	0.2 (10.9)	1; 0	-2.3 (-5.6;1.0)	.17
Diff. TICS-M; TICS-M ranged from 0 to 50[1]					
6 months	0.4 (3.9)	0.7 (4.0)	1; 1	-0.3 (-1.3;0.8)	.63
12 months	0.8 (4.1)	1.3 (4.5)	1; 0	-0.5 (-1.7;0.7)	.39

Résumé des études d'intervention

Author	Study type	Intervention	Comparator	Primary outcome	Secondary outcomes	Results
Cuthbertson 2018	Randomized 3 centers	6 Telephone sessions	Educational program	HADS	IES-R QOL	NS
Douglas 2007	Randomized Single center	Visits at home	Usual care	SF-8	Mortality	Physical S Mental NS
Schandl 2012	Before after Study Parallel design	3 visits home multidisciplinary team		IES-R HADS		S IES-R HAD women/ men
Jensen 2016	Randomized 10 centers	Leaflet Life after ICU 3 consultations trained nurse 1-3months, 5 and 10 months	Usual care	SF-36 12 months	SF-36 3 months HADS ≥11 PTSD 3, 12 months	NS
Schmidt 2016	Randomized 9 centers	Manuel rehabilitation for GP and pt Supervision by nurses and physicians for monitoring Care management par GP	Usual care par GP	Mental component DF-36 6 months	Physical component SF-36 Mortality Depression PTSD	NS

Familiarity with the post-intensive care syndrome among general practitioners and opportunities to improve their involvement in ICU follow-up care

Johan H. Vlake[1,2], Evert-Jan Wils[2], Jasper van Bommel[1], Diederik Gommers[1] and Michel E. van Genderen[1*] on behalf of the HORIZON-ICU study group

2022

267 GP (53% female, age 46 (31-67) years

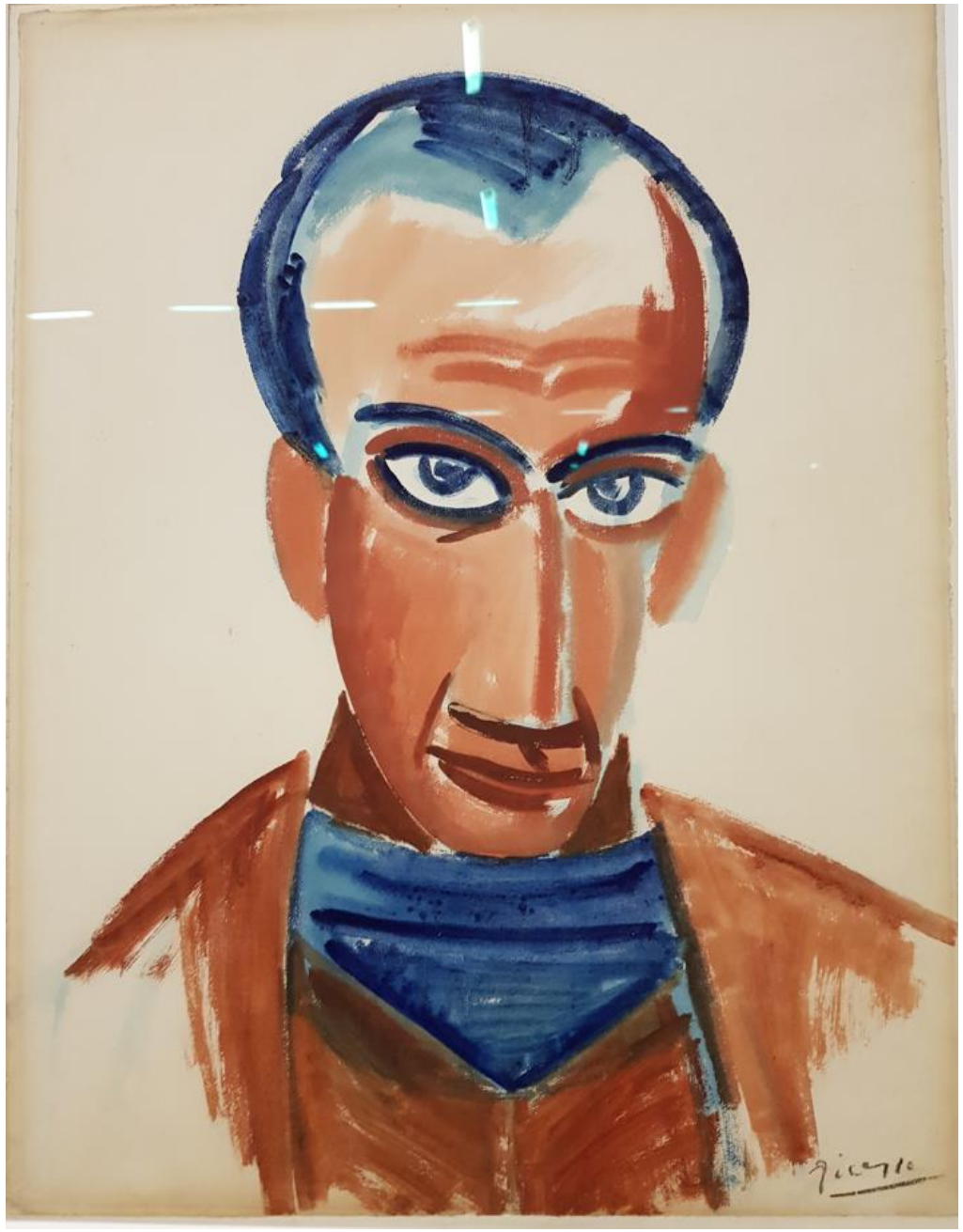
PICS		
Unfamiliar with PICS terminology, *n* (%)		152 (57%)
Unaware of PICS risk factors, *n* (%)		168 (63%)
Useful to gain more knowledge about PICS, *n* (%)		229 (86%)
Preferred method to increase PICS knowledge, *n* (%)	E-learning	144 (54%)
Perspectives on ICU follow-up care and information provision		
Aware of the existence of ICU follow-up clinics, *n* (%)		38 (14%)
Valued ICU follow-up care for patients as insufficient		210 (79%)
Feel that important aspects in information provision were missing		157 (59%)
Potential useful aspects that are often missing in communication from intensivist to GP, *n* (%)**		
Expectations after ICU discharge		23 (15%)
Available ICU follow-up care		20 (13%)
Patient's psychological well-being at discharge		15 (10%)
Patient's discharge condition		15 (10%)
Suggested improvement strategies for ICU follow-up care, *n* (%)**		
Include GP in ICU follow-up care		114 (55%)
Multidisciplinary approach		98 (47%)
Uniformly screen for post-ICU impairments		74 (35%)
Suggested improvement strategies for information provision, *n* (%)**		
Telephone calls at admission or before important medical decisions		39 (24%)
Providing information timely		37 (23%)
Provide information about admission (reason, severity)		36 (22%)
Provide information about expectations after ICU discharge (follow-up, PICS)		26 (16%)
Provide specific points-of-interest for the GP		18 (11%)

Data from 266 GPs were analyzed

Les points à retenir

- Pas de définition officielle du syndrome de post-réanimation
- Peu ou pas d'évaluation avant l'admission de l'état psychologique des patients
- Environ 30% des patients ont des complications psychologiques
- Peu de programme ont montré leur bénéfice
- Le futur est de cibler les patients avec un risque élevé de développer des complications psychologiques et de tester des programmes de prévention dans ce groupe de patients
- Information des médecins hors réanimation

Merci pour votre attention



Effect of a Nurse-Led Preventive Psychological Intervention on Symptoms of Posttraumatic Stress Disorder Among Critically Ill Patients
A Randomized Clinical Trial

Dorothy M. Wade, PhD; Paul R. Mouncey, MSc; Alvin Richards-Belle, BSc; Jerome Wulff, PhD; David A. Harrison, PhD; M. Zia Sadique, PhD; Richard D. Grieve, PhD; Lydia M. Emerson, MPH; Alexina J. Mason, PhD; David Aaronovitch, BA; Nicole Als, BA; Chris R. Brewin, PhD; Sheila E. Harvey, PhD; David C. J. Howell, PhD; Nicholas Hudson, BA; Monty G. Mythen, MD; Deborah Smyth, BSc; John Weinman, PhD; John Welch, MSc; Chris Whitman, BSc; Kathryn M. Rowan, PhD; for the POPPI Trial Investigators

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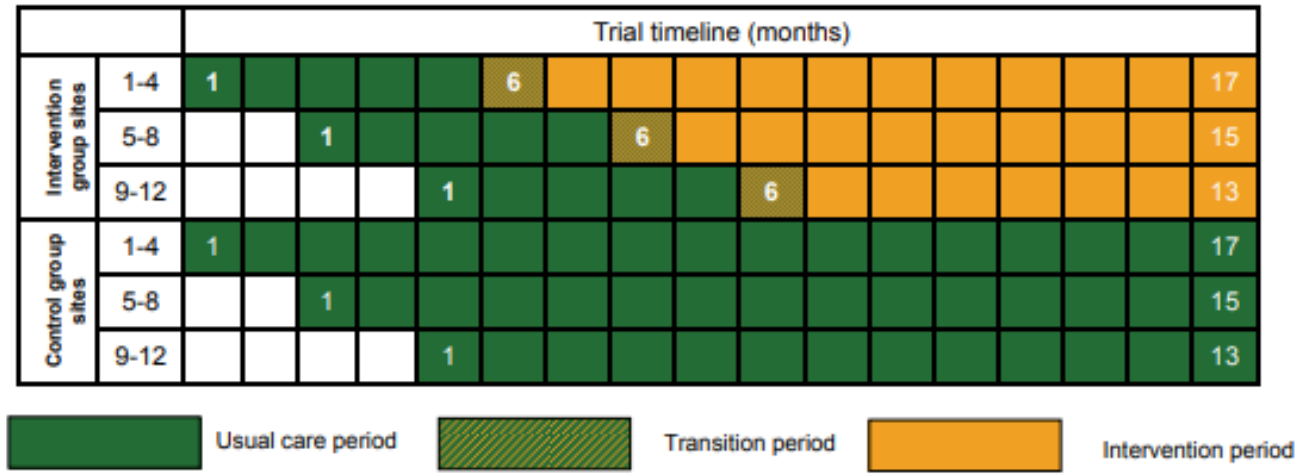
Supplementary Figures

eFigure 1. POPPI Cluster-RCT Schedule



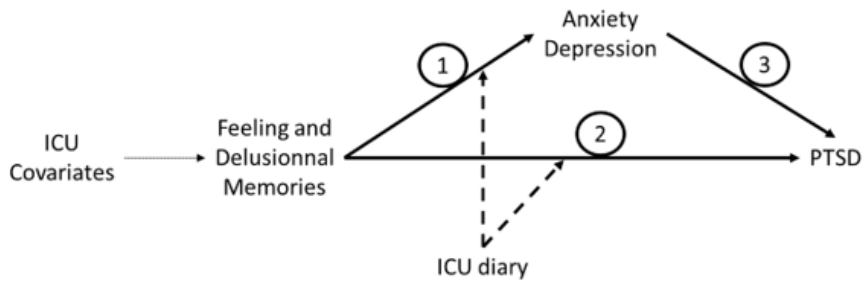
The POPPI cluster-RCT recruited patients over a 17-month period. All ICUs commenced delivering usual care, during a baseline period of data collection. ICUs randomized to the intervention group then received training and began roll-out of the intervention during a transition period in month 6 and then continued to deliver the preventive, complex psychological intervention until the end of the recruitment period. Control group ICUs delivered usual care throughout.

Psychological consequences of ICU survivors : a mediation analysis

Sébastien Bailly[1], PharmD, PhD, Jean-François Timsit [2,3,4], MD, PhD, Cécile Flahault[5], PhD,

Maité Garrouste-Orgeas [2,6,7] MD.

Figure 1. Directed acyclic graph for mediation analysis of feeling and delusional memories on post-traumatic stress disorder (PTSD) symptoms mediated by anxiety and depression



PTSD indicates: Post-Traumatic Stress Disorder; ICU: Intensive care Unit

Acyclic path diagram to assess direct and indirect effect of feeling and delusional memories on PTSD mediated by anxiety and depression. The total effect is constituted by direct effects (2) and indirect effects (1+3). ICU diary is introduced in the model as a moderator of the direct and indirect effects.

Table 2: Results of causal mediation model assessing the effect of feeling and delusional memories on PTSD symptoms, with ICU diary as moderator

	OR [95%CI]	ICU diary	No ICU diary
Average direct effect	1.17 (1.07-1.27) [a]	1.17 (1.10-1.31) [a]	1.17 (1.15-1.26) [a]
Average causal mediated effect	1.01 (0.97-1.07)	1.03 (0.99-1.11)	1.01 (0.98-1.04)
Total effect	1.18 (1.06-1.32)	1.21 (1.16-1.39) [a]	1.18 (1.13;1.25) [a]
Proportion mediated by HADS (%)	9 (-39;38)	17 (-5;41)	5 (-18;18)

PTSD indicates Post-Traumatic Stress Disorder; ADE: Average direct effect; ACME: Average causal mediated effect, prop mediated: proportion mediated (%); HADS: Hospital Anxiety and Depression symptoms.

[a] Statistically significant p <0.01