

Supplemental Online Content

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Lilja G, Ullén S, Dankiewicz J, et al. The effects of hypothermia vs normothermia on societal participation and cognitive function at 6 months in survivors after out-of-hospital cardiac arrest: a predefined analysis of the randomized clinical TTM2 randomized clinical trial. *JAMA Neurol*. Published online August 7, 2023. doi:10.1001/jamaneurol.2023.2536

eMethods. Institutions where the work was performed, comparison to the study protocol, and acknowledgement and study organization

eTable 1. Detailed description of the categories in the Glasgow Outcome Scale Extended (GOSE)

eTable 2. Occupational status at time of, and at 6-months after Out-of-hospital cardiac arrest

eTable 3. Results of individual items of the Montreal Cognitive Assessment (MoCA)

eFigure 1. Functional outcome focusing on societal all participants including death

eFigure 2. Functional outcome focusing on societal participation by age groups

eFigure 3. Functional outcome focusing on societal participation by sex

This supplemental material has been provided by the authors to give readers additional information about their work.

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26 **Comparison to the study protocol**

27 Minor modifications from the published protocol for outcome reporting and follow-up in the Targeted
28 Hypothermia versus Targeted Normothermia after Out-of-hospital Cardiac Arrest trial (TTM2) were made:
29 Firstly, we planned to use SDMT raw scores (0-110) from the Symbol Digit Modalities Test to assess mental
30 processing speed/attention. As both oral and written versions of the test were used to a large extent in the trial,

1 and since the two versions have different normative values, it was considered more appropriate to use age and
2 education adjusted z-scores for all analyses. Therefore, age and education were not included in the co-variate
3 adjusted analysis, as adjustment was already included in the test score.
4 According to protocol the first analyses of MoCA and SDMT include deceased in the non-parametric van
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eTable 1. Detailed description of the categories in the Glasgow Outcome Scale Extended (GOSE)

	Category	Description	Question/s and answer/s indicating category in the GOSE interview
GOSE 1	<i>Dead</i>	NA	NA
GOSE 2	<i>Vegetative state</i>	Unconscious	<ul style="list-style-type: none"> Is the person able to obey simple commands, or say any words?=No. <i>Confirmation of vegetative state requires full assessment as in the Royal College of Physician Guidelines.</i>
GOSE 3	<i>Lower severe disability</i>	Dependent, need frequent help	<ul style="list-style-type: none"> Is the assistance of another person at home essential every day for some activities of daily living?=Yes; AND, Do they need frequent help or someone to be around most of the time?=Yes
GOSE 4	<i>Upper severe disability</i>	Dependent, need some help	<ul style="list-style-type: none"> Is the assistance of another person at home essential every day for some activities of daily living?=Yes; AND, Do they need frequent help or someone to be around most of the time?=No OR/AND, Are they able to shop without assistance?=No OR/AND, Are they able to travel locally without assistance?=No
GOSE 5	<i>Lower moderate disability</i>	Independent, unable to participate in one or more life roles	<ul style="list-style-type: none"> Are they currently able to work to their previous capacity?=No; AND, able to work only in a sheltered workshop or non-competitive job, or currently unable to work OR/AND, Are they able to resume regular social and leisure activities outside home?=No; AND unable to participate: rarely, if ever, take part OR/AND, Have there been psychological problems which have resulted in ongoing family disruption or disruption to friendships?=Yes; AND, constant – daily and intolerable
GOSE 6	<i>Upper moderate disability</i>	Independent, limited to participate in one or more life roles	<ul style="list-style-type: none"> Are they currently able to work to their previous capacity?=No; AND reduced working capacity OR/AND, Are they able to resume regular social and leisure activities outside home?=No; AND participate much less: less than half as often OR/AND, Have there been psychological problems which have resulted in ongoing family disruption or disruption to friendships?=Yes; AND frequent – once a week or more, but tolerable
GOSE 7	<i>Lower good recovery</i>	Independent, returned to normal life with some symptoms	<ul style="list-style-type: none"> Are they able to resume regular social and leisure activities outside home?=No; AND participate a bit less: at least half as often as before cardiac arrest OR/AND, Have there been psychological problems which have resulted in ongoing family disruption or disruption to friendships?=Yes; AND occasional –less than weekly OR/AND, Are there any other current problems relating to the cardiac arrest which affect daily life?=Yes
GOSE 8	<i>Upper good recovery</i>	Independent and a full return to normal life	<ul style="list-style-type: none"> Are there any other current problems relating to the cardiac arrest which affect daily life?=No

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eTable 2. Occupational status at time of, and at 6-months after Out-of-hospital cardiac arrest

Occupational status	Time-point	All included		Pre-arrest workers only	
		Hypothermia	Normothermia	Hypothermia	Normothermia
No.		415	407	232	207
Working full-time ^a , No. (%)	Pre-arrest	192 (46)	175 (43)	192 (83)	175 (85)
	At 180 days	88 (21)	97 (24)	87 (37)	95 (46)
Working part-time ^b , No. (%)	Pre-arrest	39 (9)	32 (8)	39 (17)	32 (16)
	At 180 days	54 (13)	41 (10)	53 (23)	40 (19)
Unemployed, No. (%)	Pre-arrest	8 (2)	21 (5)	NA	NA
	At 180 days	19 (5)	22 (5)	13 (6)	6 (3)
Retired due to age, No. (%)	Pre-arrest	140 (34)	141 (35)	NA	NA
	At 180 days	149 (36)	143 (35)	9 (4)	3 (1)
Retired due to disability/health, No. (%)	Pre-arrest	20 (5)	20 (5)	NA	NA
	At 180 days	40 (10)	31 (8)	19 (8)	8 (4)
On sick leave, No. (%)	Pre-arrest	4 (1)	7 (2)	n/a	n/a
	At 180 days	52 (12)	58 (14)	47 (20)	48 (23)
Other (e.g. student, housewife/husband), No. (%)	Pre-arrest	12 (3)	11 (3)	n/a	n/a
	At 180 days	13 (3)	15 (4)	3 (1)	7 (3)

^a Full time work defined as ≥30 hours a week

^b Part time work defined as <30 hours a week

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1 **eTable 3. Results of individual items of the Montreal Cognitive Assessment (MoCA)**

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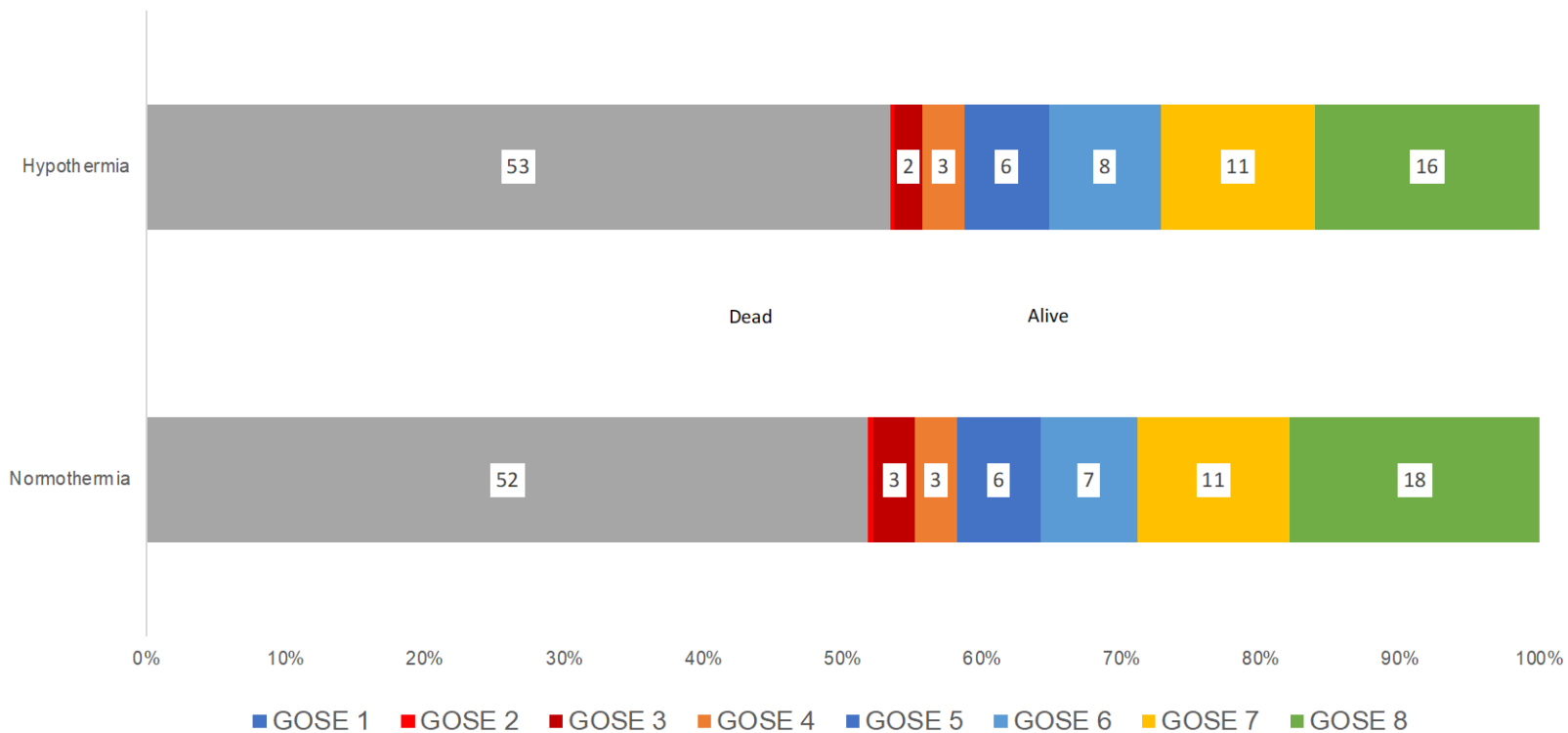
Cognitive domains		MoCA-30 ^a		MoCA		T-MoCA	
No.		760		607		153	
MoCA item	Maximum item score	Raw scores Mean (SD)	Percent of maximum score	Raw scores Mean (SD)	Percent of maximum score	Raw scores Mean (SD)	Percent of maximum score
Visuoexecutive	5 points	4.01 (1.26)	80%	4.01 (1.26)	80%	n/a	n/a
Naming	3 points	2.88 (0.46)	96%	2.88 (0.46)	96%	n/a	n/a
Attention-Digit span	2 points	1.75 (0.51)	88%	1.75 (0.51)	88%	1.76 (0.51)	88%
Attention- Letters	1 point	0.93 (0.26)	93%	0.94 (0.25)	94%	0.91 (0.29)	91%
Attention-Calculation	3 points	2.66 (0.77)	89%	2.69 (0.73)	90%	2.56 (0.90)	85%
Repetition	2 points	1.62 (0.66)	81%	1.64 (0.64)	82%	1.54 (0.73)	77%
Verbal fluency	1 point	0.59 (0.49)	59%	0.57 (0.50)	57%	0.65 (0.48)	65%
Abstraction	2 points	1.64 (0.62)	82%	1.62 (0.63)	81%	1.71 (0.58)	86%
Delayed recall	5 points	2.95 (1.72)	59%	2.88 (1.74)	58%	3.21 (1.60)	64%
Orientation	6 points	5.67 (0.97)	94%	5.70 (0.89)	95%	5.52 (1.21)	92%

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4 The two items with the most participants having low scores (less percent of maximum) indicated with bold text.

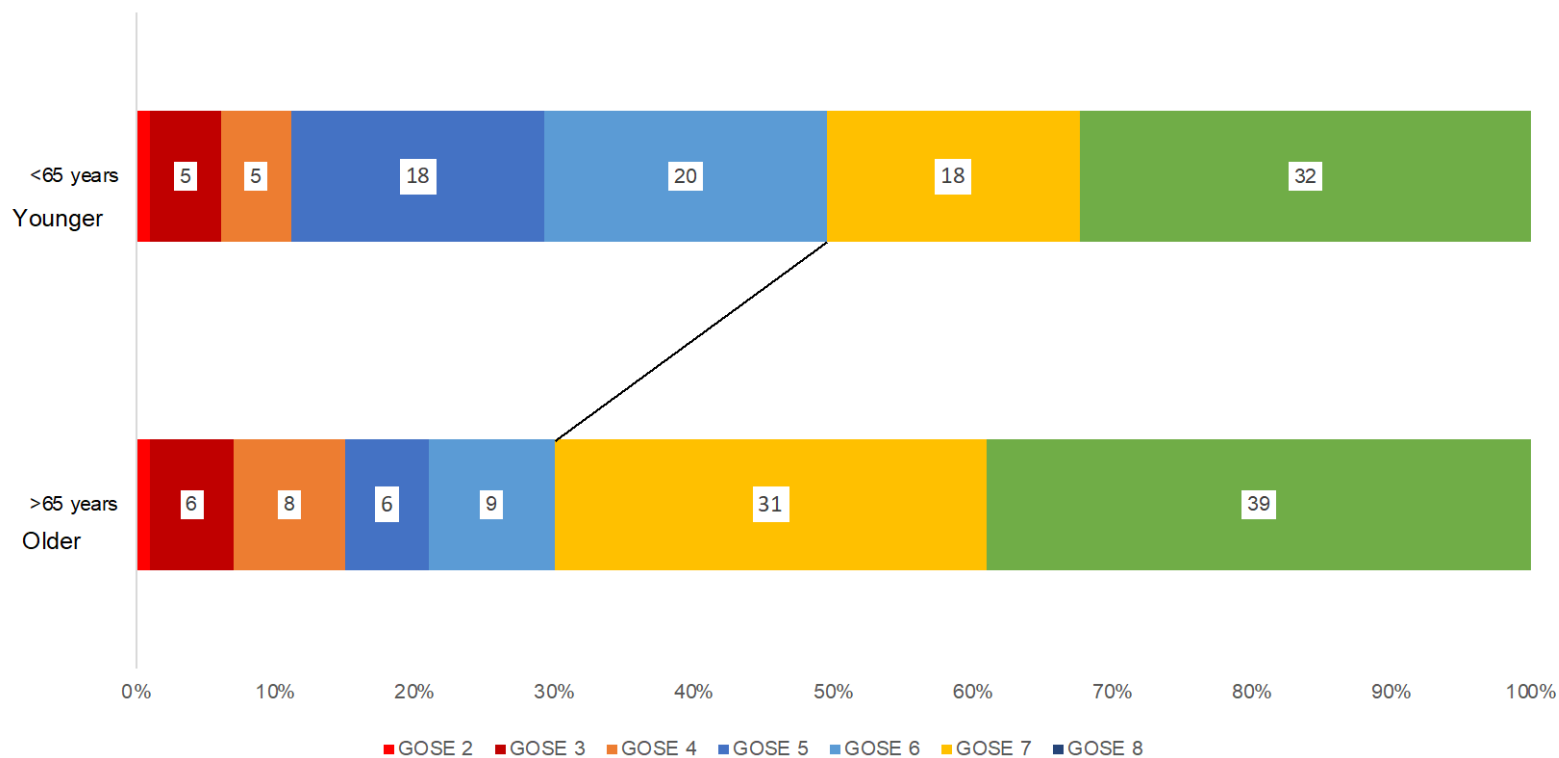
5 ^aincluding converted T-MoCA

6 *Abbreviations:* MoCA=Montreal Cognitive Assessment; T-MoCA=Telephone version of the Montreal Cognitive Assessment



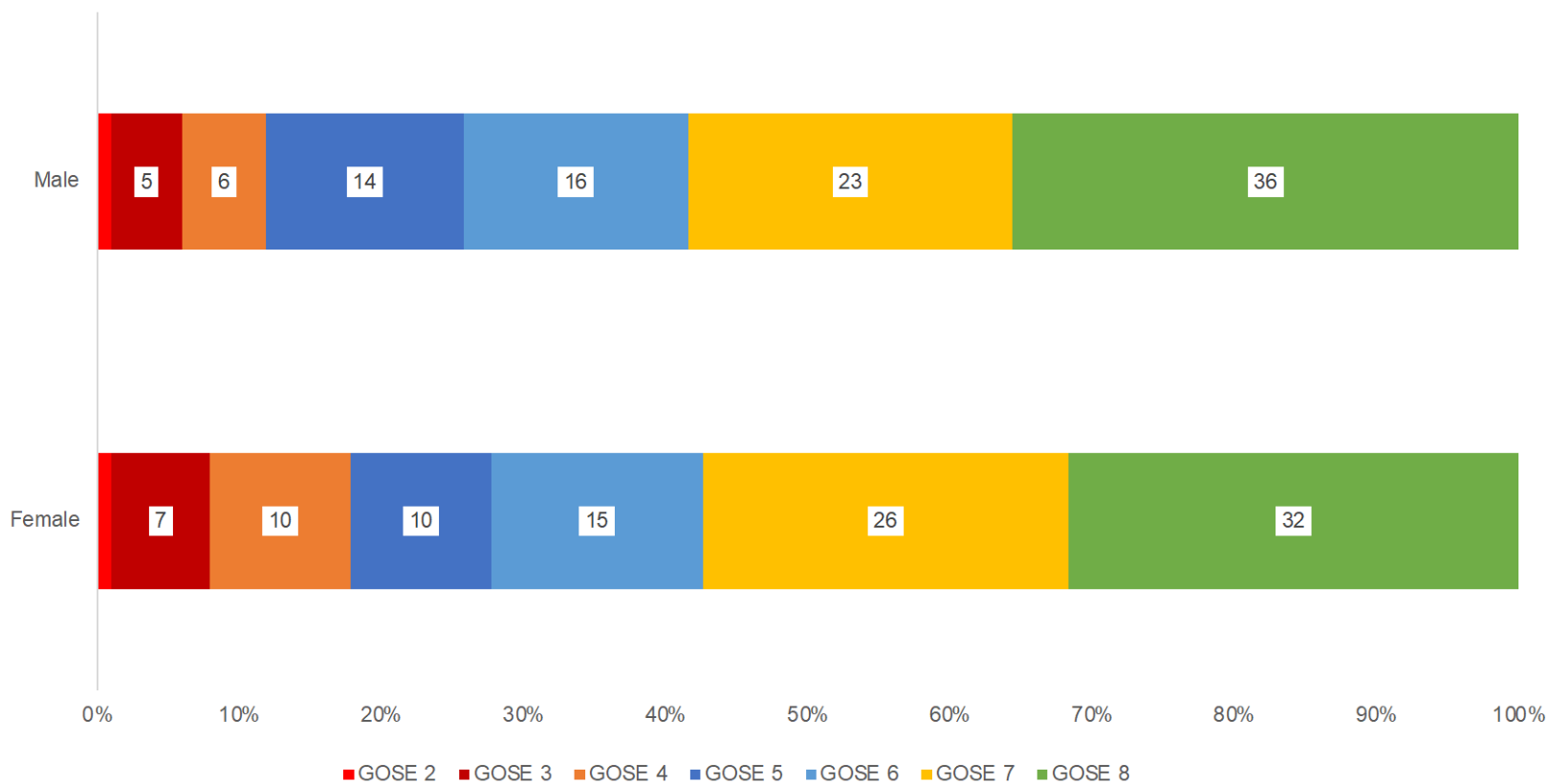
eFigure 1: Functional outcome focusing on societal all participants including death

The Glasgow Outcome Scale Extended (GOSE) for participants with hypothermia (n=880) and normothermia (n=865) at 6-months after out-of-hospital cardiac arrest. *Categories: GOSE 1 dead; GOSE 2 vegetative state (unconscious); GOSE 3 lower severe disability (dependent, need frequent help); GOSE 4 upper severe disability (dependent, need some help); GOSE 5 lower moderate disability (independent, unable to participate in one or more life roles), 6 upper moderate disability (independent, limited to participate in one or more life roles), 7 lower good recovery (independent, returned to normal life with some symptoms); and GOSE 8 upper good recovery (independent and a full return to normal life).*



eFigure 2: Functional outcome focusing on societal participation by age groups

The Glasgow Outcome Scale Extended (GOSE) for younger (n=494) and older (n=340) survivors (n=834) at 6-months after out-of-hospital cardiac arrest. *Categories: GOSE 2 vegetative state* (unconscious); *GOSE 3 lower severe disability* (dependent, need frequent help); *GOSE 4 upper severe disability* (dependent, need some help); *GOSE 5 lower moderate disability* (independent, unable to participate in one or more life roles), *6 upper moderate disability* (independent, limited to participate in one or more life roles), *7 lower good recovery* (independent, returned to normal life with some symptoms); and *GOSE 8 upper good recovery* (independent and a full return to normal life).



eFigure 3: Functional outcome focusing on societal participation by sex

The Glasgow Outcome Scale Extended (GOSE) for survivors (n=834) at 6-months after out-of-hospital cardiac arrest for males (n=698/834) and females (n=136/834). *Categories: GOSE 2 vegetative state (unconscious); GOSE 3 lower severe disability (dependent, need frequent help); GOSE 4 upper severe disability (dependent, need some help); GOSE 5 lower moderate disability (independent, unable to participate in one or more life roles), 6 upper moderate disability (independent, limited to participate in one or more life roles), 7 lower good recovery (independent, returned to normal life with some symptoms); and GOSE 8 upper good recovery (independent and a full return to normal life).*