

Expert Consensus Survey on Digital Health Tools 2015

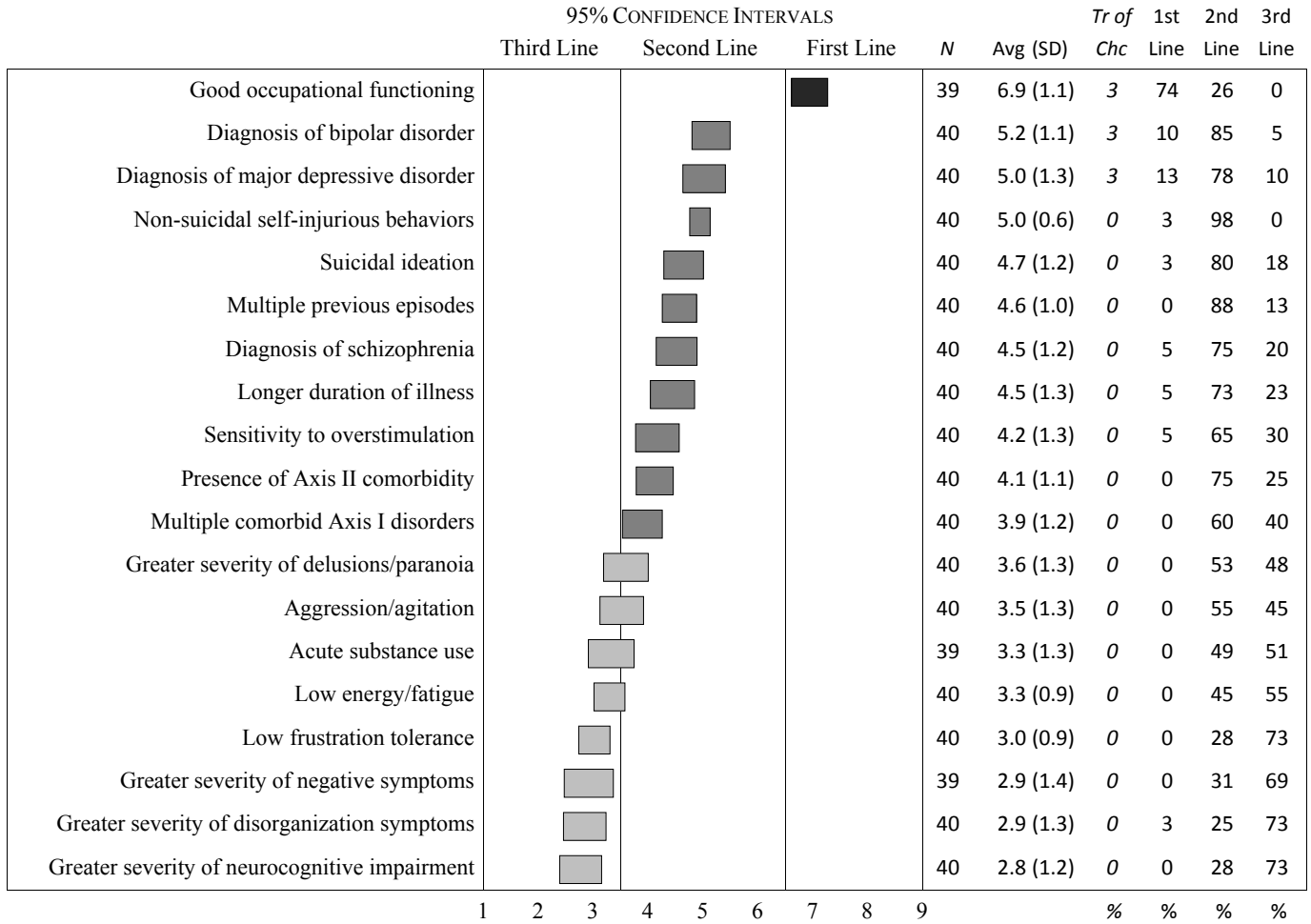
Question 1. Characteristics of PATIENTS that affect ability to engage with and use a digital health tool. How much do you believe the following patient characteristics affect the chances that a patient can successfully engage with and use a digital health tool? In answering this and subsequent questions, please consider the type of digital health tool(s) with which you have the most experience. (Please rate each item on a scale from 1 to 9 with: 1 = likely to make it very difficult for person to engage with and use, 5 = not likely to influence ability to engage with or use, and 9 = extremely likely to promote engagement and ability to use.)

1a. Patient Characteristics

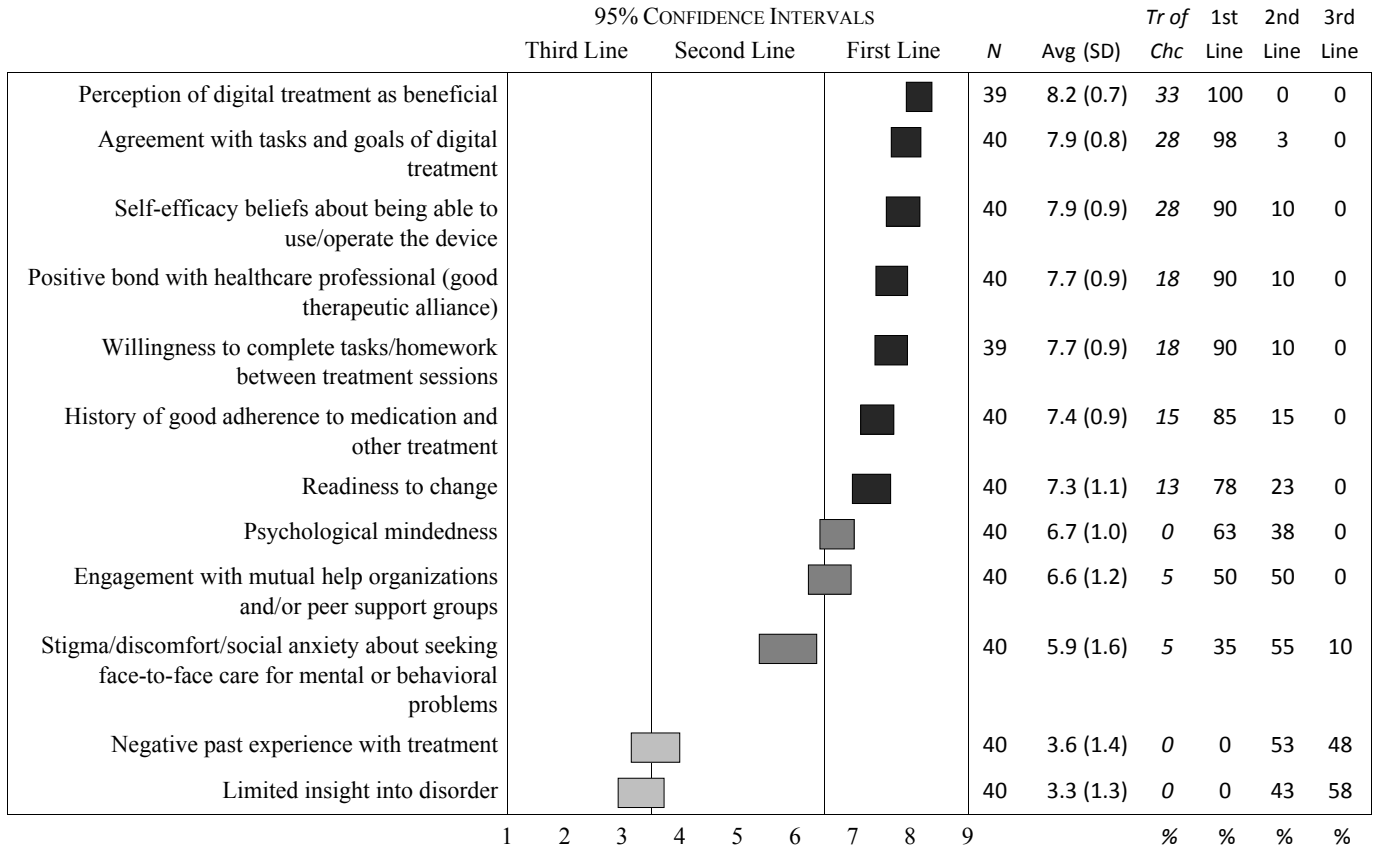
	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Interest in using state-of-the-art technology			■*	39	8.0 (1.5)	54	90	8	3
Resources that facilitate access to treatment (availability of Wi-Fi or data plan, applicable hardware, insurance coverage)			■	40	7.8 (1.0)	25	93	8	0
Positive expectations on the part of the patient about using a digital health tool			■	40	7.8 (1.0)	28	90	10	0
Owns and uses a smart phone/computer/tablet			■	40	7.8 (0.9)	23	90	10	0
Positive social support (i.e., patient has an involved significant other or caregiver)			■	40	7.4 (0.9)	10	90	10	0
< 18 years old			■	40	7.3 (1.8)	33	78	18	5
18-44 years old			■	40	7.3 (1.2)	18	73	28	0
Bachelor's degree or more education			■	40	7.0 (1.0)	5	70	30	0
High school or more education			■	40	6.1 (1.1)	0	43	55	3
Female gender			■	40	5.6 (1.1)	3	23	78	0
45-64 years old			■	40	5.6 (1.2)	0	28	70	3
Currently married			■	40	5.5 (0.9)	0	15	85	0
Male gender			■	40	5.5 (1.2)	3	23	73	5
Minority status			■	40	4.8 (1.0)	0	5	85	10
Low socioeconomic status			■	40	4.0 (1.2)	0	5	60	35
Did not complete high school			■	40	3.8 (1.0)	0	0	63	38
65+ years old			■	40	3.7 (1.5)	0	5	43	53
Low health literacy			■	40	3.4 (1.1)	0	0	43	58
Severe psychosocial stressors (e.g., poverty, general medical problems, abusive relationship, legal problems)			■	40	2.9 (1.2)	0	0	28	73
Low IQ			■	40	2.9 (0.8)	0	0	18	83
None or minimal knowledge/ability/comfort using technology (e.g., computers, tablets, mobile phones)			■	39	2.7 (0.9)	0	0	15	85
Low literacy (i.e., reading ability)/numeracy			■	40	2.4 (0.8)	0	0	5	95
Low motivation			■	40	2.2 (0.9)	0	0	5	95
Serious level of chaos and disorganization in the person's life/environment			■	40	2.1 (0.9)	0	0	8	93

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1b. Disorders, Signs, and Symptoms



1c. Appraisals and Patient Experience



Question 2. Characteristics and Resources of HEALTH CARE PROFESSIONALS (HCPs). How helpful do you believe the following characteristics and resources are in enabling HCPs to successfully incorporate digital health tools in their practices? (Please rate each item on a scale from 1 to 9 with 1 = not at all helpful 5 = somewhat helpful 9 = extremely helpful)

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
HCP enthusiastic about/willing to work with patients using digital health tools				40	8.5 (0.6)	55	100	0	0
Availability of staff to support the ongoing use of the prescribed technology (e.g. make follow-up phone calls, monitor progress)				40	8.3 (1.0)	50	95	5	0
Availability of necessary equipment (e.g. computers, broadband internet if needed, mobile devices) for delivering patient treatment on a regular basis				40	8.2 (1.0)	50	95	5	0
Availability of staff with technology skills to teach patients how to use technology initially				40	8.1 (1.1)	40	95	5	0
Availability of necessary equipment (e.g. computers, broadband internet if needed, mobile devices) for patient use in the office for training				40	8.0 (1.0)	40	90	10	0
HCP is experienced in using computers in practice				40	7.6 (1.0)	25	85	15	0
HCP has familiarity with smart phone technology				39	7.6 (1.0)	26	85	15	0
Availability of free trial version of tools				40	7.5 (1.0)	13	88	13	0
Availability of a digital health tool that is consistent with the HCP's preferred theoretical orientation (e.g., a digital CBT tool for a therapist trained in CBT)				40	7.5 (1.2)	18	80	20	0
Availability of 24/7 call center to provide technical support for HCP and patients				40	7.4 (1.5)	23	80	18	3
HCP is ≤ 40 years old				40	6.4 (1.8)	10	58	35	8



















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Question 4. Potential benefits of using a digital health tool for PATIENTS. Assume the items below have been demonstrated to be benefits of using a digital health tool for patients with psychiatric disorders. For each, please rate how likely you believe it would be to motivate a patient to use the digital health tool. (Please rate each item on a scale from 1 to 9 with 1 = not at all likely to motivate patient 5 = somewhat likely to motivate patient 9 = extremely likely to motivate patient)

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Improved functioning (e.g., social and work functioning)			■	40	7.9 (1.3)	38	93	5	3
Reduced symptomatology			■	40	7.8 (1.2)	30	83	18	0
Receiving feedback/support from clinicians via the digital health system between face-to-face sessions			■	39	7.6 (1.1)	21	85	15	0
Ability to engage with HCP periodically after discharge from face-to-face sessions			■	40	7.5 (1.1)	18	78	23	0
Increased interaction with treatment team via digital health device in geographic areas where face-to-face access to HCPs is limited			■	40	7.4 (1.5)	25	78	20	3
Increased confidence/self-efficacy and hope related to his or her health care			■	40	7.4 (1.3)	23	75	23	3
Reduction in number of hospitalizations		■	■	38	7.1 (1.9)	26	76	16	8
Elimination or reduction of problems with transportation to treatment		■	■	40	7.0 (1.3)	10	68	33	0
More personalized/tailored treatment approach can be offered by technology		■	■	40	7.0 (1.3)	3	70	30	0
Increased social engagement enabled by technology		■	■	40	7.0 (1.5)	18	70	28	3
Receiving prompt helpful automated feedback in response to input/questions		■	■	40	7.0 (1.4)	10	70	28	3
Increased willingness to engage in care for those who are reluctant to meet face-to-face with HCPs		■	■	40	6.7 (1.8)	13	63	33	5
Access to state-of the art treatment tools		■	■	40	6.6 (1.5)	10	50	48	3
Better self-understanding of thinking, feelings, and behaviors		■	■	40	6.6 (1.5)	5	60	38	3
Decreased stigma related to seeking mental health care		■	■	40	6.5 (1.7)	10	60	35	5
Improved communication/understanding between patients and family members because of family integration in digital system		■	■	39	6.5 (1.7)	8	54	38	8
Self-management and ability to record personal information (e.g., about adherence, symptoms)		■	■	40	6.4 (1.6)	8	45	48	8
Around the clock access to a digital health tool that is part of the patient's treatment plan		■	■	39	6.4 (1.3)	3	46	51	3
Digital links to wide range of resources and support		■	■	40	6.2 (1.6)	0	53	43	5
Increased understanding and investment in treatment plan		■	■	40	6.1 (1.7)	8	45	48	8
Ability of multiple HCPs involved in patient's care (e.g., case manager, psychologist) to access the data		■	■	40	6.0 (1.7)	8	43	50	8

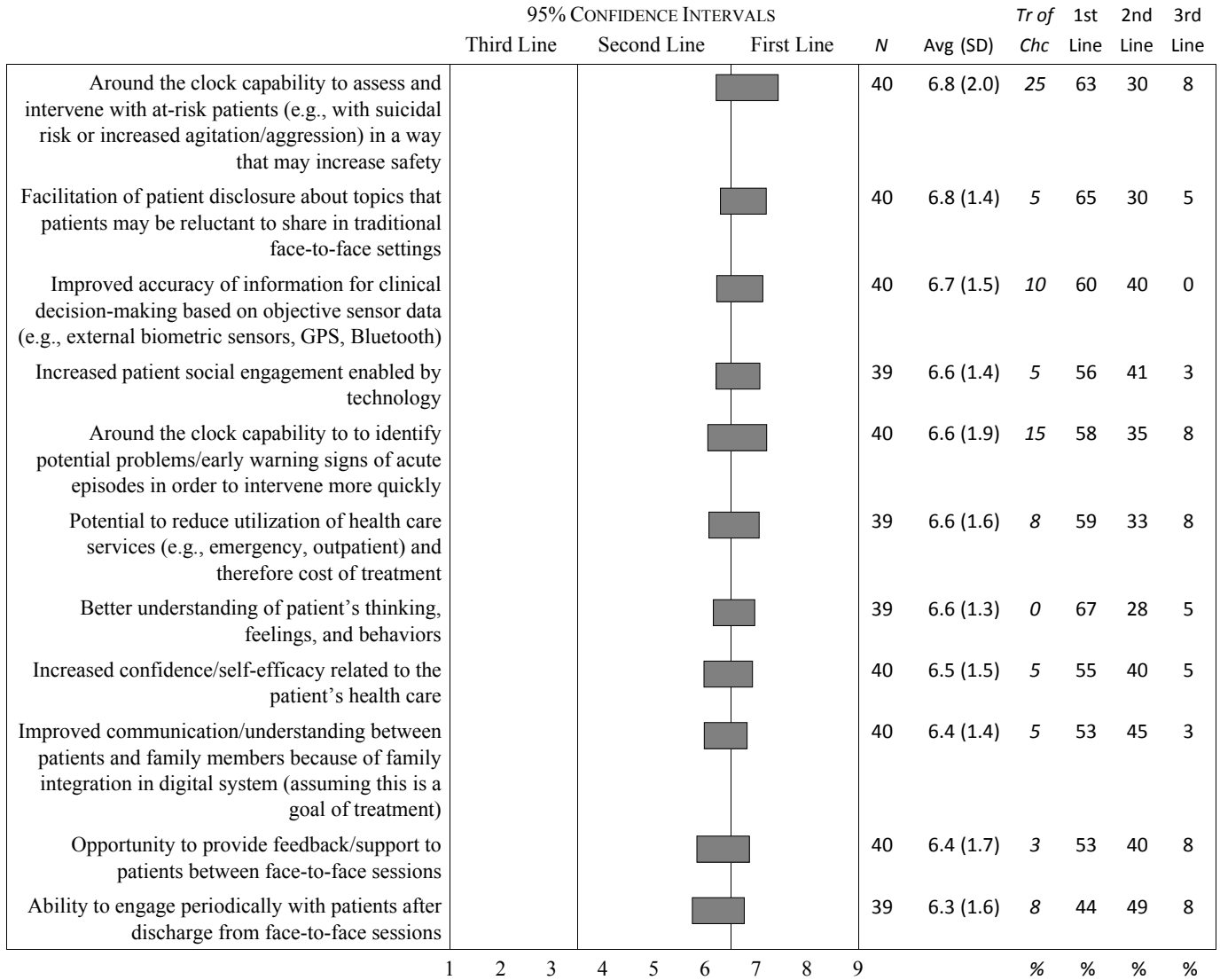
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Question 6. Potential benefits of using a digital health tool for HEALTH CARE PROFESSIONALS. Assume the items below have been demonstrated to be benefits of using a digital health tool for HCPs who treat patients with psychiatric disorders. For each, please rate how likely you believe it would be to motivate an HCP to use the digital health tool. (Please rate each item on a scale from 1 to 9 with 1 = not at all likely to motivate HCP 5 = somewhat likely to motivate HCP 9 = extremely likely to motivate HCP)

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Reimbursement by payers for time spent providing training to patients and family members about the digital health tool				39	8.5 (0.9)	62	95	5	0
Reimbursement by payers for time spent using/reviewing data from the digital health tool				40	8.4 (1.3)	65	93	5	3
Improved patient adherence to medication and treatment plan				40	8.0 (1.2)	38	93	5	3
Improved patient functioning (e.g., social and work functioning)				39	7.9 (1.0)	36	90	10	0
Reduced patient symptomatology				39	7.9 (1.0)	33	92	8	0
Increased efficiency of care provision by freeing up HCP's time without compromising quality of care (i.e., technology as a treatment extender to reduce HCP burden)				39	7.8 (1.4)	38	87	10	3
Increased ability to deliver evidence-based treatments that would not otherwise be delivered because of limited staff resources, limited trained staff, or cost barriers				40	7.6 (1.2)	20	80	20	0
More accurate data about medication adherence				40	7.5 (1.3)	20	85	13	3
Digital health tool provides input to common electronic health record (EHR) systems already in use				39	7.5 (1.3)	26	85	15	0
Published evidence concerning efficacy of the digital health tool in improving patient outcomes				38	7.4 (1.3)	21	76	24	0
Replacing routine assessment and monitoring functions, thus increasing availability of HCP for more complex cases				40	7.4 (1.6)	28	85	10	5
Reduction in number of hospitalizations				40	7.2 (1.6)	25	70	28	3
Potential to achieve improved patient outcomes by being able to make more evidence-based treatment decisions				40	7.2 (1.2)	18	75	25	0
Improved accuracy of information for clinical decision-making based on objective momentary data about patient symptoms				39	7.2 (1.5)	21	69	31	0
Access to more patient information (e.g., about adherence, symptoms)				40	7.1 (1.1)	13	70	30	0
Ability to provide state-of-the art treatment tools				40	7.0 (1.5)	13	70	28	3
Ability of multiple HCPs involved in patient's care (e.g., case manager, psychologist) to access the data				40	7.0 (1.5)	15	63	35	3
Increased ability to personalize/tailor the treatment approach to the specific patient				40	6.9 (1.5)	15	58	40	3

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Question 6. Question



Question 7. Potential barriers and/or unintended consequences for HEALTH CARE PROFESSIONALS. Listed below are some potential barriers to and unintended consequences of HCPs' use of a digital health tool with patients with psychiatric disorders. How likely do you believe each of the items is to be a potential barrier and/or to be or lead to an unintended consequence for HCPs using a digital health tool with their patients? (Please rate each item on a scale from 1 to 9 with 1 = significant potential to be a barrier and/or an unintended consequence for an HCP 5 = some potential to be a barrier and/or an unintended consequence for an HCP 9 = minimal potential to be a barrier and/or an unintended consequence for an HCP)

7a. Concerns about process and credibility of intervention

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Loss of expert role due to inadequate technological knowledge				40	4.7 (2.1)	3	23	43	35
Concern about validation of measures				40	4.5 (2.0)	3	18	50	33
Concern about preserving the validity of evidence-based psychosocial interventions when delivered digitally				40	4.4 (2.4)	3	28	30	43
Uncertainty about how to discuss and explain the digital health tool to patients				40	4.4 (2.6)	3	28	23	50
Potential for blurring of patient-professional boundaries (e.g., digital tools allow contact outside scheduled face-to-face appointments)				40	4.4 (2.2)	0	23	30	48
Lack of centralized regulation/approval/rating body for novel technologies leads to unclear expected benefits				40	4.3 (2.0)	3	18	40	43
Inadequate information about how the processes delivered by digital systems can be integrated with in-person, usual care				40	3.0 (1.8)	0	8	18	75

7b. Concerns about usability/feasibility

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Concern that the tool has not gone through sufficient usability testing with psychiatric population				40	3.5 (1.6)	0	5	33	63
HCP has doubts about the patient's ability to handle the required technology				40	2.3 (1.4)	0	3	10	88
HCP considers the device a hassle/too time consuming to appropriately bring in to care				40	2.1 (1.3)	0	0	13	88
Patient does not have access to the required technology				40	1.9 (1.3)	0	3	5	93

7c. Liability and logistical issues

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Concern about patient confidentiality				40	3.5 (1.8)	0	10	25	65
Uncertainty about the frequency with which the digital data should be reviewed				40	3.5 (1.6)	0	3	45	53
Uncertainty about how to use the information clinically				40	3.2 (1.5)	0	3	40	58
Availability of too much information (e.g., HCP overwhelmed with additional patient information that needs consideration despite time-pressured schedule)				40	2.6 (1.6)	0	3	15	83
Time/disruption involved in integrating digital data into clinical practice				40	2.5 (1.2)	0	0	20	80
Difficulty having the digital health tool approved by insurance				40	2.4 (1.5)	0	3	15	83
Uncertainty about receiving reimbursement for time spent training or using the device and its data				40	2.3 (1.4)	0	0	18	83
Concern about potential for increased liability exposure due to not having effected or documented a clinical response to available information				39	2.2 (1.3)	0	0	13	87

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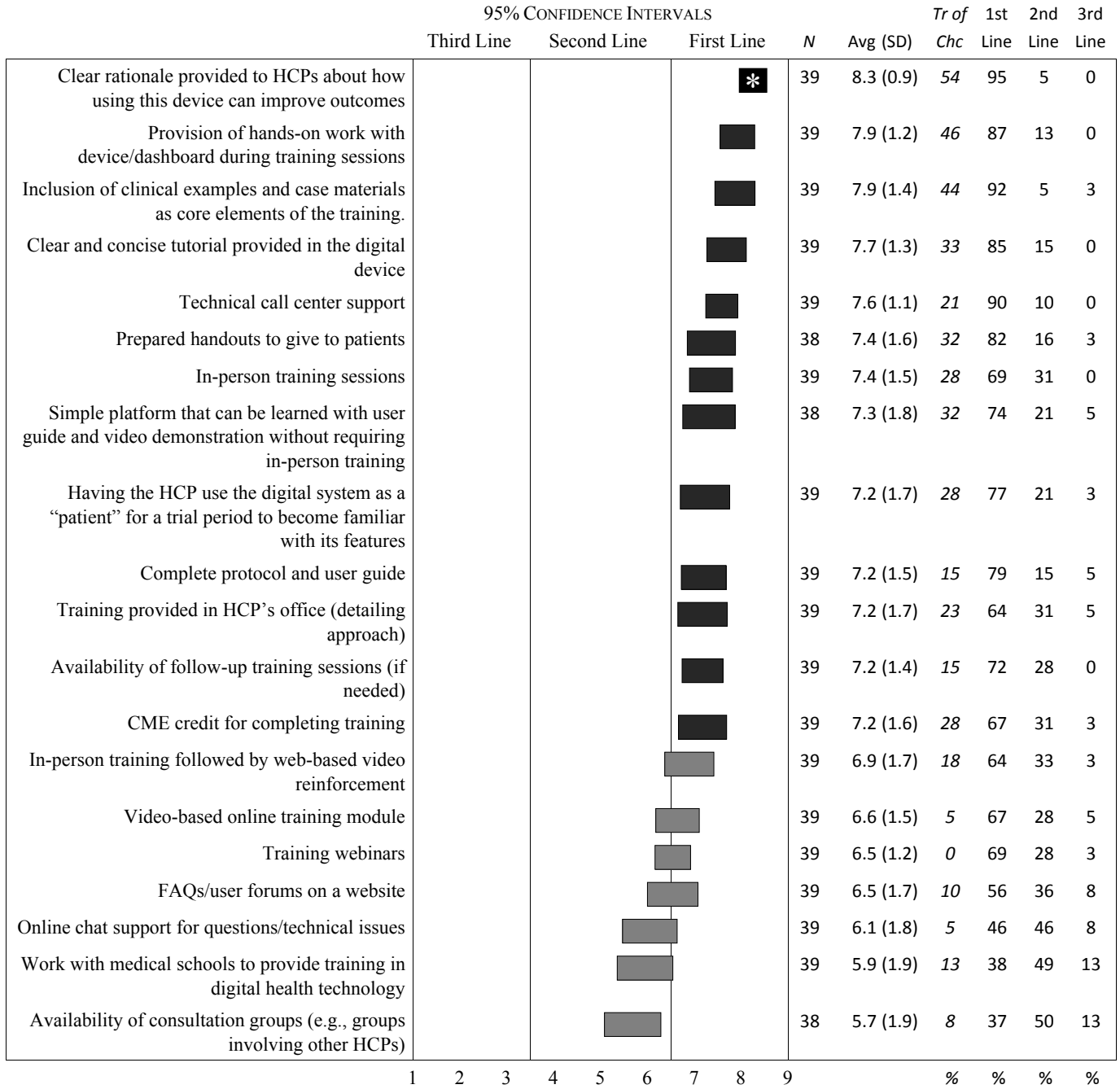
7d. Unintended consequences

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Patient discontinues needed traditional face-to-face treatment in favor of self-management				40	5.0 (2.3)	3	33	38	30
Distraction from therapy targets and tasks identified in session				40	4.7 (1.9)	0	23	50	28

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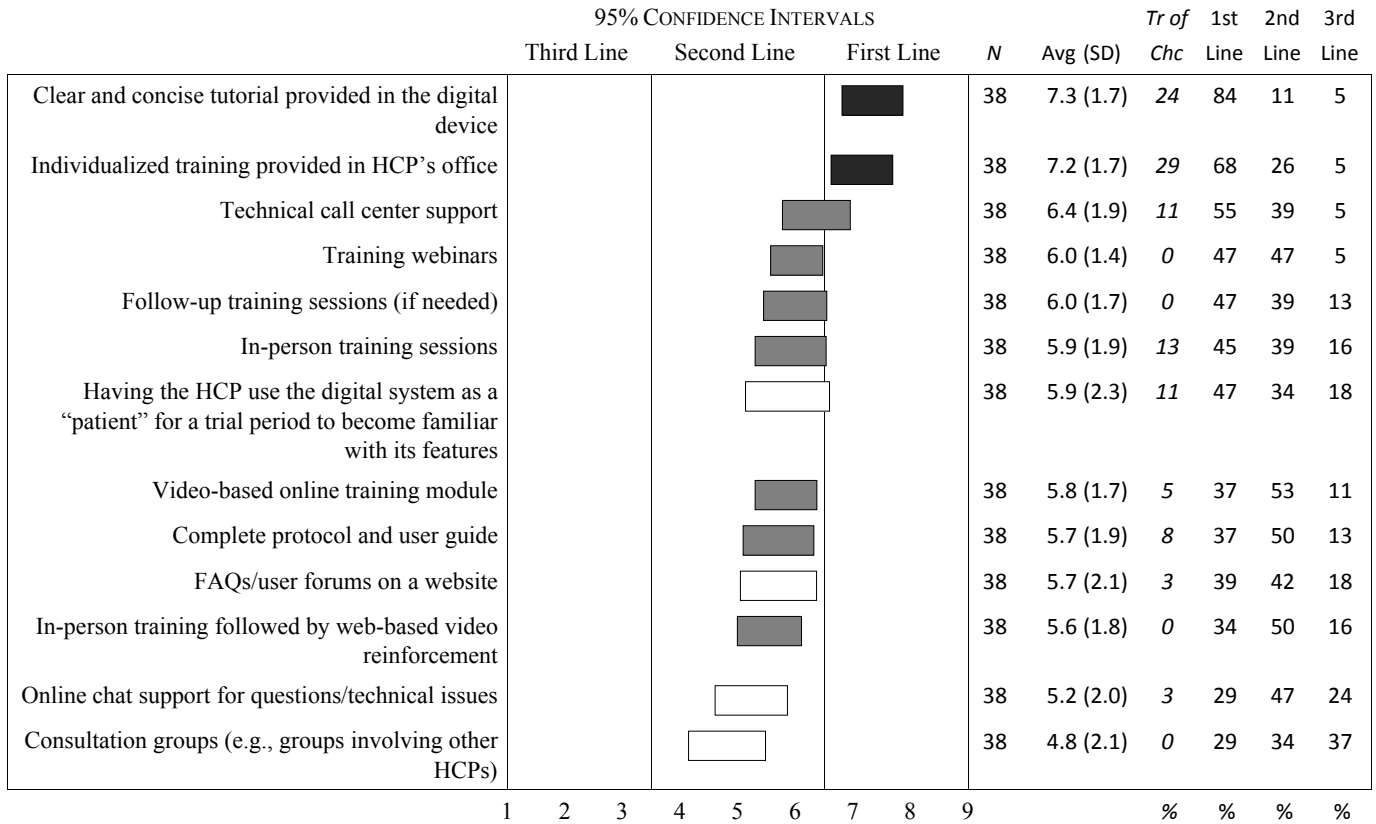
Question 16. Training for Health Care Professionals (HCPs). In the next two questions, we ask you to rate a number of different types of training and training resources for HCPs. In 16a, we ask you to rate how important different types of training and training resources would be in helping health care professionals prescribe and interact with a digital health tool. In 16b, we ask how likely you believe HCPs would be to participate in different types of training. Assume the HCP will receive computerized reports with the output from the digital tool.

16a. Importance to HCP’s ability to prescribe and interact with digital health tool. (Please rate each item on a scale from 1 to 9 with 1 = not at all important 5 = somewhat important 9 = extremely important)



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16b. Likelihood that HCP would participate in this type of training. (Please rate each item on a scale from 1 to 9 with 1 = not at all likely 5 = somewhat likely 9 = extremely likely)



Question 17. Provision of training and support to PATIENTS by HCPs. Assume that the digital health tool designed for use with a patient with serious mental illness will be prescribed and monitored by an HCP. When we refer to HCPs here, we mean any professional providing health care services to patients with mental illnesses (e.g., psychiatrist, psychologist, nurse practitioner, clinical social worker). Thus, the HCP will be part of the system so that the design of the HCP’s participation must be optimized. In the next two questions, we ask you to rate a number of different types of training and training resources for patients that would be provided by HCPs in terms of 17a) how important they would be in helping patients successfully engage with and use a digital health tool and then 17b) how difficult you believe each activity would be for the average HCP. Assume the HCP will receive computerized reports with the output from the digital tool.

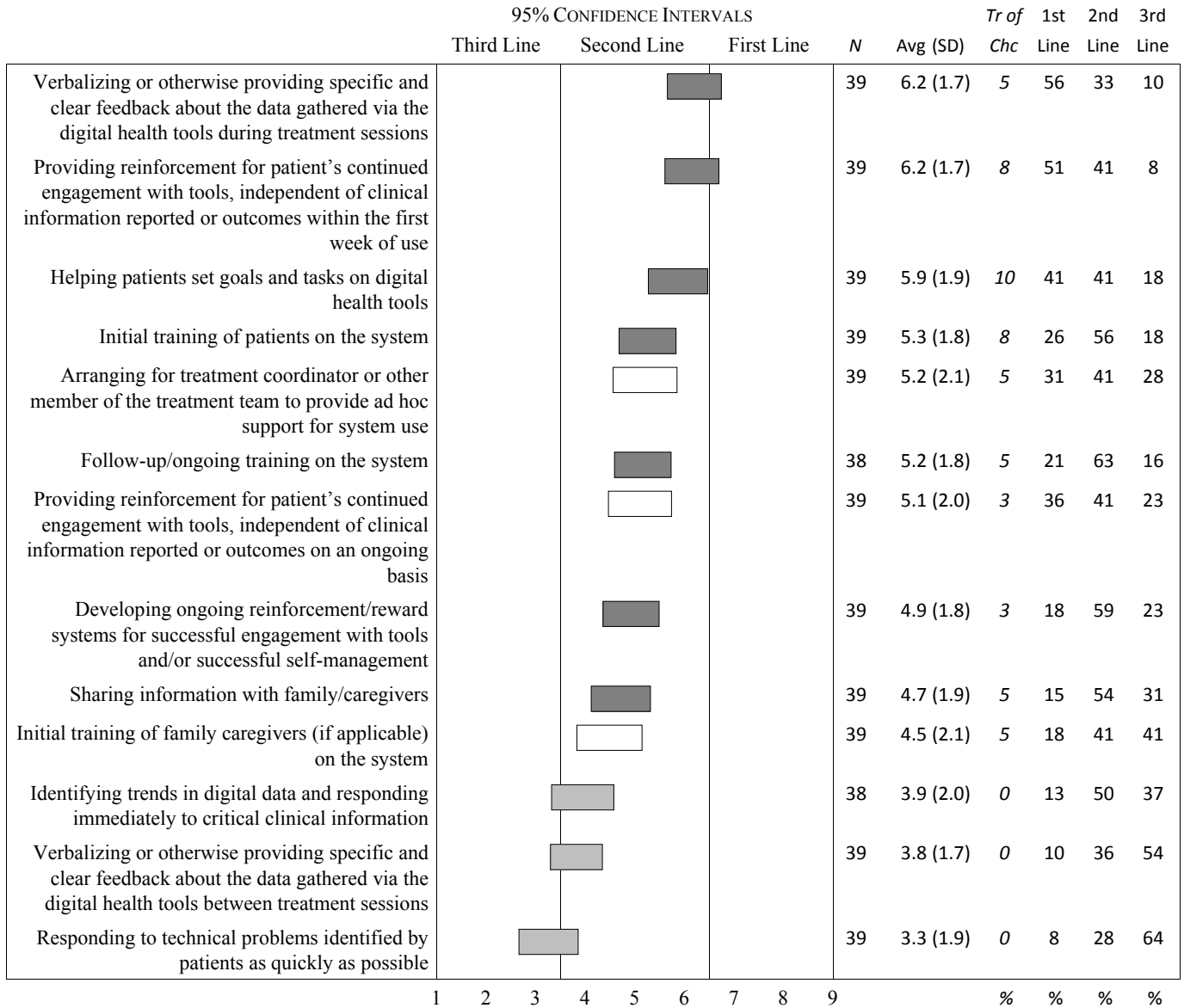
17a. How IMPORTANT would each activity be in order to enable patients to successfully engage with and use a digital health tool? (Please rate each item on a scale from 1 to 9 with 1 = not at all important 5 = somewhat important 9 = extremely important)

	95% CONFIDENCE INTERVALS			N	Avg (SD)	Tr of Chc	1st Line	2nd Line	3rd Line
	Third Line	Second Line	First Line						
Initial training of patients on the system			■*	39	8.4 (0.9)	64	97	3	0
Responding to technical problems identified by patients as quickly as possible			■	39	7.9 (1.1)	41	92	8	0
Verbalizing or otherwise providing specific and clear feedback about the data gathered via the digital health tools during treatment sessions			■	39	7.7 (1.0)	26	90	10	0
Providing reinforcement for patient’s continued engagement with tools, independent of clinical information reported or outcomes within the first week of use			■	39	7.6 (1.2)	26	85	15	0
Arranging for treatment coordinator or other member of the treatment team to provide ad hoc support for system use			■	39	7.5 (1.0)	18	87	13	0
Developing ongoing reinforcement/reward systems for successful engagement with tools and/or successful self-management			■	38	7.5 (1.3)	18	84	13	3
Helping patients set goals and tasks on digital health tools			■	39	7.5 (1.3)	28	82	18	0
Identifying trends in digital data and responding immediately to critical clinical information			■	39	7.4 (1.4)	26	82	15	3
Providing reinforcement for patient’s continued engagement with tools, independent of clinical information reported or outcomes on an ongoing basis			■	39	7.4 (1.3)	23	82	18	0
Follow-up/ongoing training on the system			■	39	7.1 (1.4)	21	69	31	0
Initial training of family caregivers (if applicable) on the system			■	38	6.9 (1.8)	18	63	34	3
Verbalizing or otherwise providing specific and clear feedback about the data gathered via the digital health tools between treatment sessions			■	39	6.5 (1.7)	10	54	41	5
Sharing information with family/caregivers		■		38	5.6 (1.6)	0	24	68	8

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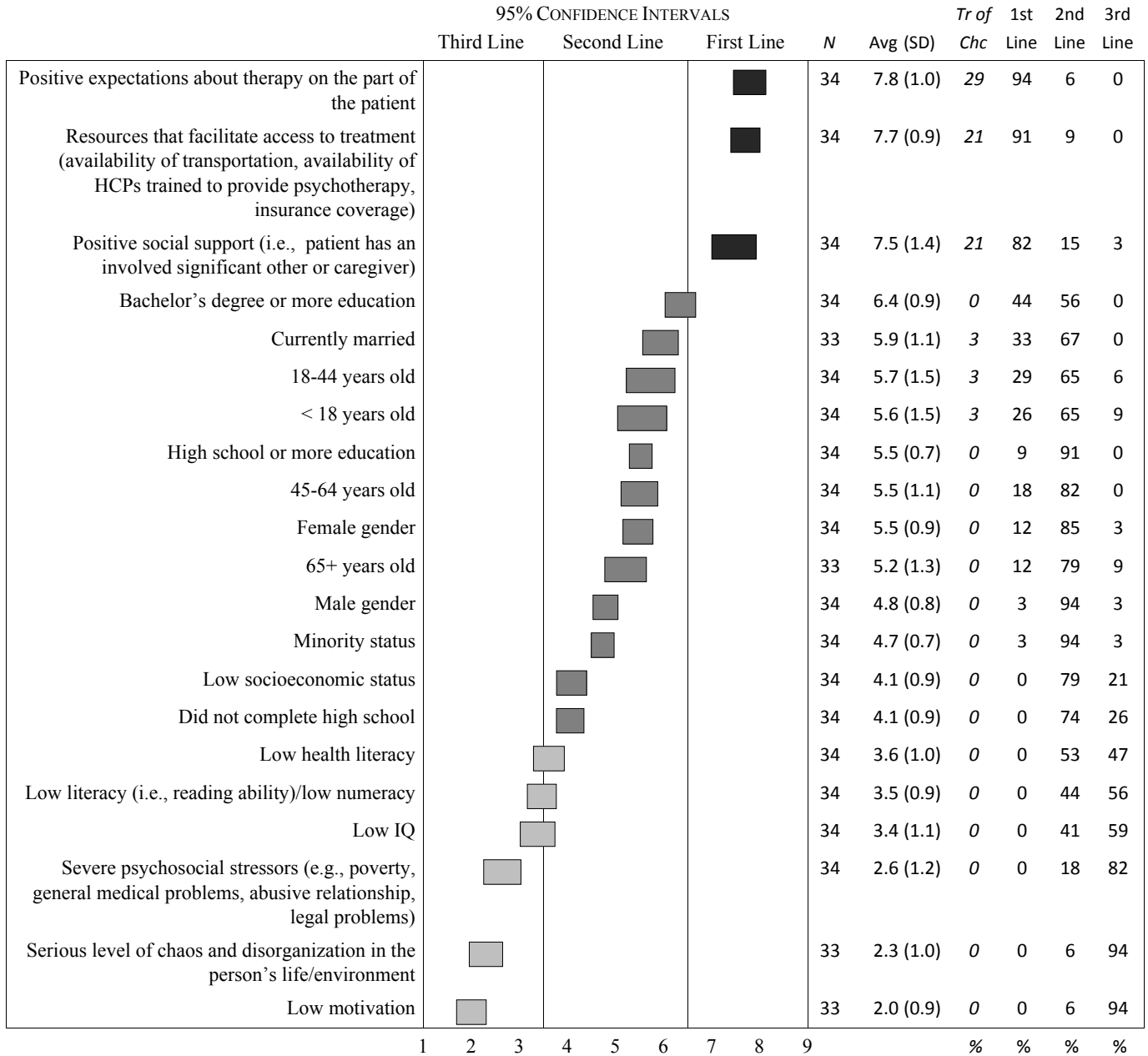
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17b. How DIFFICULT would each activity would be for the average HCP? (Please rate each item on a scale from 1 to 9 with 1 = extremely difficult 5 = somewhat difficult 9 = not at all difficult)

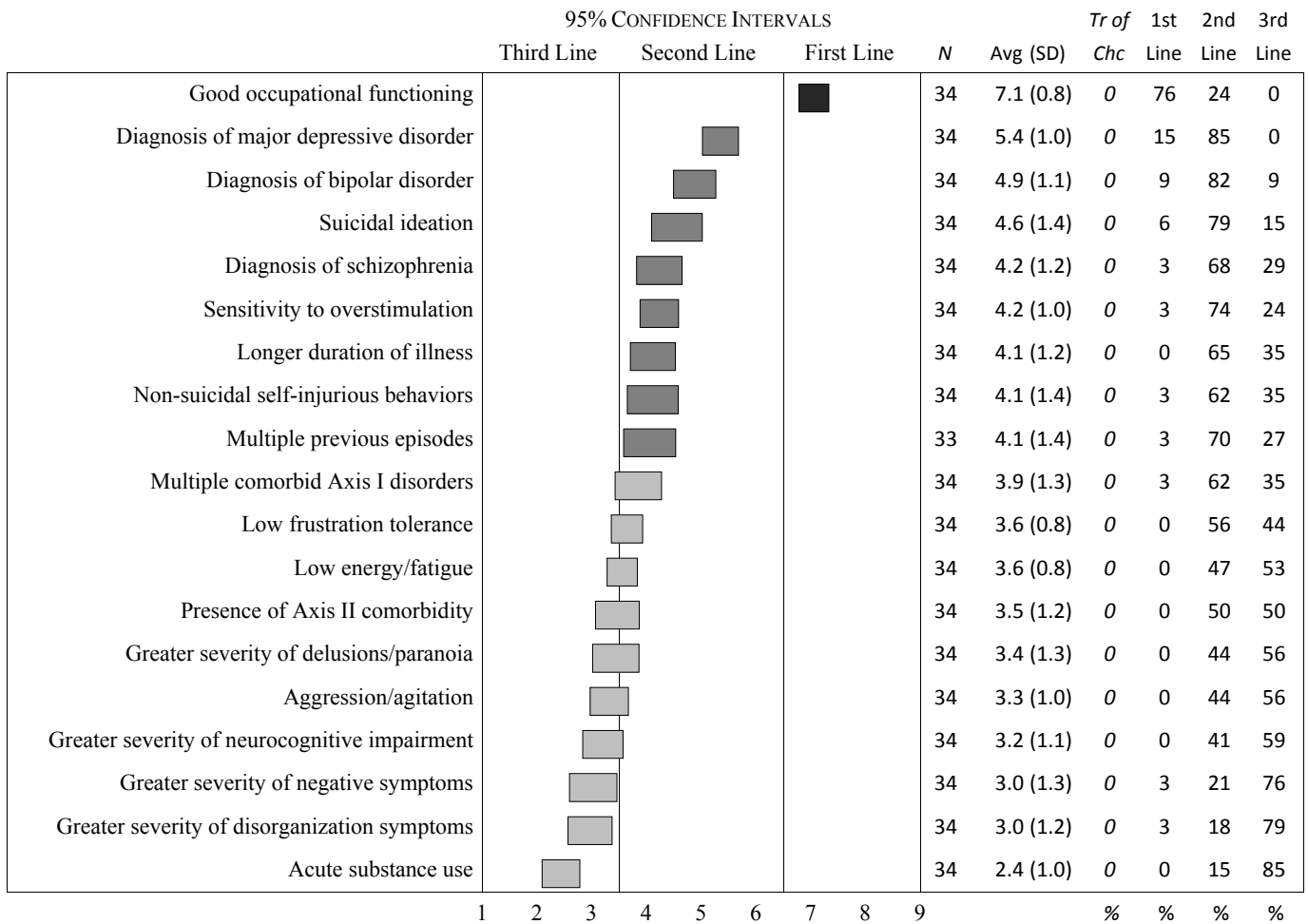


Question 19. Patient characteristics that affect outcomes in psychotherapy/psychosocial interventions. How much do you believe the following patient characteristics affect the chances of achieving favorable outcomes in psychotherapy/psychosocial interventions? Thinking about this question, please use your experience with all types of therapies/interventions and different types of patients. (Please rate each item on a scale from 1 to 9 with 1 = likely to have a very adverse effect on outcomes 5 = not likely to influence outcomes much one way or another 9 = extremely likely to promote good outcomes.)

19a. Patient Characteristics



19b. Disorders, Signs, and Symptoms



19c. Appraisals and Patient Experience

