

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

A clinical comparison simulation study using the Inventory of Problems-29 (IOP-29) with the Center for Epidemiologic Studies Depression Scale (CES-D) in Lithuania

This is a pre print version of the following article:

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1766449> since 2021-01-12T14:34:43Z

Published version:

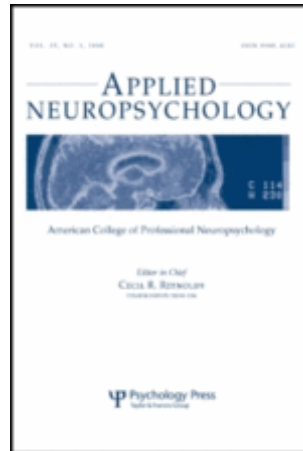
DOI:10.1080/23279095.2020.1725518

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)



A Clinical Comparison Simulation Study Using the Inventory of Problems-29 (IOP-29) with the Center for Epidemiologic Studies Depression Scale (CES-D) in Lithuania

Journal:	<i>Applied Neuropsychology: Adult</i>
Manuscript ID	Draft
Manuscript Type:	Original Article
Date Submitted by the Author:	n/a
Complete List of Authors:	Ilgunaite, Guste; Mykolas Romeris University Giromini, Luciano; Department of Psychology, University of Turin, Italy, Bosi, Jessica; University of Surrey Viglione, Donald; California School of Professional Psychology, Alliant International University - San Diego Zennaro, Alessandro; Department of Psychology, University of Turin, Italy
Keywords:	malingering, feigning, depression, IOP-29, Lithuania

SCHOLARONE™
Manuscripts

Lithuanian Validation of the IOP-29

**A Clinical Comparison Simulation Study Using the Inventory of Problems-29 (IOP-29)
with the Center for Epidemiologic Studies Depression Scale (CES-D) in Lithuania**

Guste Ilgunaite¹, Luciano Giromini², Jessica Bosi³, Donald J. Viglione⁴, & Alessandro Zennaro²

¹ Department of Psychology, Mykolas Romeris University, Vilnius, Lithuania

² Department of Psychology, University of Turin, Italy

³ University of Surrey, Guildford, UK

⁴ Alliant International University – San Diego, California, US

Corresponding Author: Correspondence concerning this article should be addressed to Luciano Giromini, Department of Psychology, University of Turin, Via Verdi 10, 10123 Torino, TO, Italy. Tel +39 011 670 3060. E-mail luciano.giromini@unito.it

Declaration of Interest: Luciano Giromini and Donald J. Viglione declare that they own a share in the corporate (LLC) that possesses the rights to Inventory of Problems. All other three authors declare that they have no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

Lithuanian Validation of the IOP-29

Abstract

This article contributes to the growing research on the validity of the recently developed, Inventory of Problems – 29 (IOP-29) in the discrimination of feigned from bona fide mental or cognitive disorders. Specifically, we first developed a Lithuanian version of the IOP-29 and tested its validity on a sample of 50 depressed patients and 50 healthy volunteers instructed to feign depression. Next, we reviewed all previously published IOP-29 studies reporting on depression-related presentations ($k = 5$), and compared our results against previously reported findings. Statistical analyses showed that the Lithuanian IOP-29 discriminated almost perfectly between genuine and experimentally feigned major depression, with Area Under the Curve (AUC) = .98 ($SE = .01$) and Cohen's $d = 3.31$. When compared to previously published IOP-29 literature on this same topic, these findings may be characterized as similar or perhaps slightly more encouraging. Indeed, across all international, empirical studies considered in this article, Cohen's d ranged from 1.80 to 4.30, and AUC ranged from .89 to .99. Taken together, these findings contribute to supporting the strong validity and cross-cultural applicability of the IOP-29. They also provide additional support for its use in forensic evaluations.

Keywords: Malingering; Feigning; Depression; IOP-29; Lithuania.

Lithuanian Validation of the IOP-29

**A Clinical Comparison Simulation Study Using the Inventory of Problems-29 (IOP-29)
with the Center for Epidemiologic Studies Depression Scale (CES-D) in Lithuania**

Malingering is defined as the “intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives” (American Psychiatric Association, 2013, p.726). Despite this straightforward definition, malingering can be extremely difficult to detect and the costs associated with it, both to the criminal justice system and to society, are exorbitant (Chafetz & Underhill, 2013). Therefore, accurately deciphering whether an individual’s presentation of symptoms is credible or not is critical issue and is key when undertaking forensic psychological assessments (Bush, Heilbronner, & Ruff, 2014).

Major depression has a high prevalence of 7% (APA, 2013) and has associated economic consequences, including direct and indirect costs related to medications, disability compensation, insurance claims and work absence (Cuijpers & Smit, 2008). In relation to the latter, the duration of absence from work is typically longer for cases of major depression than for other medical problems such as heart disease and back pain (Druss, Rosenheck, & Sledge, 2000). Perhaps more importantly, symptoms of major depression can be feigned more easily than symptoms for other mental disorders, for several reasons. For instance, most people have at some point experienced low mood, the symptoms themselves are likely easier to empathize with (such as a lack of interest in daily life), and there is a lot of easily accessible information on the symptoms available online (Bagby, Nicholson, Buis, & Bacchiochi, 2000; Lees-Haley & Dunn, 1994; Monaro et al., 2018; Nicholson & Martelli, 2007; Steffan, Clopton, & Morgan, 2003). As a result, depression is one of the most commonly feigned mental disorders (Mittenberg, Patton,

Lithuanian Validation of the IOP-29

Canyock, & Condit, 2002) and consequently the veracity of reports of its symptoms must be investigated carefully in the forensic setting.

To evaluate the credibility of presented symptoms, practitioners may rely on various tools which have been developed in the absence of reliable detection based on clinical judgment alone (Young, Jacobson, Einzig, Gray, & Gudjonsson, 2016). These tools include interviews (e.g. The Structured Interview of Reported Symptoms (SIRS; Rogers, Gillis, Dickens, & Bagby, 1991; Rogers, 2010); validity indicators embedded in multiscale personality inventories (e.g., the Minnesota Multiphasic Personality Inventory (MMPI-2; Greene, 1991); MMPI-RF (Ben-Porath & Tellegen, 2008) and the Personality Assessment Inventory (PAI; Morey, 1991) and “stand-alone tests” including self-report symptom validity tests (SRVTs) (e.g. The Structed Inventory of Malingered Symptomatology (SIMS; Smith & Burger, 1997)) and performance validity tests (PVTs) (e.g., the Test of Memory Malingering (TOMM; Tombaugh, 1996; Tombaugh, 1997)). Whilst all these tools have their merits, the majority rely on one detection strategy only, for example, SRVTs like the SIMS typically rely purely on the “rare symptoms strategy” (Rogers & Bender, 2018, p. 572). Although this is one of the most effective strategies for assessing feigned mental disorders (Rogers, Sewell, Martin, & Vitacco, 2003; Sharf, Rogers, Williams, & Henry, 2017) the failure to examine other strategies could lead to cases of feigning going undetected.

The newly developed Inventory of Problems-29 (IOP-29; Viglione, Giromini, & Landis, 2017), a short, paper-and-pencil or online, self-administered measure to detect *multiple* feigning strategies of both mental and cognitive disorders, aims to evaluate the credibility of presented symptoms by examining the extent to which an individual experiences and may cope with or manage their problems. Compared to available alternatives, the IOP-29 seems to offer some advantages. First, it is notably shorter than other popular stand-alone instruments such as the

Lithuanian Validation of the IOP-29

1
2
3 SIMS (29 versus 75 items). Emerging research suggests that it might outperform the TOMM in
4
5 the detection of feigned depression (Giromini, Barbosa et al., 2019; Viglione et al., 2017), and
6
7 that it has increased classification accuracy compared to the SIMS, especially with psychosis-
8
9 related conditions (Giromini, Viglione, Pignolo, & Zennaro, 2018). Also of note is that it shows
10
11 incremental validity when used either with the TOMM or MMPI compared to using each
12
13 instrument alone (Giromini, Lettieri et al., 2019; Giromini et al., 2019). Furthermore, the IOP-29
14
15 may be applied to various forensic evaluation contexts with no need to adjust its cut scores, as it
16
17 has been shown to perform similarly well with four different types of symptom presentations
18
19 (those related to depression, psychosis, post-traumatic stress disorder (PTSD) and mild traumatic
20
21 brain injury (mTBI)) (Giromini, Viglione, Pignolo, & Zennaro, 2019).
22
23
24
25

This Study

26
27
28 The IOP-29 has primarily been investigated by the two IOP-29 authors using Italian or
29
30 US populations with limited studies focusing on the cross-cultural applicability of this new
31
32 measure (see Giromini, Barbosa et al., 2019 for its validation with a Portuguese sample and
33
34 Winters et al., 2019 for a British validation). To our knowledge, it has not yet been used or
35
36 validated in Lithuania. In fact, Lithuanian research on malingering itself is incredibly scarce: on
37
38 running a search in PsycINFO for the terms “malinger*” and “Lithuania*” in October 2019, no
39
40 papers were found. In comparison, a search for just “malinger*” on the same date, returned over
41
42 4,000 papers. We believe that providing researchers with a validated, Lithuanian adaptation of
43
44 the IOP-29 would facilitate further research in this field as it is so short (29 items) and easy-to-
45
46 use.
47
48
49
50

51 The primary goals of this study therefore were threefold: 1) to develop a Lithuanian
52
53 version of the IOP-29, 2) to test its validity in the detection of feigned depression and 3) to
54
55
56
57

Lithuanian Validation of the IOP-29

compare our findings against those published in previous IOP-29 literature on feigned depression. To do this, the original (English) version of the IOP-29 was first adapted in Lithuanian and permission was then sought to use the Center for Epidemiologic Studies Depression Scale (CES-D, Radloff, 1997) in Lithuanian. The CES-D is a widely used tool to evaluate the presence of depressive symptoms. It was used in this study to confirm the presence of depression in the patient group and to ensure that feigners followed instructions and in fact did attempt to appear depressed. Finally, 50 bona fide patients with depression and 50 feigners in Vilnius, Lithuania were recruited.

Materials and Methods

Participants

Participants for both groups had to be native Lithuanian speakers, over the age of 18 and had to know how to read and sign an informed consent form.

Patients. Fifty Lithuanian adults, 33 women (66%) and 17 men (34%), ranging in age from 18 to 67 years of age ($M = 35.60$, $SD = 12.21$) with diagnosed depression were recruited for the patient group, i.e., to answer the IOP-29 and CES-D honestly. The average number of years of education was 16.08 ($SD = 1.90$). Thirty-four (68%) had been diagnosed with major depression disorder, 11 (22%) had been diagnosed with depression and anxiety disorder and 5 (10%) had been diagnosed with adjustment disorder with depression. The majority ($n = 37$) were outpatients who attended regular consultations with therapists every week and 13 were inpatients who were taken to hospital following a crisis or were there for rehabilitation purposes. Diagnoses were made by psychiatrists based on clinical judgement, consulting with ICD-10-am or using a structured interview for diagnosing depression. Participants were accepted to the depression group if they had depression and were excluded if they had some other diagnosis.

Lithuanian Validation of the IOP-29

Experimental Simulators. Fifty Lithuanian adults, 36 women (72%) and 14 men (28%), ranging in age from 21 to 55 years of age ($M = 31.82$, $SD = 8.41$) were recruited to feign depression, i.e., to try and trick the questionnaires into believing that they had a diagnosis of depression. The average number of years of education was 16.42 ($SD = 1.80$). The simulator group thus did not differ from the patient group with regard to gender ($\Phi = .065$, $p = .52$), age ($t(87.0) = 1.80$, $p = .07$)¹, or education ($t(98) = .92$, $p = .36$).

Materials

The Inventory of Problems-29 (IOP-29; Viglione et al., 2017). As introduced above, the IOP-29 is a brief, self-administered test, newly developed to aid practitioners in their evaluation of symptom presentation credibility related to a variety of psychiatric or cognitive disorders. It is comprised of 29 items, 27 of which are statements about cognitive, social and emotional experiences for which the test taker must choose either “true”, “false” or “doesn’t make sense”, and 2 of which are open-ended questions requiring mathematical reasoning to be applied. The responses are analyzed using a logistic regression-derived formula to generate the main feigning index of the IOP-29, the False Disorder Probability Score (FDS), which is expressed as a probability score: the higher the FDS, the lower the credibility of the reported symptoms, with zero being the minimum and one being the maximum. Cut-off scores of $FDS \geq .50$ has been shown to ensure the best balance between sensitivity and specificity (Giromini et al., 2018; Viglione et al., 2017).

For this study, a Lithuanian version of the IOP-29 was developed by following the standard, “back-translation” method (Brislin, 1980; Geisinger, 2003; Van de Vijver &

¹ Because homoscedasticity could not be assumed, the Welch–Satterthwaite method was used to adjust degrees of freedom

Lithuanian Validation of the IOP-29

Hambleton, 1996). This process involved a native Lithuanian individual, translating the original, English IOP-29 into Lithuanian followed by a Lithuanian-English bilingual individual who was blind to the original version of the IOP-29 back-translating this Lithuanian version into English. Finally, two of the developers of the IOP-29 compared the two English versions to deal with any inconsistencies and revise the translations with the Lithuanian translators, if necessary.

The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).

The CES-D, a 20-item self-report tool, was used to assess symptoms of depression and anxiety. It includes items that evaluate affective, cognitive and somatic symptoms. Individuals must select from a 4-point Likert scale (0 = “rarely/less than 1 day” to 3 = “most of the time/5-7 days”) how often the statements applied to them in the previous week. Scores range from 0 to 60 and individuals are categorized into one of four groups depending on their total score: a) not depressed (0–9 points), b) mildly depressed (10–15 points), c) moderately depressed (16–24 points), or d) severely depressed (more than 25 points). A cut-off score of ≥ 16 is a widely used indicator for likely clinically meaningful depressive symptoms (Radloff, 1977).

Procedure

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

In order to recruit participants for the patient group, contact was made with psychologists and psychotherapists working in private practice, mental health centers and hospitals in Vilnius, Lithuania from June 2018. For those practitioners who agreed to participate, a short description of the study was sent, detailing the aim of the study – to see if the IOP-29 would recognize

Lithuanian Validation of the IOP-29

1
2
3 people who are feigning depression and people who are bona fide patients with depression.

4
5 Patients were told that if they were willing to participate, they would be asked to complete a few
6
7 questionnaires by responding honestly. For those who had private consultations, the
8
9 questionnaires were taken to the therapist in person and collected once completed. Participants
10
11 were given contact details of the primary researcher if they wanted to be debriefed on the results
12
13 of the study. To recruit participants for the feigning group, an email was sent to a group of
14
15 colleagues in the Vilnius University with a brief description of the research project. Additional
16
17 participants were recruited via convenience sampling and a snowball effect.
18
19
20

21
22 The recruitment of participants for both groups was completed after about four months.
23
24 All received a participant information sheet and informed consent was given. Participants were
25
26 told to try their best to feign to trick the tests and that the three best feigners (operationalized by
27
28 us as the three people who got the lowest FDS score on the IOP-29) would receive a free coffee
29
30 card in a local coffee shop. Participants were then given a vignette, a scenario, a description of
31
32 the symptoms of depression and a cautionary statement. These were all used in an earlier study
33
34 (to see them full, please see Giromini, Carfora Lettieri et al., 2019) but in brief, the vignette gave
35
36 participants a description of what the study involves along with the instruction to “take the tests
37
38 as you imagine someone who really is depressed would do.” The scenario involved an incident
39
40 in the workplace resulting in time off work due to injury with the inability to claim disability
41
42 allowance for physical injury. Therefore, “your only choice is to present yourself as having
43
44 significant depression on the tests.” The symptoms of depression were then listed, and
45
46 participants were told that “depressed patients typically have 5 or more, but most likely not all of
47
48 them.” Finally, participants were instructed not to “over-do it” and not to “present [their]
49
50
51
52
53
54
55
56
57
58
59
60

Lithuanian Validation of the IOP-29

condition in an extremely dramatic way” or else the performance would not be believable. Post-test questions were also included to check that participants had understood the task.

Data Analysis

To evaluate the validity of the Lithuanian IOP-29 in discriminating experimentally feigned from bona fide depression, we performed t-test and receiver operating characteristic (ROC) curve analyses. Additionally, we also inspected the sensitivity and specificity values yielded by the following cut scores: $FDS \geq .70$; $FDS \geq .65$; $FDS \geq .50$; $FDS \geq .30$; $FDS \geq .15$. The former two cut scores may be recommended in high-stakes forensic situations in which one might need to seek for specificity values of .95 and .90 (respectively); the latter two cut scores may be recommended when the IOP-29 is used for screening purposes only, as they are supposed to yield sensitivity values of .90 and .95 respectively (Giromini et al., 2018). With regard to the cut score of $FDS \geq .50$, it is the ‘standard’ IOP-29 cut score, which maximizes the classification accuracy of the test by offering the best balance between sensitivity and specificity (Giromini et al., 2018; Viglione et al., 2017).

Next, to contribute to evaluating the cross-cultural applicability of the IOP-29, we compared our findings against those presented in the five published articles that reported on the validity of the IOP-29 in discriminating feigned from bona fide depression-related symptom presentations. More specifically, one of Viglione et al.’s (2017) cross-validation samples included 43 American patients with a diagnosis of major depression and 42 American experimental simulators instructed to feign depression. A subsample of Giromini et al.’s (2018) study comprised 127 Italian patients genuinely suffering from a non-psychotic, anxiety, depression and/or trauma-related condition and 111 Italian experimental simulators instructed to fake similar mental health problems. Fifty of the 100 Portuguese experimental simulators

Lithuanian Validation of the IOP-29

1
2
3 included in Giromini, Barbosa, et al.'s (2019) took the IOP-29 with the instruction to fake
4 depression (no honest controls were recruited for this study). One of the four subsamples
5 included in Giromini, Viglione, et al. (2019) consisted of 100 healthy, Italian volunteers
6 instructed to take the IOP-29 three times: one time responding honestly, one time faking
7 depression, and one time responding at random. Finally, Giromini, Carfora Lettieri et al. (2019)
8 reported on 62 Italian depressed patients – 26 came from real-life evaluations and had been
9 deemed to be genuinely affected by depression, and 36 were psychiatric patients being treated
10 for depression-related diagnoses – and 93 healthy, Italian volunteers instructed to feign
11 depression. The findings from our Lithuanian study were thus compared against those from the
12 five studies from the US, Italy and Portugal described above.
13
14
15
16
17
18
19
20
21
22
23
24
25

Results

26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

Simulators scored notably higher than patients on both the IOP-29 and CES-D, with the differences between the two groups being more extreme for the IOP-29 (Table 1). More specifically, Cohen's d effect size was $d = 3.31$ for the IOP-29, and $d = .96$ for the CES-D. Based on Rogers et al.'s (2003) characterization of d values in experimental feigning studies, the IOP-29 produced a "very large" effect size (i.e., ≥ 1.75), whereas the CES-D generated a "moderate" effect size (i.e., $\geq .75$). Area under the curve (AUC) was .98 ($SE = .01$) for the IOP-29 and .77 ($SE = .05$) for the CES-D (Figure 1).

When looking at the distribution of IOP-29 (Figure 2) and CES-D (Figure 3) scores, it becomes evident that while simulators scored notably higher than patients, on average, on both tests, the degree of overlap between the two groups was dramatically reduced when considering the IOP-29. Figure 3 also shows that all participants, i.e., both bona fide patients and

Lithuanian Validation of the IOP-29

1
2
3 experimental simulators, had a CES-D score above the recommended cut score for identifying
4 clinically meaningful depressive symptoms, i.e., CES-D Total ≥ 16 (Radloff, 1977).
5
6

7
8 With regard to diagnostic efficiency statistics, Table 2 shows that – as expected – the
9 standard IOP-29 cut score of FDS $\geq .50$ yielded the best balance between sensitivity and
10 specificity, maximizing the overall correct classification (OCC) rate. The a-priori selected cut
11 scores deemed to maximize sensitivity, i.e., FDS $\geq .30$ and FDS $\geq .15$, yielded in this study
12 sensitivity values of .98 and 1.00 respectively. Along the same lines, the a-priori selected cut
13 scores deemed to maximize specificity, i.e., FDS $\geq .65$ and FDS $\geq .70$, yielded in this study
14 specificity values of .98 and 1.00 respectively.
15
16
17
18
19
20
21
22

23
24 Table 3 shows how our results compare to previously published, empirical data informing
25 on the validity of the IOP-29 in discriminating feigned from bona fide depression. All in all, the
26 results from our study are comparable, but perhaps slightly more encouraging than previous
27 empirical data on the same topic. Indeed, across all reviewed studies, Cohen's *d* ranged from
28 1.80 to 4.32, and AUC ranged from .89 to .99. Giromini, Carfora Lettieri, et al. (2019) reported
29 the least satisfactory results; the most satisfactory results were reported by Giromini, Viglione, et
30 al. (2019). Our study produced the second most encouraging results.
31
32
33
34
35
36
37
38
39

Discussion

40
41
42 This study aimed to develop and validate a Lithuanian IOP-29. To test its ability in
43 discriminating experimentally feigned versus bona fide depression, a clinical comparison,
44 simulation/analogue study design was used. The results are very promising as they replicate the
45 findings of previous research on the validity of the IOP-29 and thus contribute to establishing its
46 cross-cultural adaptability and generalizability. They also confirm the applicability of the IOP-29
47 in a Lithuanian context specifically.
48
49
50
51
52
53
54
55
56
57
58
59
60

Lithuanian Validation of the IOP-29

The Lithuanian IOP-29 created and developed in this study indeed discriminated almost perfectly between feigned and genuine depression, with a satisfactory AUC (.98), a very high Cohen's d (3.31) and excellent diagnostic efficiency statistics (OCC = .95, when using the standard cut score of IOP-29 FDS \geq .50). Its specificity (.96 for IOP-29 FDS \geq .50) was very high despite the fact that the patients with depression suffered from mild to severe depression according to the CES-D ($M = 39.4$, $SD = 6.7$). Its sensitivity (.94 for IOP-29 FDS \geq .50) was notably high even though simulators were given a vignette to help them feign the symptoms of depression in a realistic way and were specifically warned "not to overdo it."

To our knowledge, this is the sixth article reporting on the validity of the IOP-29 in discriminating feigned from bona fide depression and so its use in applied settings can be seen to be well supported. According to Rogers et al (2003), Cohen's d values in simulation/analogue studies may be characterized as "moderate" when $d \geq .75$, "large" when $d \geq 1.25$, and "very large" when $d \geq 1.75$. Across the six studies reporting on feigned depression summarized in Table 3, Cohen's d ranged from 1.80 to 4.30, thus showing "very large" effect sizes in all cases. Along the same lines, Hosmer and Lemeshow (2000) suggested that AUC scores above 0.80 should be characterized as "excellent", and all the six studies published so far achieved an AUC \geq .89. Taken together, these results contribute to establishing the excellent validity of the IOP-29 in discriminating feigned from bona fide depressive presentations.

It is worth mentioning, however, that there is some level of variability from one study to another (Table 3). The fact that the highest effect size was found in Giromini, Viglione, et al. (2019) is not surprising, given that their control group was comprised of healthy volunteers and it is known that using healthy volunteers as controls may boost the effect size (Rogers & Bender, 2018; van Impelen, Merckelbach, Jelicic, & Merten, 2014). The other studies produced relatively

Lithuanian Validation of the IOP-29

1
2
3 similar results, with the exception of Giromini, Carfora Lettieri et al. (2019), which showed less
4
5 encouraging results. We may speculate that using a lengthy test that requires a great deal of
6
7 cognitive effort (i.e., the MMPI-2 which contains 567 items) may reduce the compliance of test-
8
9 takers. As a result, when they take the IOP-29, they are perhaps either fatigued or preoccupied
10
11 that they will have to answer a very large number of questions, and thus may not complete it
12
13 with their full level of attention. Alternatively, we may consider that when other long tests are
14
15 included in the assessment, experimental simulators ‘disperse’ their feigning efforts across all
16
17 available tests. Note that these are mere speculations and that additional studies are needed to
18
19 clarify whether the IOP-29 does indeed perform better when used alone. If this is found to be the
20
21 case, one might recommend using it first when undertaking a multimethod symptom validity
22
23 assessment.
24
25
26
27

28 This study is not without its limitations. Although we did attempt to maximize ecological
29
30 validity by providing participants with symptoms and a scenario and a cautionary statement “not
31
32 to overdo it”, there was no strong incentive to feign without being detected (the best feigners
33
34 would win a free coffee card), which limits the ecological validity of this study. Additionally,
35
36 experimental feigning of depression symptoms may be different from real-life feigning which
37
38 could also affect ecological validity. We also cannot rule out the possibility that some of the
39
40 patients exaggerated their symptoms, although this is perhaps unlikely given that there was no
41
42 incentive to do so. Furthermore, the sample size is relatively small and therefore the results may
43
44 not be generalizable. Finally, differently from typical real-life forensic evaluations, no other
45
46 SVT’s or PVT’s were used alongside the IOP-29. With this regard, however, it should be noted
47
48 that the lack of available measures for use with Lithuanian populations is exactly one of the
49
50 reasons why we undertook this project.
51
52
53
54
55
56
57

Lithuanian Validation of the IOP-29

1
2
3 Despite these limitations, this study adds to the emerging research foundation for using
4
5 the IOP-29 in the detection of noncredible psychological disorders, contributes to supporting its
6
7 cross-cultural applicability, and facilitates further research on malingering in Lithuania due to the
8
9 fact that a brief and easy-to-administer test has now been created and validated.
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

For Peer Review Only

Lithuanian Validation of the IOP-29

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA, US: American Psychiatric Publishing, Inc.
- Bagby, R. M., Nicholson, R. A., Buis, T., & Bacchiochi, J. R. (2000). Can the MMPI-2 validity scales detect depression feigned by experts? *Assessment*, 7(1), 55-62.
doi:10.1177/107319110000700104
- Ben-Porath, Y. S., & Tellegen, A. (2008). *MMPI-2-RF (minnesota multiphasic personality inventory-2 restructured form) manual for administration, scoring, and interpretation*. Minneapolis: University of Minnesota Press.
- Brislin, R. W. (1980). Translation and content analysis of oral and written material. In H. C. Triandis, & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (pp. 389-444). Boston, MA: Allyn & Bacon.
- Bush, S., Heilbronner, R., & Ruff, R. (2014). Psychological assessment of symptom and performance validity, response bias, and malingering: Official position of the association for scientific advancement in psychological injury and law. *Psychological Injury and Law*, 7(3), 197-205. doi:10.1007/s12207-014-9198-7
- Chafetz, M., & Underhill, J. (2013). Estimated costs of malingered disability. *Archives of Clinical Neuropsychology : The Official Journal of the National Academy of Neuropsychologists*, 28(7), 633-639. doi:10.1093/arclin/act038
- Cuijpers, P., & Smit, F. (2008). Subclinical depression: A clinically relevant condition? *Tijdschrift Voor Psychiatrie*, 50(8), 519. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/18688776>

Lithuanian Validation of the IOP-29

- 1
2
3 Druss, B. G., Rosenheck, R. A., & Sledge, W. H. (2000). Health and disability costs of
4
5 depressive illness in a major U.S. corporation. *American Journal of Psychiatry*, *157*(8),
6
7 1274-1278. doi:10.1176/appi.ajp.157.8.1274
8
9
10 Geisinger, K. F. (2003). Testing and assessment in cross-cultural psychology. In J. R. Graham, &
11
12 J. A. Naglieri (Eds.), *Handbook of psychology: Assessment psychology* (pp. 95-117).
13
14 Hoboken, NJ, US: John Wiley & Sons Inc.
15
16
17 Giromini, L., Barbosa, F., Coga, G., Azeredo, A., Viglione, D. J., & Zennaro, A. (2019). Using
18
19 the inventory of problems - 29 (IOP-29) with the test of memory malingering (TOMM) in
20
21 symptom validity assessment: A study with a portuguese sample of experimental feigners.
22
23 *Applied Neuropsychology. Adult*, , 1-13. doi:10.1080/23279095.2019.1570929
24
25
26 Giromini, L., Lettieri, S. C., Zizolfi, S., Zizolfi, D., Viglione, D. J., Brusadelli, E., . . . Zennaro,
27
28 A. (2019). Beyond rare-symptoms endorsement: A clinical comparison simulation study
29
30 using the minnesota multiphasic personality inventory-2 (MMPI-2) with the inventory of
31
32 problems-29 (IOP-29). *Psychological Injury and Law*, doi:10.1007/s12207-019-09357-7
33
34
35 Giromini, L., Viglione, D. J., Pignolo, C., & Zennaro, A. (2019). An inventory of problems-29
36
37 sensitivity study investigating feigning of four different symptom presentations via
38
39 malingering experimental paradigm. *Journal of Personality Assessment*, , 1-10.
40
41
42 doi:10.1080/00223891.2019.1566914
43
44
45 Giromini, L., Viglione, D., Pignolo, C., & Zennaro, A. (2018). A clinical comparison, simulation
46
47 study testing the validity of SIMS and IOP-29 with an italian sample. *Psychological Injury*
48
49 *and Law*, *11*(4), 340-350. doi:10.1007/s12207-018-9314-1
50
51
52 Greene, R. L. (1991). *The MMPI-2/MMPI : An interpretive manual*. United States: Retrieved
53
54 from <http://catalog.hathitrust.org/Record/002501124>
55
56
57

Lithuanian Validation of the IOP-29

- 1
2
3 Hosmer, D.W. and Lemeshow, S. (2000) *Applied logistic regression*. 2nd Eds, John Wiley &
4 Sons, Inc., New York. doi:10.1002/0471722146
5
6
7
8 Lees-Haley, P. R., & Dunn, J. T. (1994). The ability of naive subjects to report symptoms of
9
10 mild brain injury, post-traumatic stress disorder, major depression, and generalized anxiety
11
12 disorder. *Journal of Clinical Psychology*, 50(2), 252-256. doi:10.1002/1097-
13
14 4679(199403)50:23.0.CO;2-T
15
16
17 Mittenberg, W., Patton, C., Canyock, E. M., & Condit, D. C. (2002). Base rates of malingering
18
19 and symptom exaggeration. *Journal of Clinical and Experimental Neuropsychology*, 24(8),
20
21 1094. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/12650234>
22
23
24 Monaro, M., Toncini, A., Ferracuti, S., Tessari, G., Vaccaro, M. G., De Fazio, P., . . . Sartori, G.
25
26 (2018). The detection of malingering: A new tool to identify made-up depression. *Frontiers*
27
28 *in Psychiatry*, 9, 249. doi:10.3389/fpsyt.2018.00249
29
30
31 Morey, L. C. (1991). *Personality assessment Inventory—Professional manual*. Odessa, FL:
32
33 Psychological Assessment Resources.
34
35
36 Nicholson, K., & Martelli, M. (2007). Malingering: Posttraumatic stress disorder and depression.
37
38 *Causality of psychological injury* (pp. 501-508). Boston, MA: Springer US.
39
40 doi:10.1007/978-0-387-36445-2_18
41
42
43 Radloff, L. S. (1977). The CES-D scale. *Applied Psychological Measurement*, 1(3), 385-401.
44
45 doi:10.1177/014662167700100306
46
47
48 Rogers, R. (2010). *Structured Interview of Reported Symptoms (SIRS)*.
49
50 10.1002/9780470479216.corpsy0957.
51
52 Rogers, R., & Bender, S. D. (2018). *Clinical assessment of malingering and deception* (Fourth
53
54 ed.) The Guilford Press. Retrieved from
55
56
57
58
59
60

Lithuanian Validation of the IOP-29

<http://www.vlebooks.com/vleweb/product/openreader?id=none&isbn=9781462533503&uid=none>

Rogers, R., Gillis, J. R., Dickens, S. E., & Bagby, R. M. (1991). Standardized assessment of malingering. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 3(1), 89-96. doi:10.1037/1040-3590.3.1.89

Rogers, R., Sewell, K. W., Martin, M. A., & Vitacco, M. J. (2003). Detection of feigned mental disorders: A meta-analysis of the MMPI-2 and malingering. *Assessment*, 10(2), 160-177. doi:10.1177/1073191103010002007

Sharf, A., Rogers, R., Williams, M., & Henry, S. (2017). The effectiveness of the MMPI-2-RF in detecting feigned mental disorders and cognitive deficits: A meta-analysis. *Journal of Psychopathology and Behavioral Assessment*, 39(3), 441-455. doi:10.1007/s10862-017-9590-1

Smith, G. P., & Burger, G. K. (1997). Detection of malingering: Validation of the structured inventory of malingered symptomatology (SIMS). *Journal of the American Academy of Psychiatry and the Law Online*, 25(2), 183. Retrieved from <http://www.jaapl.org/content/25/2/183.abstract>

Steffan, J. S., Clopton, J. R., & Morgan, R. D. (2003). An MMPI-2 scale to detect malingered depression (md scale). *Assessment*, 10(4), 382-392. doi:10.1177/1073191103259548

Tombaugh, T. N. (1996). *Test of memory malingering (TOMM)*. New York: Multi-Health Systems, Inc.

Tombaugh, T. N. (1997). The test of memory malingering (TOMM). *Psychological Assessment*, 9(3), 260-268. doi:10.1037/1040-3590.9.3.260

Lithuanian Validation of the IOP-29

- 1
2
3 Van de Vijver, F., & Hambleton, R. K. (1996). Translating tests. *European Psychologist, 1*(2),
4
5 89-99. doi:10.1027/1016-9040.1.2.89
6
7
8 van Impelen, A., Merckelbach, H., Jelicic, M., & Merten, T. (2014). The structured inventory of
9
10 malingered symptomatology (SIMS): A systematic review and meta-analysis. *The Clinical*
11
12 *Neuropsychologist, 28*(8), 1336-1365. doi:10.1080/13854046.2014.984763
13
14
15 Viglione, D. J., Giromini, L., & Landis, P. (2017). The development of the inventory of
16
17 problems-29: A brief self-administered measure for discriminating bona fide from feigned
18
19 psychiatric and cognitive complaints. *Journal of Personality Assessment, 99*(5), 534-544.
20
21 doi:10.1080/00223891.2016.1233882
22
23
24 Winters, C. (2019). *A british validation of the inventory of problems - 29 (IOP-29) investigating*
25
26 *feigned schizophrenia and random responding*; Unpublished manuscript.
27
28
29 Young, S., Jacobson, R., Einzig, S., Gray, K., & Gudjonsson, G. H. (2016). Can we recognise
30
31 malingers? the association between malingering, personality traits and clinical impression
32
33 among complainants in civil compensation cases. *Personality and Individual Differences,*
34
35 *98*, 235-238. doi:10.1016/j.paid.2016.04.052
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Lithuanian Validation of the IOP-29

Table 1. IOP-29 and CES-D Scores of Depressed Patients and Experimental Simulators

	Patients (<i>n</i> = 50)		Simulators (<i>n</i> = 50)		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
IOP-29 FDS	.27	.12	.77	.18	16.56	85.5 ^a	< .001	3.31
CES-D Total	39.4	6.7	45.3	5.6	4.79	98.0	< .001	.96

^a Because homoscedasticity could not be assumed, the Welch–Satterthwaite method was used to adjust degrees of freedom.

Lithuanian Validation of the IOP-29

Table 2. Classification Accuracy for Five A-Priori Selected IOP-29 Cut Scores

Cut Score	Se	Sp	OCC
IOP-29 FDS \geq .70	.68	1.00	.84
IOP-29 FDS \geq .65	.74	.98	.86
IOP-29 FDS \geq .50	.94	.96	.95
IOP-29 FDS \geq .30	.98	.72	.85
IOP-29 FDS \geq .15	1.00	.16	.58

Se = Sensitivity; Sp = Specificity; OCC = Overall Correct Classification.

Lithuanian Validation of the IOP-29

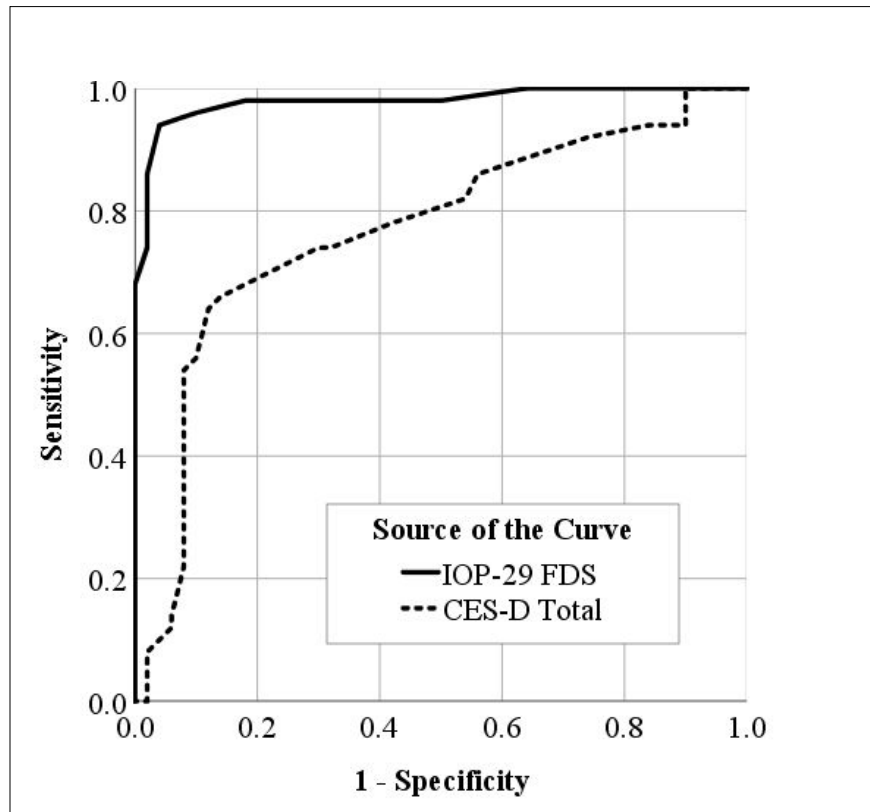
Table 3. Validity of the IOP-29 in Discriminating Feigned from Bona Fide Depression-related Complaints across Studies

	Viglione et al. (2017) ^a	Giromini et al. (2018) ^b	Giromini, Barbosa, et al. (2019) ^c	Giromini, Viglione, et al. (2019) ^d	Giromini, Carfora Lettieri, et al. (2019)	This study
Experimental simulators	42	111	50	100	93	50
Honest controls	43	127	0	100	62	50
Controls characterization	Patients	Patients	-	Healthy volunteers	Patients	Patients
IOP-29 version	English	Italian	Portuguese	Italian	Italian	Lithuanian
Other relevant test(s)	TOMM	SIMS	TOMM	-	MMPI-2	CES-D
Se for IOP-29 FDS \geq .50	.84	.81	.96	.95	.75	.94
Sp for IOP-29 FDS \geq .50	.86	.83	-	.96	.87	.96
Cohen's d	1.97	2.02	-	4.32	1.80	3.31
AUC	.90	.90	-	.99	.89	.98

^a These data refer to Abramsky's (2005) depression subsample described in Study 2 of Viglione et al.'s (2017) article. ^b These data refer to the anxiety, depression, and/or trauma-related subsample described in Giromini et al.'s (2018) article. ^c These data refer to the depression-related condition described in Giromini, Barbosa et al.'s (2019) article. ^d These data refer to the depression-related subsample of Giromini, Viglione et al.'s (2019) article: this study used a within-subject design, in which participants were asked to take the IOP-29 three times, one time answering honestly, one time faking depression, and one time responding with a random-like approach.

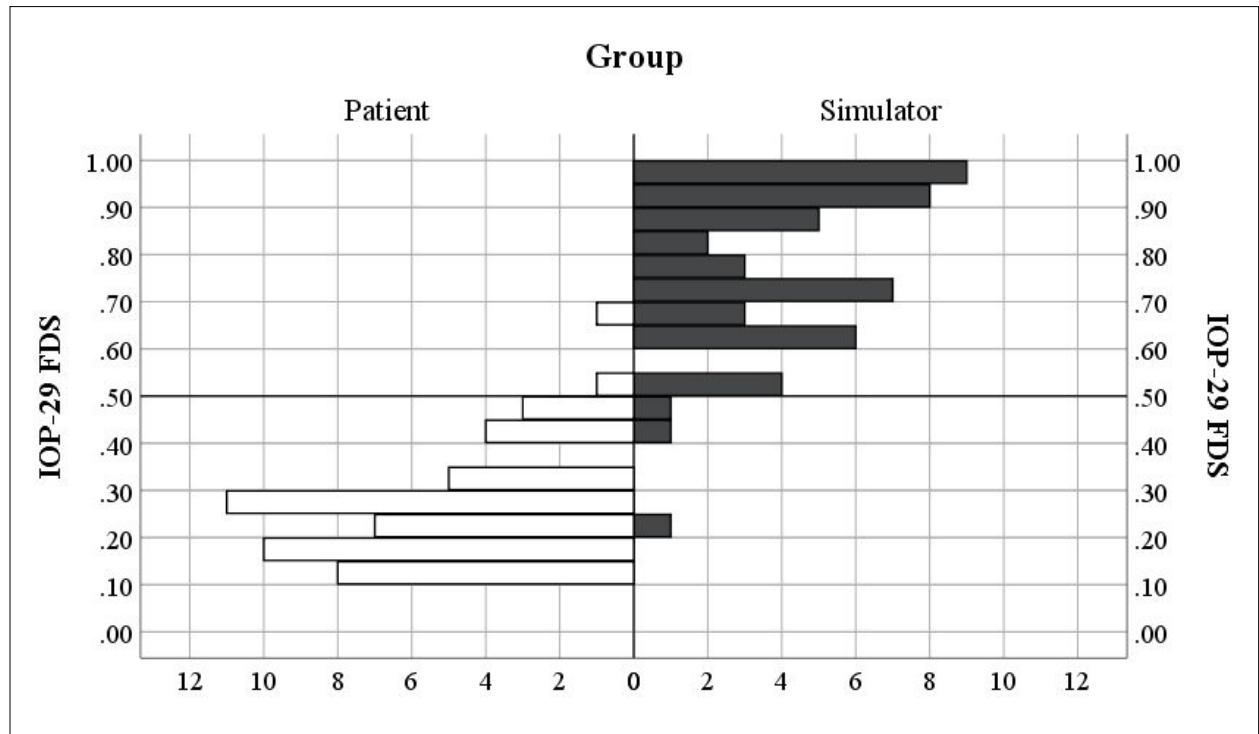
Lithuanian Validation of the IOP-29

Figure 1. Graphical Representation of Receiver Operating Characteristic (ROC) Curves



Lithuanian Validation of the IOP-29

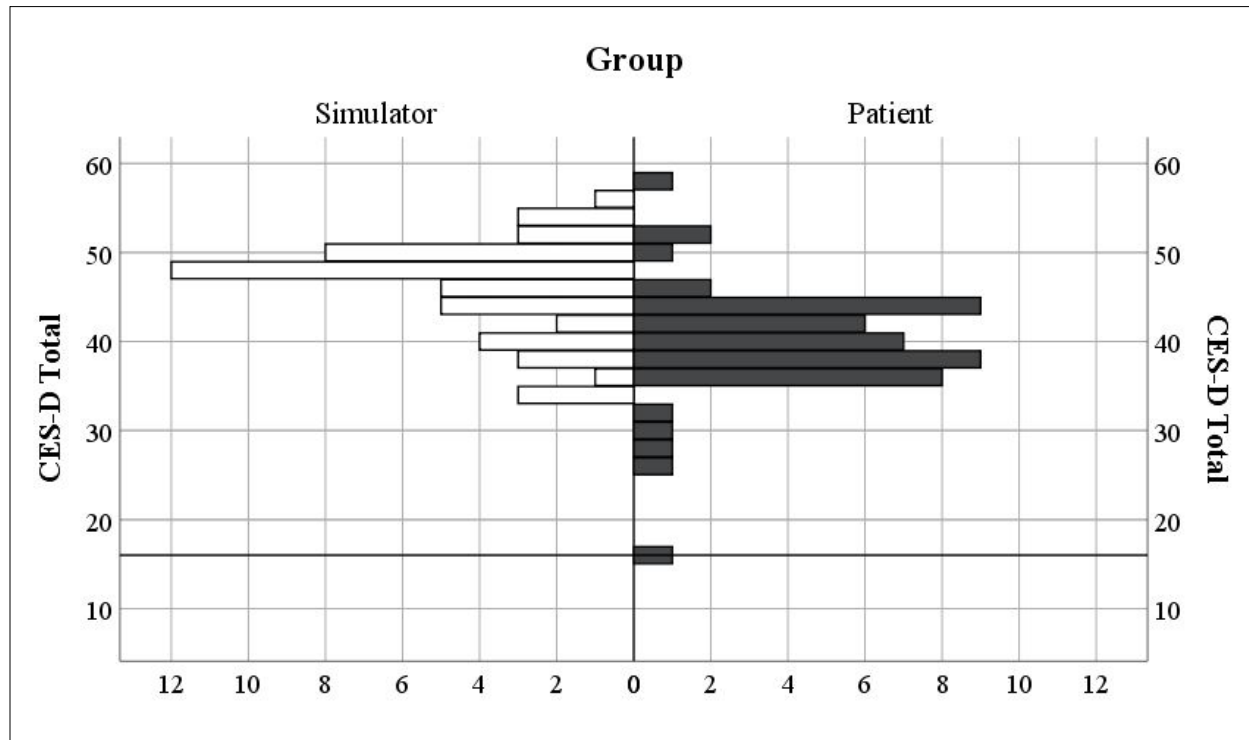
Figure 2. Distribution of IOP-29 FDS Scores by Group



Note. The reference line in the X-axis corresponds to the IOP-29 FDS value of .50.

Lithuanian Validation of the IOP-29

Figure 3. Distribution of CES-D Scores by Group



Note. The reference line in the X-axis corresponds to the CES-D value of 16.