The purpose of this short article is to update readers on the current status of the Oswestry Disability Index (ODI).

The ODI was first published 33 years ago. It has been extraordinarily successful. Many questionnaires are developed; some are published, and most are forgotten. The journey of the ODI has coincided with my professional career, and this has been important in its development and the protection of its integrity. It took 4 years to develop the ODI before publication, and my coauthors and I did our best, according to the knowledge and advice of the time, to make it robust and reliable. It has withstood a very strong competitive “market” to emerge as a world leader. One reason for this was (and is) the close scrutiny it received from many investigators. Some were tempted to modify its conception, structure, and wording. Initially we were flattered by this attention, and version 2.0 was published in 2000 consequent to other investigators’ improvements. The main modification was to Section 1 (Pain), following studies by a group of Medical Research Council (MRC) investigators (rheumatologists) in 1985. We removed reference to analgesic intake. It was the view of the MRC rheumatologists that the current version of Section 1 improved responsiveness, as in the original version 1.0 there was no option for “no pain.” To my knowledge this has not been substantiated. In version 2.0 we made an error in the travel section. This was brought to my attention by an astute reader when I published a comparison with the Roland-Morris Disability Questionnaire with its author, Martin Roland, later the same year. This meant I had to call the correct version 2.1. Finally we made a one-word adjustment to the opening statement in response to comments from the Mapi Research Trust. This was because translators had difficulty interpreting the statement due to confusion in the English version. We now have version 2.1a; I work with Mapi Research Trust on behalf of all the copyright holders, and we have no intention of permitting further modifications. This process represents the work of hundreds of careful scientists around the world.

There have been others who have sought to change the instrument so radically that it changed the philosophy and behavior away from the intentions of the developers. This is where the copyright holders have drawn a line. The changes include replacing the sex question (Section 8) with one of their own invention and incorporating questions asking about changing pain. Other variants include alterations to the time scale or nature of the preamble, which should specify the time scale as “today.” The “modified” and “chiropractor” versions attempted some or all of these modifications and should not be used in conjunction with the word Oswestry. The chiropractic

**Why are there different versions of the Oswestry Disability Index?**

_A review_

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This article updates readers on the current state of the Oswestry Disability Index (ODI) and the impact of unvalidated versions. The ODI is now licensed to the Mapi Research Trust in order to preserve a standard version in English and in validated translations. A proposed threshold of “normality” is potentially helpful as an outcome for both audit and research. There is an application of the sex section as a quality measure in Germany. The ODI is an important international shared resource for clinicians and investigators and should not be abused. Its current status will not be enhanced by further modification. It is now registered with the International Consortium for Health Outcomes Measurement as a standard outcome measure. (http://thejns.org/doi/abs/10.3171/2013.9.SPINE13344)

**KEY WORDS**  • Oswestry Disability Index  • ODI  • versions

**Abbreviations used in this paper:** MRC = Medical Research Council; ODI = Oswestry Disability Index.
version and the ODI (v2.1a) are compared in Fig. 1. Other modified versions have removed Section 8 altogether. This is feasible for license holders of the ODI v2.1a, where it is marked “optional.” The scoring can be scaled if a response to this question is omitted. Some work is underway at present to confirm that omission of a response to Section 8 affects the overall scoring.

These modifications became counterproductive when they had significant adverse affects on the scoring behavior of the instrument, particularly when another part of the research community was weighing each element of the instrument with such care. Davidson’s Rasch analysis confirmed that the item “Changing Degree of Pain” does not belong with the other items, as it does not measure the same underlying construct. I have had no clear account of why this was attempted; this item bears no resemblance to the construct of the other items in the original questionnaire. Rasch analysis demonstrates a highly significant change in behavior of the chiropractic modifications compared with the ODI versions 1.0 and 2.0. These modifications have led to serious problems, particularly in the field of lumbar disc replacement, where one study used a chiropractor-modified version that had never been subject to scientific scrutiny. This precluded any valid comparison with other similar studies using the ODI. Fortunately, this is the only study that I am aware of that has used this counterfeit version. The behavior of the chiropractic ODI can only be guessed at since no standard validation has, to my knowledge, ever been published, apart from that of Davidson. There is no doubt that the baseline scores in papers by Zigler and colleagues reporting on this study are approximately 15 points higher than those in any other comparable study using a standard ODI version. As far as I can tell this is largely, but not wholly, connected to the “Changing Degree of Pain” item, although there are minor changes to all the other questions, as seen in Fig. 1. The 2-year outcome scores are the same or lower than any comparable published study that has used comparative data. Any claim that these results are better than those of other studies cannot be substantiated and any claim in these publications that they have used a validated version of the ODI should be dismissed. Unfortunately, these authors continue to claim this in spite of overwhelming evidence to the contrary. I witnessed this in discussion at the 2013 meeting of the International Society for the Study of the Lumbar Spine (in Scottsdale, Arizona), when it was claimed that the chiropractic version was an “American” version. I have never heard of an American version, and in any event, the chiropractors who made these modifications were English. There is no point in going to great lengths to generate valid outcome measures if investigators can ride roughshod over the whole process claiming to use a specific outcome measure when it is clear they did not.

Our response, as copyright holders, has been to license the Mapi Research Trust (http://www.mapi-trust.org/) to ensure that investigators either use the original version (1.0) or the recommended version (2.1a). The Mapi Research Trust is a nonprofit organization based in Lyon, France, that cares for a large portfolio of instruments in the biomedical field. They are particularly concerned with the development of accurate and validated translations. Computer-based and telephone-based versions should also be licensed by Mapi Research Trust. There are no costs to the majority of users. The ODI has been translated into many languages, and there are an unknown number of ODI translations. Some are published. Many do not make clear which English version they are based on. Potential users and translators should get in touch with Mapi to ensure that they are using a properly validated translation or to find out what steps might be taken to validate their translation. Unfortunately, publication in a refereed journal has not always ensured that this process has taken place. There are also inaccurate versions on the Internet, which I have tried, with limited success, to get deleted.

The ODI has now thousands of citations, with applications in many fields. Question 8 causes concern in some cultures. The stem statement now indicates it is optional to the respondent. We included it in the original ODI, as the chronic back pain population that came to Oswestry from all over the United Kingdom indicated that sex problems were a major concern. One recent application of this question has been to a quality-control program in a group of private hospitals in Germany. Score improvement in this section has proved to be a highly reliable quality measure following surgery (Michael Mayer, AOSpine Master Symposium—Low Back Pain, Tromso, Norway, 2013). Miranda van Hooft runs an intensive rehabilitation program for RealHealth in the Netherlands, where 99% of 900 subjects have completed Section 8 without objection.

In group studies, the ODI has been used to measure a clinically significant change for an individual. A change of more than 15 points is widely used (including by the FDA) as a criterion of clinically significant change. Van Hooft has developed another helpful application of the ODI, which is to define the acceptable range of back pain disability or “normality.” She used one methodology to arrive at a score of less than 22 based on a few studies in which the ODI was used for back pain–free “normal subjects.” Anne Mannion used receiver operating characteristics analysis to reveal that a score of 29 or lower indicates (with good sensitivity and specificity) that a patient is “somewhat satisfied” with their symptom state and with a score of 14 or lower, “very satisfied.” This was based on a cohort of 532 spine surgery patients who also completed the Core Outcome Measures Index (COMI), which includes a question on symptom-specific well-being. We have agreed that, based on these data, the threshold for a satisfactory or “acceptable” symptom state should be pitched at an absolute score of 20 or lower. This means that the success rate of an intervention can be defined by the proportion of patients achieving such scores. This is useful in clinical audit studies and in conveying to patients the probability of clinical “success,” as well as in research.

In conclusion, the development of ODI variants has been a mixed blessing. The other copyright holders and I are determined to protect the reputation of the ODI by resisting further changes. The ODI is now included in the International Consortium for Health Outcomes Measurement (http://ichom.org) as a well-validated international outcome measure. All readers are aware of the major
The Oswestry Disability Index

**Zigler et al Questionnaire**

The Oswestry Disability Index is designed to enable us to understand how much your back pain affects your ability to manage your everyday activities.

**Section 1 – Pain Intensity**

- The pain never goes and it is very mild.
- The pain is mild and does not vary much.
- The pain varies and is moderate.
- The pain is moderate and does not vary much.
- The pain varies and goes and it is severe.

**Section 2 – Personal care**

I would not have to change my way of washing or dressing in order to avoid pain. I do not normally change my way of washing or dressing even if it causes some pain. Washing and dressing increase the pain but I manage not to change my way of doing it. Washing and dressing increase the pain and I find it necessary to change my way of doing it. Because of the pain I am unable to do some washing and dressing without help. Because of the pain I am unable to do any washing and dressing without help.

**Section 3 – Lifting**

I can lift heavy weights without extra pain. I can lift heavy weights but it gives extra pain. Pain prevents me from lifting heavy weights off the floor. Pain prevents me from lifting heavy weights off the floor but I can manage if they are conveniently positioned, e.g. on a table. Pain prevents me from lifting heavy weights but I can manage light to medium weights.

**Section 4 – Walking**

I have no pain on walking. I have some pain with walking but it does not increase with distance. I cannot walk more than 1 mile without increasing pain. I cannot walk more than 1/2 mile without increasing pain. I cannot walk at all without increasing pain.

**Section 5 – Sitting**

I can sit for as long as I like. I can only sit for my favourite chair as long as I like. Pain prevents me from sitting for more than one hour. Pain prevents me from sitting for more than one hour. Pain prevents me from sitting for more than 10 minutes. I avoid sitting because it increases pain straight away.

**Section 6 – Standing**

I can stand as long as I want without pain. I have some pain on standing but it does not increase with time. I cannot stand for longer than one hour without increasing pain. I cannot stand for longer than 1/2 hour without increasing pain. I cannot stand for longer than 10 minutes without increasing pain. I avoid standing because it increases pain straight away.

**Section 7 – Sleeping**

I get no pain in bed. I get pain in bed but it does not prevent me from sleeping well. Because of pain my normal nights sleep is reduced by less than 1/4. Because of pain my normal nights sleep is reduced by less than 1/2. Because of pain my normal nights sleep is reduced by less than 3/4. Pain prevents me from sleeping at all.

**Section 8 – Social Life**

My social life is normal and gives me no pain. My social life is normal but increases the degree of my pain. Pain has no significant effect on my social life apart from limiting my time. Pain has restricted my social life and I do not go out very often. Pain has restricted social life to my home. I have hardly any social life because of the pain.

**Section 9 – Travelling**

I get pain whilst travelling. I get some pain whilst travelling but none of my usual norms of travel make it any worse. I get extra pain whilst travelling but it does not compel me to seek alternative forms of travel. I get extra pain whilst travelling which compels me to seek alternative forms of travel. Pain restricts all forms of travel.

**Section 10 – Changing degree of pain**

My pain is gradually getting better. My pain fluctuates but overall is definitely getting better. My pain seems to be getting better but improvement is slow at present. My pain is neither getting better or worse. My pain is gradually worsening. My pain is gradually worsening.

**Oswestry Disability Index v2.1a**

Could you please complete this questionnaire. It is designed to give us information as to how your back (or leg) trouble has affected your ability to manage your everyday life.

Please answer every section. Mark one box only in each section that most closely describes you today.

**Section 1 – Pain Intensity**

I have no pain at all.

The pain is very mild at the moment.

The pain is moderate at the moment.

The pain is fairly severe at the moment.

The pain is very severe at the moment.

The pain is the worst imaginable at the moment.

**Section 2 – Personal care**

I can look after myself normally without causing extra pain. I can look after myself normally but it is very painful. It is painful to look after myself and I am slow and careful. I need some help but manage most of my personal care. I need help every day in most aspects of self-care. I do not get dressed, wash, dress or stay in bed.

**Section 3 – Lifting**

I can lift heavy weights without extra pain. I can lift heavy weights but it gives extra pain. Pain prevents me from lifting heavy weights off the floor but I can manage if they are conveniently positioned, e.g. on a table. Pain prevents me from lifting heavy weights but I can manage light to medium weights.

**Section 4 – Walking**

Pain does not prevent me walking any distance. Pain prevents me walking more than 1 mile. Pain prevents me walking more than 1/2 mile. Pain prevents me walking more than 100 yards. I can only walk using a stick or crutches. I can walk most of the time and have to rest at the sides.

**Section 5 – Sitting**

I can sit as long as I like. I can sit in my favourite chair as long as I like. Pain prevents me from sitting for more than one hour. Pain prevents me from sitting for more than 10 minutes. Pain prevents me from sitting for more than 10 minutes. Pain prevents me from sitting at all.

**Section 6 – Standing**

I can stand as long as I want without extra pain. I can stand as long as I want but it gives me extra pain. Pain prevents me from standing for more than one hour. Pain prevents me from standing for more than 1/2 hour. Pain prevents me from standing for more than 10 minutes. Pain prevents me from standing at all.

**Section 7 – Sleeping**

My sleep is never disturbed by pain. My sleep is occasionally disturbed by pain. Because of pain I have less than 4 hours sleep. Because of pain I have less than 6 hours sleep. Because of pain I have less than 4 hours sleep.

**Section 8 – Social Life**

My social life is normal and gives me no pain. My social life is normal but increases the degree of pain. Pain has no significant effect on my social life apart from limiting my time. Pain has restricted my social life and I do not go out very often. Pain has restricted social life to my home. I have hardly any social life because of the pain.

**Section 9 – Social Life**

My social life is normal and gives me no extra pain. My social life is normal but increases the degree of pain. Pain has no significant effect on my social life apart from limiting my more energetic interests, e.g. sport, etc. Pain has restricted my social life and I do not go out as often. Pain has restricted social life to my home. I have no social life because of pain.

**Section 10 – Travelling**

I can travel anywhere without pain. I can travel anywhere but I avoid extra pain. Pain is bad but I manage journeys over two hours. Pain restricts me to journeys of less than one hour. Pain restricts me to short weekly journeys under 30 minutes. Pain prevents me from travelling except to receive treatment.

Fig. 1. Comparison of the questionnaire used by Zigler and colleagues (left) and the Oswestry Disability Index v2.1a (right). Differences in conception are indicated by red type, and sections with major differences in wording are highlighted in yellow. Note that Section 8 (present in ODI v2.1a and highlighted in this image) is absent from the questionnaire on the left. The questionnaire on the left is from Hudson-Cook et al. A revised Oswestry disability questionnaire. In Roland M, Jenner JR, eds. Back Pain: New Approaches to Rehabilitation and Education. Manchester University Press, 1989, 187–204. Used here with permission from Manchester University Press.
challenges we face in researching and treating spinal disorders. One critical element of these challenges concerns our outcome measures. The ODI story demonstrates how essential it is that all parties respect the integrity of such instruments.

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References


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