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NDI Recommended MCID

Following a review of the literature, the recommended MCID (Minimal Clinically Important Difference) for the NDI to be used at AAH is 11.75.

The criteria for making this recommendation are:

1. Heavier bias was given to studies with
 - A higher number of study participants
 - Anchor based methods of calculation
2. MCID is at least as large as the observed MDC (Minimal Detectable Change)

MCID varied significantly across studies; the ranges among the studies were anywhere from 5.5 to 18^{1,2,3,4,5}. Hung, et. al, a prospective level I study, had 1,945 patients and may offer the strongest evidence. The MCID should be viewed as a range; lower numbers are best utilized for assessing “low-risk” response to an intervention and higher numbers are best for assessment of progress for determining “high-risk” decisions, such as return to laborious professions (Hung, 2018). For practical purposes relating to physical therapy, the lower MCID values may be more useful to determine meaningful improvement of function. The minimal value of accepted MDC across studies was 6.9⁵.

The above recommended MCID is the mean value from a range of recommended MCID values (5.5 to 18) from literature review^{1,3,5}. MCID values vary per neck diagnostic subcategories (mechanical neck pain, cervical radiculopathy, cervical spine fusion, etc.)^{1,2,3,5}.

The NDI has been largely considered inconsistent across studies^{1,5}. It is recommended to use condition-specific tools in addition to the NDI, such as the qDASH or LEFS when UE/LE impairments exist concurrently with a neck diagnosis. This may reduce patient reporting errors related to the NDI⁵.

The research has also revealed that more studies are necessary to establish a more accurate MCID for the NDI related to certain patient populations, such as those that have undergone surgery to correct adult cervical deformities³.

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HUNG: This study evaluates MCID across several time frames. Mean changes in scores were noted anywhere from 13 to 18 points and MCID values ranged from 6 to 43. Distribution-based methods generally yielded lower numbers, while anchor-based methods that are generally regarded as more practical yielded higher numbers. This study reiterates what most of the research suggests, which is that the scores vary widely and are inconsistent across studies.

Soroceanu et al. (2020): The study assessed the NDI of 73 participants (42 female, 31 male) that underwent Adult Cervical Deformity (ACD) surgery, which was only described as a "surgical correction" of the deformity (no specific surgical interventions were listed in the study). The recommended MCID score for this patient population was 7.0 while the minimally detectable measurement difference (synonymous with MDC) was 6.41. It was acknowledged this was the first study to determine MCID for the ACD population and more research needs to be conducted for these types of patients.

Young et al. (2018): This study examined the NDI in 107 patients with mechanical neck pain without upper extremity symptoms. The study concluded the recommended MCID for the NDI in patients without upper extremity symptoms is 5.5. This is lower than the NDI MCID of patients with upper extremity radicular symptoms (8.5 points). The minimal detectable change (MDC) for the NDI in this study was 6.9. The reliability of this study was deemed excellent (Intraclass correlation coefficient or ICC = 0.88).

Further, the article compares inconsistent NDI trends from other studies since 2006 across various categories of neck pain. The MCID comparison ranges from 5.5 to 10.5, and the MDC comparison ranges from 6.9 to 13.4. The MCID findings from this study are consistent with research from Stratford et al. (1999).

The authors of this study suggest the possibility of self-report error when using the NDI across two different categories of patients with neck pain (with and without UE/radicular symptoms). For example, the NDI focuses on neck pain. However, patients with UE symptoms greater than neck pain may misinterpret the NDI. Therefore, it is recommended to use condition specific tools, such as the qDASH.

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