

Psychosocial impact of Assistive Devices: Italian localisation of the PIADS instrument

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Abstract. The Psychosocial Impact of Assistive Devices Scale (PIADS) - initially developed in Canada (Jutay and Day, 1996) - is a 26-items self-administered questionnaire investigating into the perceived impact of an assistive device on one's own quality of life, this being described in terms of psycho-social indicators such as ability, adaptability and self esteem. It is assumed to be applicable to any type of disability and assistive device. Translation into Italian language and localisation in the Italian context were carried out in 2002 by the Local Health Authority 14 Verbania-Cusio-Ossola in the Piemonte Region, as part of a Thesis of the Assistive Technology Certificate Course run by the Don Gnocchi Foundation in conjunction with the Milano Catholic University. The resulting Italian version was field-tested by administering it to a cohort of 50 users of various kinds of assistive technologies. The validation exercise provided insight into the applicability of the instrument in service delivery practice and needed improvement. The papers provides details of such results.

Introduction

Several authors [1,2,3] pointed out that persons with disabilities are sometimes unsatisfied with the assistive devices received from public care services, and this may lead to their abandonment. Although such failure often depends on technical or organisational problem, there are also a number of psychosocial factors – such as the user's personality, motivation and social role – that yield impact on the user's acceptance of the device. Some authors provide evidence that successful use of an assistive device is greatly dependent on the user's participation in its choice [4,5,6].

The PIADS instrument (Psychosocial Impact of Assistive Device Scale) was created by Hy I. Day and Jeffrey Jutai [7,8,9] at the Western Ontario University in Canada with the aim of measuring the users' perception of the impact assistive devices yield on their quality of life. It is composed of 26 items clustered round three dimensions that probe the psychosocial impact, namely *Competence, Adaptability and Self esteem*.

The PIADS questionnaire is designed to be self-administered. Each item is scored by means of a 7-points Likert scale ranging from -3 to +3, depending on whether and to what extent the

adoption of the assistive device increased or decreased – in the user's perception – the personal characteristic described by such items.

The authors of the PIADS advise that the instrument is device-independent, in that it can detect the impact of any kind of assistive technology (prostheses, orthoses, ADL aids etc...) for any user of any age.

As this scale was judged potentially useful also in the context of Italian National Health Service (NHS), it was decided to translate it into Italian and try it out in a typical setting of public service delivery, so as to achieve a validated Italian version and get a clear picture of when and how it would be worth administering it.

The work was carried out as part of a Thesis for the Postgraduated Assistive Technology Certificate Course run by the Catholic University in conjunction with the Don Carlo Gnocchi Foundation in Milano, and was supported by the Rehabilitation Unit of a Local Health Agency.

Method

Once obtained the authorization of the PIADS's authors, the PIADS questionnaire was translated into Italian and an initial validation was carried by a panel of rehabilitation professionals followed by a retro-translation exercise. Then it was administered to a sample of 50 persons with disabilities, randomly selected within the users of the assistive devices service of the Rehabilitation Unit of Local Health Agency 14 in Verbania (Piedmont region, in Northern Italy). The users' clinical condition ranged from hemiplegia resulting from stroke (44%) to a variety of neurological and orthopaedic diseases. The table below shows the sex and age distribution of the sample.

	Number	Average age	min	max
Men	30	58.2	9	84
Women	20	70.9	9	85
Total	50	63.3	9	85

Each participant was duly informed on the objectives of the study and received detailed explanation on how to fill-in the questionnaire. It was emphasized that each item should be scored with respect to the *actual* impact of the device and not the *ideal* impact they would have expected. This specification revealed important to prevent possible misunderstanding.

The table below shows the assistive devices used by the members of this sample.

Assistive devices used	Number	%
Walking sticks	10	20%
Spinal Orthoses	1	2%
Crutches	6	12%
Manual wheelchairs	13	26%
Walkers	3	6%
Beds	3	6%
Anti-decubitus mattresses	2	4%
Ankle-foot orthoses	3	6%
Orthopaedic footwear	5	10%
Tripods	4	8%

The questionnaire was not just sent by mail: a professional in charge of this study visited each person, handed out the questionnaire, waited until it had been filled-in, and provided any explanation required. Only in 10 cases (20%) the client was able to fill-in the questionnaire completely independently. In 22 cases (44%) the client filled-in with the help of an assistant, and in 18 cases (36%) the questionnaire was compiled by a client's caregiver. This is understandable as the sample was mainly geriatric and many people had impairments also at cognitive level.

Then each client was asked to express his/her opinion on difficulties encountered in filling-in the questionnaire, on problems related to the interpretation of items, on the instrument in the whole. After processing the findings of the questionnaire, a review process was carried out of the items that had shown interpretation difficulties, leading to the improvement of the Italian version of the PIADS questionnaire and manual. These are freely available in the Internet on the Italian SIVA Portal on Assistive Technologies (www.welfare.gov.it).

Results

The table below shows that all those interviewed detected improvements (score > 0) - to a bigger or lesser extent - in most items, the average score being always positive. A certain percentage of people found it difficult to interpret the meaning of the item. The dimension that showed the highest improvement is *Self esteem*.

PIADS Items		Scores			Difficulties with the item	
<i>Original wording</i>	<i>Italian wording</i>	<i>Average</i>	<i>min</i>	<i>max</i>	<i>N°</i>	<i>%</i>
Competence	Competenza	0,98	0	3	22	44%
Happiness	Felicità	0,9	-3	3	-	
Independence	Indipendenza	1,36	0	3	4	8%
Adequacy	Adeguatezza	0,70	0	2	16	32%
Confusion	Confusione	0,38	+2(-2)	-3(+3)	32	64%
Efficiency	Efficienza	1,04	0	3	14	28%
Self-esteem	Autostima	0,62	0	3	24	48%
Productivity	Produttività	0,64	0	3	22	44%
Security	Sicurezza	1,38	-1	3	16	32%
Frustration	Frustrazione	0,14	+1(-1)	-3(+3)	8	16%
Usefulness	Utilità	1,08	0	3	4	8%
Self-confidence	Fiducia in se stessi	0,76	0	3	4	8%
Skillfulness	Abilità	0,90	0	3	16	32%
Expertise	Conoscenza	0,54	0	3	34	68%
Well-being	Benessere	1,18	0	3	-	
Capability	Potenzialità	1,60	0	3	12	24%
Quality of life	Qualità di vita	1,24	0	3	-	
Performance	Prestazione	1,00	0	2	4	8%
Sense of power	Senso di potere	0,62	0	2	32	64%
Sense of control	Senso di controllo	0,90	0	2	12	24%
Embarassment	Impaccio	0,16	+2(-2)	-2(+2)	20	40%
Willingness to take chances	Disponibilità a nuove sfide	0,76	0	3	24	48%
Ability to participate	Capacità di partecipazione	0,70	0	2	14	28%
Eagerness to try new things	Apertura a nuove esperienze	0,68	0	3	18	36%
Ability to adapt to the activities of daily living	Adattamento alle attività della vita quotidiana	1,02	0	3	4	8%
Ability to take advantage of opportunities	Capacità di trarre vantaggio dalle situaz.	0,54	0	2	22	44%

Note 1: the 3 items whose score are shown in italics are expressed by “negative” wording (confusion, frustration, embarrassment), contrary to the other 23 items. Hence their score should be inverted.

Note 2: “difficulty with the item” means that a certain number of interviewed people found it difficult to clearly understand what the item actually means

<i>Aggregated scores for each dimension</i>				
Original wording	Italian wording	Average score	min	max
Competence	Abilità	0,16	0	1,9
Adaptability	Adattabilità	0,71	0	2,1
Self esteem	Autostima	0,76	0	1,9

Discussion

In the Italian context, the PIADS turned out to be very useful in that it captures a set of user’s perceptions that play a major role in leading the prescription of a device to success or failure. Until now such perception was known to the prescriber only by intuition or could be inferred from observation, while the PIADS helps bring it to light quickly and easily.

However, this study revealed that the questionnaire is not so easy as it would appear at a first glance, especially for users with lower educational background like most people who participated in this sample. Most users encountered difficulties with the Italian rendering of terms such as *expertise* (knowledge in a particular area or occupation), *sense of power* (sense of inner strength), and found it difficult to associate terms such as *confusion* (inability to think clearly) to the use of assistive devices. Terms such as *skilfulness* (ability to show one’s expertise) and *competence* (ability to do well important things for one’s life) were perceived by all people interviewed as synonym, as it was not possible to find an Italian wording that renders the different shades of meaning of the original American terms. The same happened for terms like *self esteem* and *self confidence*.

Most of the above problems – falling within the well-known issue of trans cultural validation – were expected in an instrument like PIADS that tries to capture inner latent traits of the person by means of a set of explicit terms acting as “probes”.

There is however a second issue that seems to indicate that the PIADS is suited to people with a higher educational level and full cognitive control, which was not the case for several members of the sample. A question such as e.g. “did your assistive device increase or decrease your self-esteem” requires a certain ability to rationalize a relation between the device and inner feelings, which seemed meaningless to the oldest clients. Moreover, in the 36% of cases the response to the item was provided by a proxy (the caregiver) who clearly couldn’t but add his/her interpretation of the user’s mind about “self-esteem”. The authors of this study are inclined to infer that the PIADS is not suitable at all to be administered to proxies, and also may be not suitable in general for the older population. Conversely, it was well received by the younger members of the sample, and the same happened in the American samples reported in literature [7,8,9] at the time of the original validation.

The third issue raised from the study is the responsiveness of the Instrument to the various categories of assistive devices. Scores related to beds and mattresses, for instance, were in most cases zero; also scores related to shoes and foot orthoses were zero for items such as *self esteem* and *sense of power*. In the latter case, as users of such devices were children or teenagers, one could suspect that the psychosocial impact may be more significant for the parents than for the child. Conversely, devices such as walking sticks and manual

wheelchair appeared to be perceived by everybody as clearly related to changes in one's life.

Despite the above limitation, this study indicates that for the great percentage of people with disabilities (eg. those who have no cognitive limitations, have a certain level of education and are able to rationalize the impact of an assistive device on their lives) the PIADS can be a powerful instrument that helps public providers of health services understand and measure the outcome of the assistive technology devices provided.

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