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Development of an objective instrument to assess quality of life in social services: Reliability and validity in Spain[1]

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ABSTRACT. This study reports on the development and validation of a questionnaire that allows the objective assessment of the quality of life of social service users. Because of the increasing demand for applying the concept of quality of life in social services for handicapped people, and because of the need to have a sensitive tool to use as a basis for organizational changes, the development of GENCAT Scale was carried out. The first study entailed the construction of items based on our current understanding of quality of life domains and indicators. In the second study, the psychometric properties of the Catalonian version of the GENCAT Scale were analyzed after applying the instrument to a representative sample of 608 professionals and 3,029 users of 239 services from Catalonia. The results showed reliability in terms of internal consistency of .92. The scale's dimensionality was studied using confirmatory factor analysis (CFA). Finally, the use of this scale is discussed as a useful and innovative tool to serve as the basis for evidence-based practices, the improvement of services and programs.

KEYWORDS. Quality of life assessment. Questionnaire development. Social services. Instrumental study.

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RESUMEN. Este estudio instrumental describe el proceso de desarrollo y validación de un instrumento de evaluación objetiva de la calidad de vida de usuarios de servicios sociales. Ante la creciente demanda para aplicar el concepto de calidad de vida en los servicios dirigidos a personas en situación de desventaja social y ante la necesidad de contar con instrumentos sensibles a los cambios organizacionales, se planteó el desarrollo de la Escala GENCAT. El primer estudio consistió en la elaboración y evaluación teórica de los ítems. En el segundo estudio se analizaron las propiedades psicométricas de la versión catalana del instrumento tras su aplicación a una muestra representativa de Cataluña formada por 608 profesionales y 3.029 usuarios de 239 centros y organizaciones catalanas proveedoras de servicios sociales. Los resultados indicaron una consistencia interna de .92. La dimensionalidad de la escala se estudió mediante análisis factorial confirmatorio (AFC). Finalmente, se discute el uso de la escala como un instrumento útil y novedoso para la mejora continua de la calidad de los servicios y para el desarrollo de programas basados en evidencias empíricas.

PALABRAS CLAVE. Evaluación de la calidad de vida. Desarrollo de cuestionario. Servicios sociales. Estudio instrumental.

This article describes an instrumental study (Montero and León, 2007) whose goals consisted in developing and validating an objective quality of life (QOL) questionnaire for users of social and human services: the GENCAT Scale[3] (Verdugo, Arias, Gomez, and Schalock, 2008a, 2008b). During the last three decades, the concept of quality of life has evolved from a generic philosophical concept to a sensitizing notion that guides program practices, from an individual perspective to a social construct that allows assessing the core domains of quality of life and guides quality improvement, and to a research construct that serves as a systematic structure to develop politics and practices to enhance peoples' quality of life. It is widely accepted that this concept is important in social, health, human and educative services since it is currently being used to implement person-centered programmes and practices, to assess and report personal outcomes, to guide quality improvement strategies, and to evaluate the effectiveness of those practices and strategies (Martín-Rodríguez and Pérez-San Gregorio, 2007; McCabe, Firth, and O'Connor, 2009; Schalock, Bonham, and Verdugo, 2008). The QOL concept has recently begun to be applied in social policies since it has become a reference model for service provision, a basis for evidence-based practices, and a tool to develop quality improvement strategies (Schalock and Verdugo, 2002, 2007, 2008).

The construction of an assessment tool must be supported by a theoretical framework. To that end, the GENCAT Scale has been developed on the basis of the eight-domain model proposed by Schalock and Verdugo (2002) and subsequent work regarding the model's validation and cross-cultural use (Jenaro *et al*., 2005; Schalock, Verdugo, Bonham, Fantova, and Van Loon, 2008; Schalock *et al*., 2005; Verdugo, Arias, and Gómez, 2006; Verdugo, Gómez, Arias, and Martin, 2006; Verdugo and Schalock, 2003). The main reason to choose this conceptual framework among other existing ones (such as those proposed by Cummins, 2005; Felce and Perry, 1995; Gardner and Carran, 2005; Perry and Felce, 2005) was that it was the most cited in publications about person-centered QOL in disabilities last years. Although this framework was initially developed in the field of intellectual disabilities, its use is being expanding not only to other kind of disabilities, but also to other target populations such as person's with chemical dependency (De Maeyer, Vanderplasschen, and Broekaert, 2009) and elderly (Gómez, Verdugo, Arias, and Navas, 2008).

According to this framework, QOL is composed of eight domains and core indicators (listed in Table 1) that define operationally each QOL domain. The indicator measurement results in personal outcomes that can be used for both reporting purposes and guiding organization improvements (Keith and Bonham, 2005; Langberg and Smith, 2006; Schalock and Bonham, 2003; Schalock, Bonham *et al.*, 2008; Schalock, Verdugo *et al.*, 2008; Veerman and van Yperen, 2007). QOL is defined as a concept that a) is multidimensional; b) has *etic* (universal) and *emic* (culture-bound) properties (Jenaro *et al.*, 2005; Schalock *et al.*, 2005); c) is influenced by personal and environmental factors; and d) has objective and subjective components (Schalock and Verdugo, 2007). Depending on the purpose and the perspective of the instrument developed, indicator items will be used to assess either person's perceived well-being on the item ('self-report') or the person's life experiences and circumstances ('direct observation') (Schalock, Bonham, and Verdugo, 2008).

TABLE 1. Domains and core indicators of quality of life.

Domains	*Indicators*	*Item examples*
Emotional well-being (EW)	Mental stability; satisfaction, self-concept; lack of stress/negative feelings	He/she shows symptoms of depression.
Interpersonal relations (IR)	Social relationships; family relationships; to have stable and clearly identifies friends; to have positive and gratifying social contacts	He/she complains about his/her relationships with friends.
Material well-being (MW)	Housing conditions; workplace conditions; Services conditions; employment; incomes/salary; possessions	His/her incomes are not enough to afford whims.
Personal development (PD)	Education; learning opportunities; work abilities; functional abilities (personal competency; adaptive behavior, etc.); activities of daily living.	He/she is involved in the development of his/her individual planning.
Physical wellbeing (PW)	Health care; sleep; health consequences (sorrow, medication, etc.); health; mobility; technical assistance	He/she has sleep problems.
Self-determination (SD)	Autonomy; goals and personal preferences; decisions; choices	Other people decide how to spend his/her money.
Social inclusion (SI)	Participation; integration; supports	His/her family supports him/her.
Rights (RI)	Knowledge of rights; defense of rights; exercise of rights; privacy; respect	He/she suffers exploitation, violence or abuse.

In this sense, we can speak about objective and subjective measures and measurement instruments, depending on their purpose, content, and respondent (Bonham, Basehart, and Marchand, 2005; Bonham *et al*., 2004; Brown, Keith, and Schalock, 2004; Cummins, 1997, 2005; Gardner and Carran, 2005; Keith and Bonham, 2005; Keith and Schalock, 2000; Perry and Felce, 1995, 2005; Schalock, Bonham, and Verdugo, 2008; Schalock *et al*., 2002; Schalock and Felce, 2004; Schalock, Gardner, and Bradley, 2007; Schalock and Verdugo, 2002, 2007; Verdugo, Arias, and Gómez, 2006; Verdugo *et al*., 2008b; Verdugo, Arias, Gómez, and van Loon, 2007; Verdugo, Gómez, and Arias, 2007; Verdugo, Gómez, Arias, and Schalock, 2009; Verdugo, Gomez, Schalock, and Arias, *in press*; Walsh, Erickson, Bradley, Moseley, and Schalock, 2006). If an evaluator desires to assess personal outcomes and develop person-centered programs, subjective Likert-type scales answered by the client or user of the service should be applied (Schalock and Felce, 2004). In distinction, when the goal is program evaluation, service quality improvement, or to assess organizational changes, it is recommended to use objective questionnaires based on the direct observation of personal experiences and circumstances.

The purpose of this two part study was to develop an instrument and evaluate its psychometric properties that serves the purposes discussed above. In terms of its first purpose, the GENCAT Scale was developed through a systematic and rigorous method, following the recommendations for instrumental studies (Carretero-Dios and Pérez, 2007). The GENCAT developmental method has served nationally and internationally as a model for developing other multidimensional QOL scales focusing on the context (Schalock, Keith, Verdugo, and Gómez, *in press*; Arias, Gómez, Schalock, and Verdugo, 2007; Van Loon, van Hove, Schalock, and Claes, 2008). In reference to the second purpose, psychometric properties of the measures provided by the Catalonian version of the GENCAT scale were analyzed. As this is an objective instrument, professionals assess the quality of life of social service users after observing them. So, it must be noted that the psychometric properties of the GENCAT measures belong to the ratings made by the professionals rather than the users assessed.

STUDY 1: ITEM CONSTRUCTION AND ITEM THEORETICAL ASSESSMENT

The development of the GENCAT Scale involved the suggested steps for developing multidimensional QOL questionnaires (Schalock *et al*., *in press*; Verdugo *et al*., *in press*; Verdugo, Schalock *et al*., 2007).

Step I: Selecting representative items

Once the conceptual and measurement framework has been defined and the goal of the assessment has been specified, the next step in the development of an instrument entails selecting representative items. A concept mapping approach is typically used to select specific items (Schalock *et al*., *in press*). With this goal, an exhaustive review of previous QOL research and literature was carried out. As the final scale should have 8 items per domain at least (n = 64), a pool of more than 300 items based on that review was developed; the items were organized by the 8 domains and 46 core indicators that were found in the literature. Next, items were organized by microsystem (individual and family level), mesosystem (organizational level) and macrosystem (societal level). As the goal of the instrument was being sensitive to organizational changes and person-centered programs, items referred to macrosystem level were eliminated since they are not dependent on organizational interventions. The most representative items of the remaining classification categories were selected and new items were created when it was necessary (there should be at least 2 items by indicator, 10 items by domain, and 2 items by system –micro and meso- in each domain). Once all categories were represented as it has been indicated, the selected items (n = 106) were reformulated as third-person statements to be answered by an external observer with 4-frequency options (*Never or hardly ever*, *Often*, *Sometimes*, and *Always or almost always*).

Step II: Panel of experts

With the goal of studying the evidence based on the content of the test, the 106 items were evaluated by 73 judges that were experts in QOL. About 16.4% (n = 12) were experts on QOL in elderly, 11% (n = 8) in mental health, 19.2% (n = 14) in physical disabilities, 4.1% (n = 3) in auditory disabilities, 8.2% (n = 6) in visual disabilities, 24.7% (n = 18) in intellectual disabilities, 11% (n = 8) in drug dependences, and 5.5% (n = 4) in AIDS/HIV. Their task was to evaluate the 106 items, sorted by domains, from 1 to 10 in three categories: Idoneity (degree in which the item is adequate to assess the domain), importance (degree in which the item is important to assess person-centered QOL) and observability (degree in which the action is subject of direct observation). Besides, the experts were asked for making reformulations, suggestions or commentaries about the proposed items, and for adding new items and indicators if they considered as important. Obtained information was analyzed using qualitative and quantitative methods.

Expert concordance was analyzed by Bangdiwala's Weighted Agreement Coefficient (B^W_N) (Bangdiwala, 1987), a weighted kappa statistic which takes into account different marginal frequencies in the data. As Cohen's kappa, Bangdiwala's coefficient ranges from 0 (*No agreement*) to 1 (*Perfect agreement*). The agreement strength mean was substantial (M = .61), as it is shown in Table 2 and taking into account the high number of participating experts (n = 73, when normally 6-10 participants participate in this kind of studies). The mean rank comparison among groups (elderly, intellectual disabilities, auditory disabilities, visual disabilities, mental health, drug dependences, and HIV/AIDS) was calculated for idoneity, importance and observability using Kruskal-Wallis test. The groups presented significant differences ($p < .05$) in idoneity mean for 13 items, in importance for 14, and in observability for 4 items. In total, 22 items showed significant differences for one criterion (only one item showed significant differences for the three criteria). In this way, a high agreement for idoneity, importance and observability was found for 84 items (79.25%). Thus, very high correlation coefficients ($p < .001$) were observed among idoneity and importance ($r > .80$), and slightly lower among them and observability ($r \approx .60$) for all domains. The highest correlations were found for *Self-determination* and the lowest ones for *Social inclusion*.

TABLE 2. Bangdiwala's Weighted Agreement Coefficient (B^{W}_{N}) means.

Domains	*Idoneity*	*Importance*	*Observability*	*M*
Emotional well-being	.60	.58	.57	.59
Interpersonal relations	.57	.58	.56	.57
Material well-being	.54	.56	.57	.56
Personal development	.51	.53	.54	.53
Physical well-being	.68	.69	.67	.68
Self-determination	.69	.64	.63	.65
Social inclusión	.77	.76	.71	.75
Rights	.67	.69	.61	.65
M	.62	.62	.60	.61

The next step involved calculating item mean scores (*M*) and standard deviations (*SD*) for idoneity, importance and observability. The criterion was to eliminate those items presenting higher standard deviations and lower means. In order to safeguard the content validity, idoneity to assess the domain took priority over importance, and this one took it over observability. This led to the elimination of items presenting $M < 8$ and *SD e»* 2.5 for idoneity and importance, and $M \leqslant 6$ and $SD \geqslant 3$ for observability. Only 20 items (18.86%) did not meet these requirements and so were eliminated (*EW* = 5; *IR* = 3; *MW* = 5; *PD* = 4; *PW* = 2; *RI* = 1). Among these 20 items, 15 did not meet the idoneity requirements, 16 did not meet the importance ones, and only 2 did not meet the one referred to observability. In conclusion, the analyses resulted in 86 items (81.13%) that were considered as valid by experts. Among these, the 55 most adequate items (*EW* = 8; *IR* = 8; *MW* = 8; *PD* = 6, *PW* = 6, *SD* = 8; *SI* = 3, and *RI* = 8) were selected not only taking into account their *M* and *SD,* but also if they were representative of all core indicators and the two system levels in each domain (with the exception of *Emotional wellbeing*, whose items were only related to microsystem since it is something internal to individuals). Some of them were lightly reformulated following expert suggestions.

As it was determined that each domain should consist of 8 items at least, domains were completed with a selection of new items and indicators proposed by the experts. They proposed a total of 97 items (*EW* = 12; *IR* = 11; *MW* = 15; *PD* = 13, *PW* = 11, *SD* = 12; *SI* = 12, and *RI* = 11) and 17 indicators (*MW* = 7; *PD* = 3, *PW* = 4, *SI* = 1; *IR* = 2). After an exhaustive review of all them, the most adequate were selected according to the following criteria: a) number of experts proposing the item; b) theoretical evidence about their belonging to the domain; c) evidence about not similar items included in the scale; e) influence on person-centered QOL; and f) organizational opportunities to take part and achieve changes. The result of this review was the selection of 9 new items (*PD* = 2; *PW* = 2; *SI* = 5), and 4 indicators: limitations and abilities (*PD*), new technologies (*PD*), diet (*PW*), and accessibility (*SI*). This procedure ended with a total of 64 items (8 items per domain). More extensive information about the selected and eliminated items can be found in Verdugo *et al*. (2008b).

Step III: Focus groups

Despite of the exhaustive work described before, a step forward in developing the items to be included in field-test version of the scale was taken. As Bonham *et al*. (2004) and Schalock *et al*. (2007) suggested, all stakeholder groups should be involved in the selection of indicator items, and the collection and use of the resultant data. For that, the selected items and indicators were evaluated by several focus groups. The specific goals were: a) to confirm the idoneity, importance and observability of the selected items; b) to make sure that any relevant aspect had been forgotten, and c) to improve the item formulations.

A total of five groups were celebrated with a moderator (*n* = 5) and 7-14 participants each (*n* = 54*)*. Users of social services, relatives, and stakeholders from Catalonia (Spain) were the participants. Each focus group was referred to one target population: elderly (*n* = 10), mental health (*n* = 12), drug addicts and HIV/SIDA (*n* = 14), intellectual disabilities (*n* = 11), and physical disabilities (*n* = 7). The duration of each focus group was about 2 hours.

In order to systematize the procedure and the collected data, a discussion guide including the focus group questions was available for moderators. These questions were: a) *«*Do you think that the item/indicator have an influence on the person-centered QOL?»; b) *«*Do you think that this item/indicator is important to this population?*»*; c) *«*Do you think that the items to assess this indicator are observable for an external observer?*»*; and d) *«*Do you think any important item/indicator to assess this domain is not included?*»*.

The results can be summarized as follows: a) all items were suitable for all populations, consequently all they were retained; b) some items were reformulated; c) clarifications were made to 13 items; and d) and 5 items were added based on the input from focus groups. Concerning to the first result, all items were considered as suitable, important and observable by the different focus groups. Only the observability was discussed for a few items but it was solved with its reformulation. For instance, the item 'He/she is depressed' was reformulated in order to be more observable like this 'He/she shows symptoms of depression'. All the focus groups proposed the reformulation of most of the items or added one or more words to clarify the intent of the item. The goal of all reformulations and clarifications were to try to make the content of the items more specific and guarantee they were suitable for all people. An example of a reformulated item was: 'He/she has a partner or he/she has the chance to have a partner if wanted' was reformulated as 'It is difficult to him/her to start a sentimental relationship». An example of a clarification for the item was 'He/she cares about his/her personal hygiene', was the next: 'It doesn't matter if he does by himself/herself or he/she needs help to do it*'*. Regarding the last result, the 11 items were also suitable for all people. The focus group proposing the highest number of items was the one related to intellectual disabilities (*n* = 6), followed by the one related to drug dependences and HIV/AIDS (*n* = 5). The physical disabilities' group only proposed one item (coinciding with one proposed by intellectual disabilities' group) and the rest of the group considered that it was necessary to include any item. After an exhaustive review of the 11 items, 5 items (*IR* = 2; *RI* = 2; *SD* = 1) and 1 indicator ('sexuality' for *IR*) were selected to be part of the field-test version of the scale. The selecting criteria were the same than for panel of experts.

STUDY 2: PSYCHOMETRIC PROPERTIES OF THE CATALONIAN VERSION OF THE SCALE

Study 1 resulted in a field –test version of GENCAT Scale that was composed of 69 items (55 came from the literature review, 9 from the panel of experts, and 5 from the focus groups). The purpose of study 2 was to evaluate the scale on a representative sample of social service users from Catalonia (Spain). The evaluation included reliability and validity. Reliability was evaluated by Cronbach's alpha index and the standard error of measurement. Validity was evaluated by Confirmatory Factor Analysis. The goodness-of-fit of the eight-dimension model of QOL was compared with the goodness-of-fit of another conceptualization in which QOL is one-dimensional.

Method

Participants

With the purpose of guaranteeing the representativity, a probabilistic polietapic sample design was carried out. For elder people group, sample was selected by geographic areas (sampling error of 2.43 with 95% confidence and p = q) (see Table 3). If only residence settings were considered, the sampling error was increased to 2.66%, while a sampling error of 6.07% was found for day centres. For the remaining groups, given the found variety in number of centres by geographical areas, the sampling was carried out by target populations. In this case, a fixed and a proportional-to-size number of units were assigned to each group. Sampling errors ranged from 3.99 to 5.51 (see Table 4).

TABLE 3. Sampling design for elder people.

Geographic areas	*Residence settings*	*Day Centres*	*n*	*Sampling errors (%)*
Metropolitan region	570	89	659	3,75
Regions from Gerona	231	25	256	5,84
Field of Tarragona	144	22	166	7,28
Lands of the Ebre	89	21	110	7,90
West regions	194	44	238	5,96
Central regions	85	36	121	8,70
High Pirineus and Aran	41	28	69	11,32
Catalonia	1354	265	1619	2,43

TABLE 4. Sampling design for the remaining groups.

Geographic areas	*PD*	*ID*	*MH*	*DR*	*HA*	*N*
Metropolitan region	181	263	188	30	51	713
Regions from Gerona	62	79	26	29	23	219
Field of Tarragona	33	56	18	-	7	114
Lands of the Ebre	4	24	16	-	-	44
West regions	40	67	15	16	-	138
Central regions	31	90	46	-	-	167
High Pirineus and Aran	4	7	4	-	-	15
Catalonia	355	586	313	75	81	1410
Sampling errors (%)	5,19	3,99	5,51	*	*	2,60

Note. PD = physical disabilities; ID = intellectual disabilities; MH = mental health; DR = drug dependences; HA = HIV/AIDS. *No sampling error was calculated for drug dependences and HIV/AIDS since N was unknown.

A total of 608 professionals working in 239 centres of social services participated filling in the field-test version of the GENCAT Scale for 3,029 users from Catalonia. The mean number of evaluated persons per service was 12.67 (*SD* = 7.75) and the mean number of evaluated persons per professionals was five (*M* = 4.98). The requirements for professionals to participate in this study were: (a) to be working in some kind of social service for handicapped adults; and (b) to have been working directly with the client for at least 3 months. The only requirement to apply the scale to a social service user was that this was older than 16 years old.

Related to the main socio-demographic characteristics of professionals, most of them were female (85%), had been working with the client for more than 2 years (55.74%), were psychologists (23.01%) and social workers (18.41%), and had been working in social services more than 5 years (52.80%). Concerning to the social service users, 55.7% were female. Their ages ranged between 16 and 105 (*M* = 64.72; *SD* = 21.34). More than half of sample (57.57%; *n* = 1,711) was older than 60. Actually, the biggest group (*n* = 791) was composed of 81-90 years old people and only 17.39% (*n* = 515) were younger than 41. Concerning to people condition (see Table 5), the most representative group was the one composed of elder people living in residence settings (44.70%), followed by people with intellectual disabilities (19.35%), physical disabilities (11.72%), mental health (10.33%), and old people in day centres (8.75%). Percents of people with drug dependences and HIV/AIDS ranged from 2.48 to 2.67%.

TABLE 5. Distribution of users by groups.

Groups	*n*	*%*
Elder people (residences)	1,354	44.70
Persons with intellectual disabilities	586	19.35
Persons with physical disabilities	355	11.72
Persons with mental health problems	313	10.33
Elder people (day centres)	265	8.75
Persons with HIV/AIDS	81	2.67
Persons with drug dependences	75	2.48
Total	3,029	100

Instruments

Since the GENCAT Scale application was going to be carried out in Catalonia, the field-test version needed to be translated to Catalan. Along the entire process of development, the International Quality of Life Assessment Project (IQOLA) and the International Test Commission (ITC) (Bartram, 2001; Hambleton, 2001; Muñiz and Hambleton, 1996; Van de Vyjver and Hambleton, 1996) guidelines on adapting tests were followed. It must be noted that this case is not exactly a test adaptation since the scale was developed from the beginning to be used with Catalonian population. In fact, as we noted earlier, all items were validated by professionals, users and relatives from Catalonia. Nevertheless, a translation methodology meeting all the requirements for the best practice was applied: two translations, two back-translations, an expert committee and a pretest.

Translation. The first step was to produce two translations from Spanish to Catalonian, using two qualified and bilingual translators whose mother tongue was Catalonian. Translations are of higher quality when undertaken by at least two independent translators since allows for the detection of errors and divergent interpretation of ambiguous items. One translator was aware of the objectives underlying the GENCAT Scale and the quality of life concepts, whereas the second was unaware of these objectives and concepts. The two translations were compared in order to find discrepancies and identify the more ambiguous words. Working from the initial version together with the first translator’s version (T-A) and the second translator’s version (T-B), the synthesis resulted in a common translation (T-AB).

Back-translation. Translating back from the final language into the source language has been shown to help improve the quality of the final version of an assessment instrument. From the T-AB version, two translators who were fluent in the idioms and colloquial forms of Catalonian translated this version into their mother tongue: Spanish. None of the translators was aware of the intent and content of the material. Both versions were synthesized (BT-AB). This version (BT-AB) was compared with the initial one in order to detect differences and reveal unexpected meanings or interpretations.

Expert committee. An expert committee was constituted in order to produce a final version of the GENCAT scale based on the various translations and back-translations.

Membership was multidisciplinary: a methodologist, two experts on quality of life, two experts on languages, the two translators and both back-translators. Each committee member reviewed the instructions, the items and the answer options. Committee member aimed for semantic, idiomatic, and conceptual equivalence. There were no difficulties in obtaining the consensus about the final version since all the items were developed in reference to Catalonian users and reformulated by persons from Catalonia. In addition, all items were very specific and clear. For these reasons, all versions were very similar and, once the equivalence was guaranteed, the synthesis of the two versions that were translated into Catalonian (without any modification) constituted the final Catalonian version.

Pre-test. The original and the final version were administered to two bilingual individuals. As discrepancies were not found between them, the translating process was concluded in order to administer the developed version and check its psychometric properties in a Catalonian sample.

This is a self-administered questionnaire in which professionals must answer objective and observable questions about user QOL. Administration time varies from 8 and 13 minutes. It is composed of eight scales -that correspond to the eight QOL-domains- and 69 items ($EW = 8$; $IR = 10$; $MW = 8$, $PD = 8$; $PW = 8$; $SD = 9$; $SI = 8$, $RI = 10$). All items are formulated as third person declarative statements and random organized by domains. Half items have positive ($n = 35$) and half have negative ($n = 34$) valence. The answer format is a frequency scale with 4 options (*Never o hardly ever*, *Sometimes*, *Often*, *Always or almost always*); however, in case that using this answer format turned out difficult, a 4-points Likert scale (*Totally disagree*, *Disagree*, *Agree*, and *Totally agree*) can be used instead. The instrument offers a direct score for each QOL domain that are converted to standard scores ($M = 10$; $SD = 3$) and to percentiles. It is also possible to illustrate all scores on a QOL profile that makes score interpretation easier. Finally, a QOL Index is also provided.

Procedure

Once the participant services were selected, a letter was sent in order to explain the researching goals and make the participation request. This letter was sent by post and by email. After that, the research team phoned every single service with the following goals: a) to confirm the letter reception; b) to confirm the post address since the scales were sent by a courier company; c) to give detailed information about the research project; and d) to confirm if they were determined to collaborate. When some service rejected to participate, it was replaced by other one with similar characteristics. Once their participation was confirmed, the specific number of scales they must complete plus 5 (to be sure of achieving a big enough sample) and an evaluator's guide were sent. About 4,500 scales were sent. We must point out here that the Catalonian version of the GENCAT Scale was applied to all participants in this study. Phone and email contact was kept all along the process in case there were doubts or suggestions. Phone was also used to remind the deadlines when it was necessary.

Results

Reliability

Reliability was evaluated by Cronbach's alpha index (α) and the standard error of measurement (*SEM*) (see Table 6). The internal consistency indexes (α) fluctuated between .47 and .88. The lowest coefficient was reported by the *Physical Wellbeing* domain; however, this result is congruent with findings in other similar studies (Gómez *et al*., 2008; Verdugo *et al*., *in press*). The internal consistency of the 69 items was quite high (α = .92), whereas *SEM* values were not too high (1.87 - 2.75).

TABLE 6. Reliability coefficients for each domain.

Domains	*α*	*SEM*	*n*
Emotional well-being	.83	2.03	8
Interpersonal relations	.66	2.75	10
Material well-being	.57	1.87	8
Personal development	.74	2.39	8
Physical well-being	.47	2.05	8
Self-determination	.88	2.41	9
Social inclusión	.57	2.52	8
Rights	.69	2.18	10
GENCAT	.92	6.92	69

Construct validity

A Confirmatory Factor Analysis (CFA) was used to evaluate the goodness-of-fit for two measurement models. Model I contained the eight-factors proposed by Schalock and Verdugo (2002): *Emotional wellbeing*, *Material wellbeing*, *Physical wellbeing*, *Social inclusion*, *Interpersonal relations*, *Rights*, *Self-determination*, and *Personal development*. Model II was one-dimensional. Given the nature of the data, the CFA was performed implementing DWLS estimation method with the covariance and asymptotic covariance matrices. LISREL 8.8 (Scientific Software International, 2006) was the software used. As observed variables for each QOL factor, 4 parcels composed of the corresponding and random selected item means were used (Bandalos, 2002; Bandalos and Finney, 2001; Brown, 2006; Hall, Snell, and Singer Foust, 1999; Kishton and Widaman, 1994; Little, Cunningham, Shahar, and Widaman, 2002; West, Finch, and Curran, 1995). In this way, a total of 32 parcels (4 parcels per domain) were analyzed. Previously to CFA, one-dimensionality of each parcel was guaranteed.

To address the limitations of Chi-square test (χ^2), several goodness-of-fit indexes (McDonald and Ho, 2002) were used to evaluate the goodness-of fit of eight *vs*. one-factor models. Absolute fit indexes, such as the Goodness of Fit Index (*GFI*), directly assess how well a priori model reproduces the sample data; whereas relative fit indexes, such as Root Mean Square Error of Approximation (*RMSEA*), the Normed Fit Index (*NFI*), the Tucker-Lewis Index (TLI), and the Comparative Fix Index (*CFI*) measure the proportionate improvement in fit by comparing a target model with a more restricted nested baseline model (a null model in which all the observed variables are uncorrelated). Hu and Bentler (1999) identified cut off criteria for indexes. The *GFI*, the *NFI*, the *TLI*, and the *CFI* should be above .95 for having a good fit to the data. For the *RMSEA,* a cut off value of less than .06 was suggested. As it is shown in Table 7, the goodness-of-fit indexes of the eight-factor model were acceptable (with the exception of χ^2/df that was slightly above 2). Anyway, the eight-factor solution had much better indexes than the one-dimension model, which showed a decrease of the fit indexes. The goodness-of-fit for the eight-factor model suggested that this model provided a better fit to the data than the other solution (see Figures 1 and 2).

TABLE 7. Goodness-of-fit indexes of the eight *vs*. one-factor models.

Goodness-of-fit Indexes	*Eight-factor model*	*One- factor model*
df	436	464
S-B $\chi 2$	1251.16	5974.82
$\chi 2$/df	2.87	12.88
GFI	.96	.96
NFI	.95	.76
TLI	.96	.75
CFI	.97	.77
RMSEA	.05	.15
p	.000	.000

FIGURE 1. Eight-factor measurement model of the GENCAT Scale.

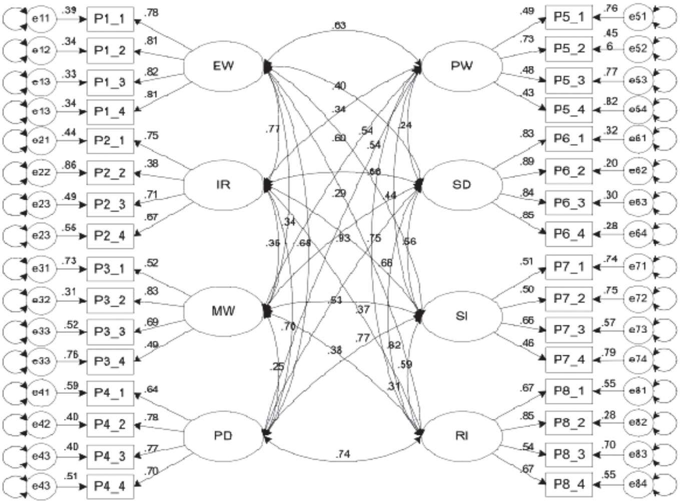
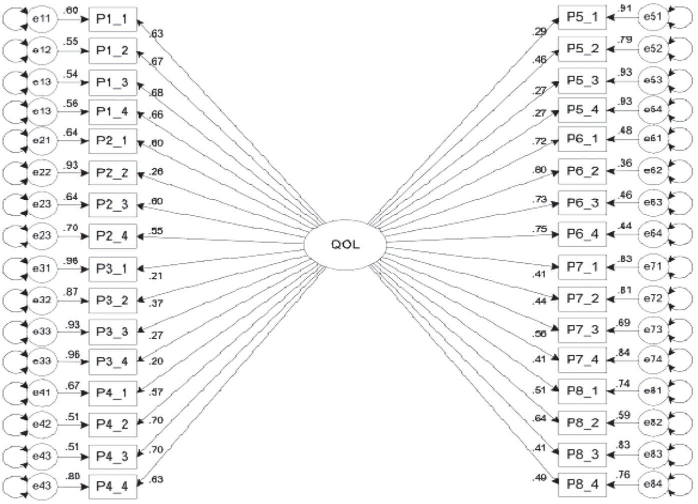


FIGURE 2. One-factor measurement model of the GENCAT Scale.



Finally, regarding to nomological validity, correlation coefficients were calculated for all the latent variables (see Figure 1). The highest coefficient (r = .93) was observed between *Interpersonal relations* and *Social inclusion*, followed by *Self determination* and *Rights* (r = .82), *Interpersonal relations* and *Emotional wellbeing* (r = .77), *Social inclusion* and *Personal development* (r = .77), and *Self determination* and *Personal development* (r = .75). The lowest coefficients were observed for *Material wellbeing* and *Self determination* (r = .07), *Self determination* and *Physical wellbeing* (r = .24), *Personal development* and *Material wellbeing* (r = .25), and *Rights* and *Emotional wellbeing* (r = .29). Since they are congruent with the outcomes of previous research (Bonham *et al*., 2004), the aforementioned correlations can be considered as an evidence of the scale's nomological validity.

Discussion

The present study had two goals. Firstly, it aimed to develop an instrument to assess QOL of social service clients in an objective way and based on a multidimensional model (Schalock, Bonham, and Verdugo, 2008; Schalock and Verdugo, 2002). Based on it, it was expected that the GENCAT Scale measured QOL including *Emotional well-being*, *Material well-being*, *Physical well-being*, *Personal development*, *Interpersonal relations*, *Self-determination*, *Rights*, and *Social inclusion*. Secondly, it aimed to study the reliability and construct validity of the developed scale.

Regarding reliability, the GENCAT Scale shows a good internal consistency (α = .92), and a low standard error of measurement (*SEM* = 6.92). Analyzing by domains, *Self-*

determination, *Emotional well-being*, and *Personal development*, with values higher than .70, are the most reliable; whereas *Rights*, *Interpersonal relations*, *Material well-being*, and *Social inclusion* are very close to .60. Finally, *Physical wellbeing* has the lowest internal consistency (α = .47). Since *Physical wellbeing* consists of eight items as other factors, its low level of internal consistency cannot be explained by the number of items. A more detailed analysis of the content of the items belonging to this domain found that there are three items with very low corrected homogeneity indexes and whose content seem to be slightly different to the other items within the domain. Although they undoubtedly contribute to *Physical wellbeing*, they also may assess other domains such as *Material wellbeing* or *Rights*. Given the strong consensus reached by the experts and the focus groups about their importance during the process of development of the scale, the items were retained. However, further studies should be done to determine its importance and reliability to assess this or other domain.

Concerning to construct validity, the aim is to demonstrate that indicators (items, or parcels in this study) load on only one factor (or domain) and are not influenced by any other systematic effect. To that end, two models were compared. The first one (Model I) approaches QOL as a one-domain construct and the second model (Model II) conceives QOL as composed of eight correlated domains. The Confirmatory Factor Analysis supported the eight-domain model is supported by the data, in comparison with the one-dimension solution. Also the scale showed an adequate nomological validity, although deeper research about this issue is recommended.

The sampling design guarantees the results' representativeness and allows concluding that they can be generalized to users of social services in Catalonia. Besides, since each target-population involved in the development and validation of the scale shows a similar distribution all around Spain, the authors, other researchers and professionals of social services consider the GENCAT Scale ass suitable to be applied to clients from other counties in Spain. In order to check it, it is being applied in other Spanish counties at present. Anyway, the study has also some limitations. For example, as the instrument was developed to assess QOL in an objective way, it is assumed that QOL scores should be invariant depending on the observer. Although this issue was not studied, we plan to do it after applying the scale in other areas.

The originality, importance and utility of this instrument reside on several aspects. Firstly, there is only one QOL questionnaire serving to the same goal, the FUMAT Scale (Gómez *et al*., 2008), but it was developed after this one and it is focused on elderly and disabilities. The GENCAT Scale, in contrast, can be applied to all kind of users of social and human services, including people with disabilities and elder people, but also people with mental health problems or AIDS/HIV. And secondly, it responds to all basic principles of conceptualization, measurement and application of QOL (Schalock, 2005, 2006; Schalock, Bonham, and Verdugo, 2008; Schalock and Verdugo, 2007; Schalock, Verdugo, *et al*., 2008; Verdugo, 2006; Verdugo, Schalock, Keith, and Stancliffe, 2005). In conclusion, the GENCAT Scale is in consonance with conceptual advances in the field and it constitutes a useful tool for organizations, entities and services interested in improving the assessed QOL of their service recipients, and for social service professionals that are concerned about improving their programs and practices.

References

Bandalos, D.L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling, 9*, 78-102.

Bandalos, D.L. and Finney, S.J. (2001). Item parceling issues in structural equation modeling. In G.A. Marcoulides and R.E. Schumacker (Eds.), *Advanced structural equation modeling: New developments and techniques* (pp. 269-296). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Bangdiwala, K. (1987). Using SAS software graphical procedures for the observer agreement chart. *Proceedings of the SAS Users Group International Conference*, *12*, 1083-1088.

Bartram, D. (2001). Guidelines for test users: A review of national and international initiatives. *European Journal of Psychological Assessment, 17*, 176-186.

Bonham, G.S., Basehart, S., and Marchand, C.B. (2005). *Ask Me! FY 2006: The QOL of Marylanders with developmental disabilities receiving DDA funded supports*. Annapolis, MD: Bonham Research.

Bonham, G.S., Basehart, S., Schalock, R.L., Marchand, C.G., Kirchner, N., and Rumenap, J.M. (2004). Consumer-based quality of life assessment: The Maryland Ask Me! Project. *Mental Retardation, 42*, 338-355.

Brown, I., Keith, K.D., and Schalock, R.L. (2004). Quality of life conceptualization, measurement, and application: Validation of the SIRG-QOL consumer principles. *Journal of Intellectual Disability Research, 48*, 451.

Brown, T.A. (2006). *Confirmatory factor analysis for applied research*. New York: The Guilford Press.

Carretero-Dios, H. and Pérez, C. (2007). Standards for the development and review of instrumental studies: Considerations about test selection in psychological research. *International Journal of Clinical Health and Psychology, 7,* 863-882.

Cummins, R.A. (1997). Assessing quality of life. In R.I. Brown (Ed.), *Assessing quality of life for people with disabilities: Models, research, and practice* (pp. 116-150). London: Stanley Thornes Publishes Ltd.

Cummins, R.A. (2005). Moving from the quality of life concept to a theory. *Journal of Intellectual Disability Research, 49*, 699-706.

De Maeyer, J., Vanderplasschen, W., and Broekaert, E. (2009). Exploratory study on drug user's perspective on quality of life: More than health-related quality of life? *Social Indicators Research, 90,* 107-126.

Felce, D. and Perry, J. (1995). Quality of life: Its definition and measurement. *Research in Developmental Disabilities, 16*, 51-74.

Gardner, J.F. and Carran, D. (2005). Attainment of personal outcomes by people with developmental disabilities. *Mental Retardation, 43*, 157-174.

Gómez, L.E., Verdugo, M.A., Arias, B., and Navas, P. (2008). Assessment of quality of life in elderly and disabilities: The Fumat Scale. *Intervención psicosocial: Revista sobre Igualdad y Calidad de Vida, 17*, 189-200.

Hall, R.J., Snell, A.F., and Singer Foust, M. (1999). Item parceling strategies in SEM: Investigating the subtle effects of unmodeled secondary constructs. *Organizational Research Methods, 2*, 233-256.

Hambleton, R.J. (2001). Guidelines for test translation/adaptation. *European Journal of Psychological Assessment, 17*, 164-172.

Hu, L. and Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structure Equation Modeling, 6*, 1-55.

Jenaro, C., Verdugo, M.A., Caballo, C., Balboni, G., Lachapelle, Y., Otbrebski, W., *et al*. (2005). Cross-cultural study of person-centered quality of life domains and indicators: A replication. *Journal of Intellectual Disability Research, 49*, 734-739.

Keith, K.D. and Bonham, G.S. (2005). The use of quality of life data at the organization and systems level. *Journal of Intellectual Disability Research, 49*, 799-805.

Keith, K.D. and Schalock, R.L. (2000). *Cross-cultural perspectives on quality of life*. Washington, DC: American Association on Mental Retardation.

Kishton, J.M. and Widaman, K.F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54*, 757–765.

Langberg, J.M. and Smith, B.H. (2006). Developing evidence-based intervention for deployment into school settings: A case example highlighting key issues of efficacy and effectiveness. *Evaluation and Program Planning, 29*, 323-334.

Little, T.D., Cunningham, W.A., Shahar, G., and Widaman, K.F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9,* 151-173.

Martín-Rodríguez, A. y Pérez-San Gregorio, M.A. (2007). Influencia de la unidad de cuidados intensivos en los familiares de pacientes con mala calidad de vida. *International Journal of Clinical and Health Psychology, 7*, 71-82.

McCabe, M.P., Firth, L., and O'Connor, E. (2009). Mood and quality of life among people with progressive neurological illnesses. *International Journal of Clinical and Health Psychology, 9*, 21-35.

McDonald, R.P. and Ho, M.R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7*, 64-82.

Montero, I. and León, O.G. (2007). A guide for naming research studies in Psychology. *International Journal of Clinical and Health Psychology, 7,* 847-862.

Muñiz, J. and Hambleton, R.K. (1996). Directrices para la traducción y adaptación de los tests. *Papeles del Psicólogo, 66,* 63-70.

Perry, J. and Felce, D. (1995). Objective assessments of quality of life: How much do they agree with each other? *Journal of Community and Applied Social Psychology, 5*, 1-19.

Perry, J. and Felce, D. (2005). Factors associated with outcomes in community group homes. *American Journal on Mental Retardation, 110*, 121-135.

Schalock R.L. (2005) Moving from a quality of care to a quality of life program emphasis. In *International Congress about Quality of Life of persons with a disability*. Quito, Equator, 17–21 October.

Schalock, R.L. (2006). Prólogo. In J.A. Verdugo (Dir.), *Cómo mejorar la calidad de vida de las personas con discapacidad. Instrumentos y estrategias de evaluación* (pp. 21-25). Salamanca: Amarú.

Schalock, R.L. and Bonham, G.S. (2003). Measuring outcomes and managing for results. *Evaluation and Program Planning, 26*, 229-235.

Schalock, R.L., Bonham, G.S., and Verdugo, M.A. (2008). The concept of quality of life as a framework for program planning, implementation, evaluation, and improvement. *Evaluation and Program Planning, 3,* 181-190.

Schalock, R.L., Brown, I., Brown, R., Cummins, R.A., Felce, D., Matikka, L. *et al*. (2002). Conceptualization, measurement, and application of quality of life for persons with intellectual disabilities: Results of an international panel of experts. *Mental Retardation, 40*, 457-470.

Schalock, R.L. and Felce, D. (2004). Quality of life and subjective well-being: Conceptual and measurement issues. In E. Emerson, C. Hatton, T. Thompson, and T.R. Parmenter (Eds.), *International Handbook of Applied Research in Intellectual Disabilities* (pp. 261-279). London: John Wiley and Sons.

Schalock, R.L., Gardner, J.F., and Bradley, V.J. (2007). *Quality of life for persons with intellectual and other developmental disabilities: Applications across individuals, organizations, communities, and systems*. Washington, DC: American Association on Intellectual and Developmental Disabilities.

Schalock, R.L., Keith, K.D., Verdugo, M.A., and Gómez, L.E. (*in press*). Quality of life theory construction and model development. *Journal of Intellectual Disability Research.*

Schalock, R.L. and Verdugo, M.A. (2002). *Quality of life for human service practitioners.* Washington, DC: American Association on Mental Retardation.

Schalock, R.L. and Verdugo, M.A. (2007). The concept of quality of life in services and supports for people with intellectual disabilities. *Siglo Cero, 38*, 21-36.

Schalock, R.L. and Verdugo, M.A. (2008). Quality of life conceptual and measurement frameworks: From concept to application in the field of intellectual disabilities. *Evaluation and Program Planning, 31,* 181-190.

Schalock, R.L., Verdugo, M.A., Bonham, G.S., Fantova, F., and Van Loon, J. (2008). Enhancing personal outcomes: Organizational strategies, guidelines, and examples. *Journal of Policy and Practice in Intellectual Disabilities, 5*, 18-28.

Schalock, R.L., Verdugo, M.A., Jenaro, C., Wang, M., Wehmeyer, M., Xu, J. *et al*. (2005). A cross-cultural study of quality of life indicators. *American Journal on Mental Retardation, 110*, 298-311.

Scientific Software International (2006). *LISREL, v. 8.8 [Computer Program]*. Lincolnwood, IL: Scientific Software International.

Van de Vyjver, F. and Hambleton, R.K. (1996). Translating tests: Some practical guidelines. *European Psychologist, 1*, 89-99.

Van Loon, J., van Hove, G., Schalock, R.L., and Claes, C. (2008). *Personal Outcomes Scale*. Middleburg, NL: Arduin Steichlich and Gent, Belgium: Department of Special Education, University of Gent.

Veerman, J.W. and van Yperen, T.A. (2007). Degrees of freedom and degrees of certainty: A developmental model for the establishment of evidence-based youth care. *Evaluation and Program Planning, 30*, 136-148.

Verdugo, M.A. (2006). *Cómo mejorar la calidad de vida de las personas con discapacidad*. Salamanca: Amarú.

Verdugo, M.A., Arias, B., and Gómez, L.E. (2006). Escala integral de medición subjetiva y objetiva de la calidad de vida en personas con discapacidad intelectual. In M.A. Verdugo (Dir.), *Como mejorar la calidad de vida de las personas con discapacidad. Instrumentos y estrategias de evaluación* (pp. 417-448). Salamanca: Amarú.

Verdugo, M.A., Arias, B., Gómez, L.E., and Schalock, R.L. (2008a). *Formulari de l'Escala Gencat de Qualitat de vida. Manual d'aplicació de l'Escala Gencat de Qualitat de vida.* Barcelona: Departament d'Acció Social i Ciutadania, Generalitat de Cataluña.

Verdugo, M.A., Arias, B., Gómez, L.E., and Schalock, R.L. (2008b). *Informe sobre la creació d'una escala multidimensional per avaluar la qualitat de vida de les persones usuàries dels serveis socials a Catalunya.* Barcelona: Departament d'Acció Social i Ciutadania, Generalitat de Cataluña.

Verdugo, M.A., Arias, B., Gómez, L.E., and van Loon, J. (2007). S*chaal Voor Kwaliteit Van Bestaan Voor Mensen Met Een Verstandelijke Beperking [QOL Integral Scale]*. Holland: Stichting Arduin.

Verdugo, M.A., Gómez, L.E., and Arias, B. (2007). La Escala Integral de Calidad de Vida. Desarrollo y estudio preliminar de sus propiedades psicométricas. *Siglo Cero, 38*, 37-56.

Verdugo, M.A., Gómez, L.E., Arias, B., and Martin, J.C. (2006, may). Validation of the eight domain model of quality of life. Presentation at the symposium on quality of life outcomes: Their empirical development, verification, and use. *International Symposium on Social Inclusion*, Montreal, CA.

Verdugo, M.A., Gómez, L.E., Arias, B., and Schalock, R.L. (2009). *Quality of Life Integral Scale*. Madrid: CEPE.

Verdugo, M.A., Gómez, L.E., Schalock, R.L., and Arias, B. (*in press*). The Integral Quality of Life Scale: Development, Validation, and Use. In R. Kober (Ed.), *Quality of life for people with intellectual disability*. New York: Springer.

Verdugo, M.A. and Schalock, R.L. (2003). *Cross-cultural Survey of QOL Indicators*. Salamanca: Institute on Community Integration. University of Salamanca.

Verdugo, M.A., Schalock, R.L., Gómez, L.E., and Arias, B. (2007). Developing multidimensional quality of life scales focusing on the context: The Gencat Scale. *Siglo Cero, 38*, 57-72.

Verdugo, M.A., Schalock, R.L., Keith, K., and Stancliffe, R. (2005). Quality of life and its measurement: Important principles and guidelines. *Journal of Intellectual Disability Research, 49*, 707-717.

Walsh, P., Erickson, E., Bradley, V., Moseley, C., and Schalock, R.L. (2006). *Supported accommodation services for people with intellectual disabilities: A review of models and instruments used to measure quality of life in various settings*. Dublin: National Disability Authority.

West, S.G., Finch, J.F., and Curran, P.J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R.H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 56-75). Thousand Oaks, CA: Sage.

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