Herman van Oyen[1], Johan Van der Heyden[1], Rom Perenboom[2], Carol Jagger[3]

[1] *Unit of Epidemiology, Scientific Institute of Public Health, Brussels, Belgium*
[2] *TNO-Prevention and Health, Leiden, the Netherlands*
[3] *Department of Health Sciences, University of Leicester, UK*

Monitoring population disability: evaluation of a new Global Activity Limitation Indicator (GALI)

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Summary

Objective: To evaluate a single item instrument, the Global Activity Limitation Indicator (GALI), to measure long-standing health related activity limitations, against several health indicators: a composite morbidity indicator, instruments measuring mental health (SCL-90R, GHQ-12), physical co-morbidity and physical limitations (ADLs, SF-36).
Methods: Cross-sectional data (n = 9168) of the 2001-National Health Interview Survey in Belgium was used to compare the GALI with other health indicators across gender, age, educational attainment and language.
Results: Responses to the GALI were similar to responses to other indicators of physical limitations (Limitations in Activities of Daily Living (by severity or by number of limitations), the SF-36 physical domain), to an indicator of chronic physical co-morbidity and to indicators of mental health. The probability of reporting absence of long-standing activity limitation with the GALI was high in subjects without physical limitations or physical or mental conditions. This probability decreased as the severity or number of limitations, the number of physical or mental conditions increased.
Conclusions: The GALI performs appropriately against other health indicators and appears to reflect long-standing activity limitation associated with both mental and physical conditions.

Keywords: Disability – Activity restriction – Global indicator

Monitoring disability in the face of the increasing aging of populations has become a key objective for all countries. Although a number of detailed scales have been developed to measure disability or activity limitation, there is often a reluctance to include these in surveys because of their length. The success of the self-perceived health instrument has shown that information on complex and multidimensional concepts such as health can be grasped in a single question and this has enabled a health measure to be introduced into non-health related surveys. Additionally, it has became a very useful tool for policy makers, being proven to be a strong predictor of mortality, life expectancy, morbidity, functional status, activity limitations, and the use of health care (Appels et al. 1996; Idler et al. 2000; de Bruin et al. 1996).

Around 1996, a discussion forum on a "Global Disability Indicator" was initiated by REVES, an international network of researchers in the field of health expectancy and disability. The criteria for a global indicator and candidate instruments were proposed and discussed (Verbrugge 1996;Verbrugge 1997). Further, explorative analyses suggested that, compared to aggregated indicators and a constructed global item, a genuine global instrument (i. e. a single item instrument) has the ability to reflect disability's health origin, to grasp specific disabilities and to have distinct information beyond detailed ones (Verbrugge et al. 1999). Since disability is becoming a major cause of health related burden in developing countries, in 2002 the United Nations initiated a working group on disability surveillance (the Washington City Group on Disability Statistics[1]). One objective of this group was to obtain information on disability throughout the world by guiding the development of global measures of disability for use in a census, sample-based national surveys, or other statistical formats.

The main development of the GALI took place as part of the creation of a wider set of recommended instruments for introduction into European surveys. Within this scheme a global activity limitation indicator (GALI) was proposed to have descriptive, analytic and screening value and to provide an

[1] http://unstats.un.org/unsd/methods/citygroup/washington.htm

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overview of disability with high policy and scientific utility, over and above that of more detailed instruments (Robine et al. 2000; Robine & Jagger 2003). It should also have a maximum analytic and fieldwork parsimony and be able to identify subjects, in both general and more specific populations who perceive themselves to have long-standing, health related limitations in their usual activities. The International Classification of Functioning, Disability and Health (ICF) provided the conceptual framework (WHO 2001). The ICF defines an activity as the execution of a task or an action by an individual and activity limitations as difficulties an individual may have in executing activities. The ICF is limited to the description of all aspect of human health in term of health and health-related domains. This means that the ICF does not classify activity limitations that are not health-related such as those that are the result of gender, socio-economic characteristics. The ICF further specifies that limitations are assessed against a generally accepted population standard, meaning that a comparison is made with persons without a similar health problem. For consistency and also referring to the acronym "GALI" the wording activity limitation or shortly limitation is used throughout the text although it could have been interchanged with the concept of "participation restriction", which is defined in the ICF as problems an individual may experience in involvement in life situations. Annex 3 of the ICF describes the difficulty of distinguishing between activities and participation for the different categories and domains classified within the ICF. The proposed global instrument can be interpreted as individual functioning (activity) as well a societal functioning (participation).

Apart from practical criteria (Verbrugge 1997;Verbrugge *et al.* 1999), a set of conceptual criteria (Tab. 1) were used to guide the selection and development process of a "Global Activity Limitation Indicator" or GALI (Perenboom et al. 2002). A detailed methodological and conceptual description of the instrument selection and development process has already been published[2] (Perenboom et al. 2002; Robine & Jagger 2003) but brief details are given here. More than 30 instruments were evaluated but none met all or most of the criteria. A new one was thus proposed, this being a global single item instrument: "For at least the last 6 months, have you been limited because of a health problem in activities people usually do?" with 3 response categories: 1) Yes, strongly limited; 2) Yes, limited; 3) No, not limited. Optional additional questions were also proposed. After translation into several European languages, the GALI is currently part of the Minimum European Health module, together with two other single item instruments on self-perceived health and on the presence of chronic conditions. A health expectancy indicator, the life expectancy free of activity limitation may be calculated from the GALI. This health expectancy is the only health indicator within the list of structural European indicators to be evaluated by the European Member States on a yearly basis. The three response categories allow the hypothesis of dynamic equilibrium (Manton 1982) to be tested by evaluating the relative distribution of the two severity levels over time.

Table 1 Conceptual criteria in the development of a Global Activity Limitation Indicator, GALI

A single item or at most 3 questions
Reference to long-standing activity limitations, i.e. a duration of at least 6 months
Reference to a general health problem, including both physical and/or mental health
Reference to activities people usually do
Inclusion of at least three response levels
Not preceded by a screening question on health problems to avoid selection

The purpose of this paper is to evaluate the GALI against other health measures: a composite morbidity indicator including both mental health problems and chronic physical conditions, a co-morbidity scale of chronic physical conditions, 2 instruments measuring mental health (Symptom Check List 90R (SCL-90R) (Derogatis 1994) and the General Health Questionnaire-12 (GHQ-12) (Goldberg 1972)) and 2 instruments measuring physical limitations (limitations in Activities of Daily Living (ADLs) (de Bruin et al. 1996) and the SF-36 physical domain scale (Ware Jr & Sherbourne 1992)). Given the conceptual criteria of the GALI, none of the instruments can be considered to be an appropriate gold standard for the GALI although it would be expected that subjects scoring positively (or negatively) on these instruments are likely to respond similarly to the GALI.

Methods

Data from the Belgian Health Interview Survey 2001 was used to evaluate the GALI. Participants were selected from the National Population Register using a multistage sampling scheme[3]. The GALI was part of a self-administered questionnaire limited to subjects 15 years and over (N = 9413). Appendix A provides the 3 language versions used.

The evaluation of the GALI was first made against a composite morbidity indicator, which is an aggregated indicator and the most multifaceted measure of morbidity. It includes

[2] http://europa.eu.int/comm/health/ph_projects/1998/monitoring/monitoring_project_1998_full_en.htm#3: Pp 59–68

[3] http://www.iph.fgov.be/epidemio/epien/crospen/hisen/his01en/protocol2001.pdf: Pp 7–12

information on both mental health and chronic physical conditions. The indicator has 4 categories: 1) subjects without any illness; 2) subjects with only mental illness, i. e. they had either depression, anxiety, somatization or sleep disorders defined by the subscales of the SCL-90R (Derogatis 1994); 3) subjects with at least one of 29 chronic physical conditions (Appendix B) and 4) subjects with both mental illness and chronic physical conditions. The evaluation of the GALI against the composite morbidity indicator was done separately for subjects with (at least one) and without ADL limitations (transfer in and out of bed; transfer in and out of a chair; dressing; washing hands and face; eating; going to the toilet) (de Bruin et al. 1996).

Using STATA 7.0 (StataCorp 1999), proportional odds models were used to obtain the predicted probability distribution of the GALI ordinal response outcome "Yes, strongly limited/ Yes, limited/No, not limited" by categories of the composite morbidity indicator. Gender, age, educational attainment and language were adjusted for in analyses. The models also provide the proportional Odds Ratio (POR) of being limited versus being without activity limitations or equivalently of being strongly limited versus being limited or not limited on the GALI scale by the covariates. Homogeneity across gender, age, educational attainment and language was evaluated using the likelihood ratio test by comparing models with and without an interaction term between the composite morbidity indicator and the covariate of interest. All analyses were stratified by the presence or absence of ADL limitations.

The GALI was evaluated similarly against the following other health measures:

- ADL limitations (de Bruin et al. 1996).
  A categorical variable with 3 levels (any severe ADL limitation, any ADL limitation and no ADL limitations) was made, using the information on the severity of the limitation in the response categories (only being able to do the task with personal assistance, the ability to do the task on their own with difficulty or on their own without difficulty). A second aggregated ADL indicator counted the number of limitations (0 up to 6), independently of the severity.
- The SF-36 physical domain
  The SF-36 physical domain instrument has 10 questions evaluating the current health related limitations in doing vigorous activities, moderate activities, lifting or carrying groceries, climbing stairs, bending, kneeling or stooping, walking and bathing, showering or dressing. A score of 100 on the SF-36 scale indicates no limitation at all. With each limitation or severe limitation the score drops respectively with 5 and 10 points (Ware Jr & Sherbourne 1992)
- A chronic physical conditions co-morbidity score (0–29)
  The presence/absence of 29 chronic physical conditions (Appendix B) was summed up.
- The SCL-90R co-morbidity score
  Each of the 4 subscales of the SCL-90R (Derogatis 1994) used in the survey provided evidence for the presence/ absence of depression, anxiety, somatization or sleep disorders. An aggregated indicator was made adding up the mental conditions (0 up to 4 conditions).
- Mental wellbeing
  The GHQ-12 is a 12 item instrument with a score of 0 indicating good mental wellbeing and score of 12 indicating absence of mental wellbeing (Goldberg 1972).

The ADL instrument by severity was entered into the ordinal regression models as a series of dummy variables whilst the other health scores were treated as continuous.

All analyses took into account the complex sampling strategy: stratification, clustering at the household level and unequal sampling probability.

Results

Tab. 2 shows the distribution of the GALI scores by socio-demographic factors. Overall 80 % (81 % men, 78 % women) of the population reported they had not been limited for at least 6 months because of a health problem. This proportion decreased with age and with lower educational attainment. The proportion of subjects reporting no limitations varied by language (81 % Dutch, 76 % French, 73 % German).

First the association between the composite morbidity indicator and the GALI is described in subjects without ADL limitation (n = 7942) and with ADL limitations (n = 641). The POR was adjusted for age, gender, educational attainment and language taking into account the sampling design. Among subjects without ADL limitations and compared to people without any illness the POR of being limited was 2.44 (95 % confidence interval (CI): 1.46–4.08) for those with only mental illness. The POR was 3.88 (95 % CI: 2.78–5.42) for those with only chronic physical conditions and 11.63 (95 % CI: 8.31–16.26) for subjects with both mental and physical conditions. In subjects with ADL limitations, the association was weaker and only statistical significant in subjects with both mental and physical conditions: the PORs for mental illness, chronic physical conditions and both being respectively 1.20 (95 % CI: 0.12–11.62), 1.44 (95 % CI: 0.36–5.72) and 6.02 (95 % CI: 1.45–25.02).

Figure 1 displays the predicted probability distribution of the GALI response, adjusted for age, gender, educational attainment and language, by composite morbidity indicator and

with stratification by ADL limitation. The crude distribution, with the number of subjects in each category is given in Appendix C. In people without ADL limitation and without any illness the probability of reporting no long-standing health related activity limitation was 0.95 (Fig. 1). These subjects had a probability of 0.04 of reporting any long-standing activity limitations on the GALI scale and less than 0.01 of reporting severe limitations. The probability of having no long-standing activity limitations in people without ADL limitations was 0.90 if they had only mental illness, 0.80 in those with only chronic physical conditions and 0.57 in those with both mental and physical conditions. The probability of being limited or strongly limited on the GALI scale was 0.09 and 0.01 respectively in subjects with only mental illness, 0.17 and 0.03 in subjects with only chronic physical conditions and 0.35 and 0.08 in subjects with both mental and physical conditions.

When ADL limitations were present, the probability of reporting no long-standing activity limitations decreased from 0.46 in subjects without illness to 0.12 in subjects with both mental and physical illness. The probability of having any long-standing activity limitations or severe limitations was 0.41 and 0.13 respectively in subjects without illness and 0.39 and 0.49 in those with both mental and physical illness, indicating a shift towards reporting more severe limitations on the GALI scale when ADL limitations are present.

Tab. 3 demonstrates the homogeneity of the GALI probability distribution across gender, age, educational attainment and language by the statistical significance of the interaction between the composite morbidity indicator and each factor. In subjects without ADL limitations the relationship between responses to the GALI and the composite morbidity indicator differed by age and educational attainment. However in subjects with ADL limitations there was no statistical evidence of heterogeneity across gender, age, education or language.

Fig. 2 shows the predicted distribution of the GALI response by the other health measures (severity of ADL limitations,

		Not limited	Limited	Strongly limited	N
Gender	Males	80.9	14.8	4.2	4440
	Females	78.0	16.2	5.8	4728
	Total	79.5	15.5	5.0	9168
Age	15–24	94.7	4.8	0.5	1123
	25–64	83.5	13.3	3.2	6177
	65–	54.8	30.7	14.5	1868
	Total	79.5	15.5	5.0	9168
Educational attainment	Primary	62.1	25.5	12.5	1426
	Lower secondary	74.2	18.5	7.3	1695
	Higher secondary	83.4	13.8	2.8	2642
	Higher	86.8	10.9	2.3	3117
	Total	79.5	15.5	5.0	8880
Language*	Dutch	81.4	13.4	5.2	3239
	French	75.7	19.5	4.8	3508
	German	72.6	22.0	5.4	220
	Total	79.6	15.3	5.1	6967

Table 2 Distribution of the GALI response (in %) by demographic variables, Health Interview Survey 2001, Belgium.

* excluding the Brussels Metropolitan Area

Interaction of composite morbidity indicator with	No ADL limitation	ADL limitation
	P-value*	P-value*
Gender	0.34*	0.25
Age (15–64 years and 65 years)	0.05	0.70
Education (primary, lower secondary and higher secondary, higher education)	0.01	0.25
Language (Dutch and French)	0.87	0.25

Table 3 Homogeneity* of the GALI probability distribution by the composite morbidity indicator and stratified by ADL

* P-value: likelihood ratio test comparing ordinal logistic regression models with and without interaction term (e.g. interaction between the composite morbidity indicator and gender). All models included the composite morbidity indicator, gender, age, education and language

number of ADLs with limitations, SF-36 score, chronic physical conditions co-morbidity score, mental health co-morbidity (SCL-90R) and GHQ-12 scale) after adjustment for gender, age, educational attainment and language. The crude data with the number of subjects in each category are given in Appendix D. The predicted probability of the GALI response categories for those without an ADL limitation was 0.82 (no, not limited), 0.15 (yes, limited), 0.03 (yes, strongly limited). For those with at least one ADL limitation and for those with at least one severe ADL limitation the probability distribution of the GALI was respectively 0.20, 0.43, 0.37 and 0.13, 0.38 and 0.49.

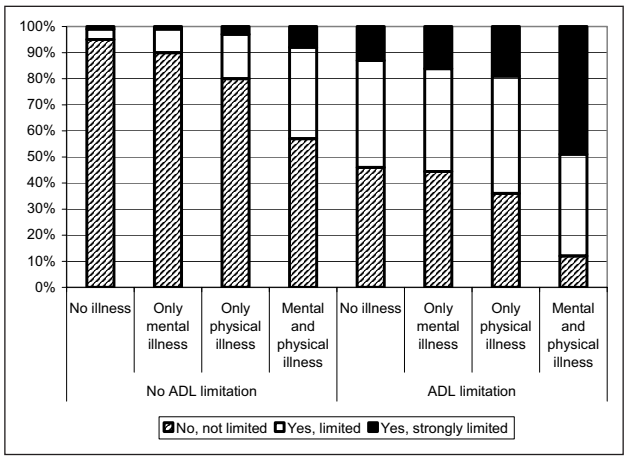

Figure 1 The predicted probability distribution* of the GALI ordinal response outcome by the composite morbidity indicator stratified by limitations in ADL.

*: estimated by ordinal logistic regression, adjusted for gender, age, education and language

In relation to the number of ADL-functions with limitations, the GALI showed a decreasing probability of reporting no long-standing activity limitation as the number of ADL limitations increased (0 ADL limitations: 0.82; 6 ADL limitations: 0.03) and an inverse trend for the probability of reporting "yes, strongly limited" (0 ADL limitations: 0.03; 6 ADL limitations: 0.87). The probability of the response category "yes, limited" first increased and then decreased as the number of ADL limitations increased.

Similarly, the probability of reporting no long-standing activity limitations on the GALI increased from 0.04 to 0.92 as the value of the SF-36 score increased from 0 to 100 (100 is the perfect score on the SF-36). The GALI probability distribution as a function of the number of chronic physical conditions and with GHQ-12 score showed similar pictures. The

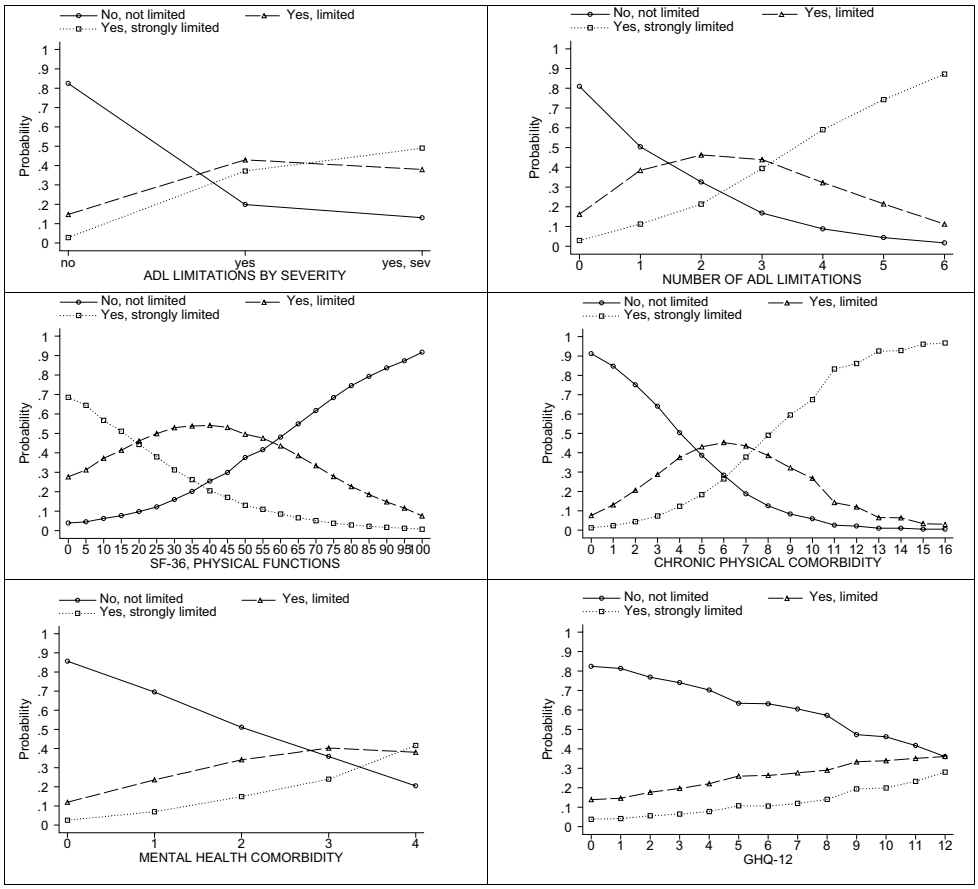

Figure 2 The predicted probability distribution of the GALI ordinal response outcome by the severity of the ADL limitations¶, by the number of ADLs with limitations¶, by the SF-36 (physical domain), by the chronic physical co-morbidity#, by the mental health co-morbidity (SCL-90-R§) and by the GHQ-12.

*: estimated by ordinal logistic regression, adjusted for gender, age, education and language
¶: ADL included: transfer in-,out bed; transfer in-,out chair; dressing, washing hands and face; eating; going to the toilet.
#: chronic physical co-morbidity: see Appendix B for the list of chronic diseases
§: SCL-90R subscales included: depression, anxiety, somatisation and sleeping disorders

probability of reporting to be without long-standing activity limitations dropped from 0.91 to less than 0.01 when the number of chronic physical conditions increased, while the probability of the response "yes, strongly limited" increased from 0.01 to 0.97 over the range of the co-morbidity. The probability of responding "yes, limited" was the highest in subjects with 5 to 7 chronic conditions.

The probability of reporting to have no long-standing health related activity limitations declined from 0.82 to 0.36 for a GHQ-12 score ranging from 0 to 12. The probability of answering "yes limited" or "yes, strongly limited" to the GALI instrument increased respectively from 0.14 to 0.36 and from 0.04 to 0.28 as the GHQ-12 score increased.

For people without any mental health condition (SCL-90R) the probability distribution of the ordinal GALI response variable was 0.86 (no, not limited), 0.12 (yes, limited) and 0.02 (yes, strongly limited) whilst for subjects with 4 mental health conditions the GALI distribution was 0.20, 0.38 and 0.42 respectively.

Discussion

As health and disablement are multifaceted, measures of health and disablement must be able to capture these multidimensional concepts into simple but comprehensive indicators. To have utility a global measure should provide added value to the existing detailed scales and strengthen the data needed to develop strategies to improve overall health and reduce health inequality worldwide (Sen & Bonita 2000).

The conceptual criteria embedded within the GALI (long-standing activity limitations by severity due to both physical and/or mental health problems and with reference to activities people usually do) makes the instrument different from the single item instrument ("During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work or recreation?") used in the US in the Behavioural Risk Factor Surveillance System Survey and whose performance as global disability measure has been positively evaluated (Verbrugge et al. 1999;Clark et al. 2004). In contrast to the US instrument, the underlying intention of the GALI is to measure the presence of long-term limitations only without being confounded by short-term limitations as it is the former which impact on dependency and care. The GALI intentionally avoided specifying health domains in the wording though this could provoke a measurement problem if the propensity for exclusion of physical or mental health or age related health problems differs across population subgroups. In the GALI, activity limitations are assessed against a generally accepted population standard or norm, relative to cultural and social expectations. In order to be general, no reference is made to specific life situations (work/school, household, leisure). Over time, people with long-term limitations are likely to go through a process of adaptation and may not consider themselves restricted in what they can do. Comparison with "the norm" will help them more easily identify ways in which their lives are limited. Counting the number of days with a limitation does not provide information on severity of the limitation in the same way as is done by the response categories of the GALI . These conceptual decisions made during the development of the GALI makes it difficult to make comparisons with the US instrument and its evaluations, although the conclusions from the present results suggest broad agreement.

As there are no gold standards against which the GALI can be compared, we evaluated the GALI against several health indicators. We first compared the GALI with a composite health measure, which included, with the exception of the duration, all the different health domains that should be covered by the GALI: mental health and chronic physical conditions. This was done stratified by the presence of ADL limitations. Secondly we compared the GALI with other instruments, each covering a specific health domain.

The observed differences in the GALI response between groups defined by socio-economic status or language are similar to those observed for other health indicators in Belgium such as self-perceived health.

The behaviour of the GALI response compared to other health indicators was as expected. In subjects without ADL limitation and without any reported mental disorders or chronic physical conditions the probability of reporting no long-standing activity limitations was very high. The added value of the single item GALI is its ability to identify subjects reporting long-standing activity limitations and who have either a mental or a chronic physical condition or both, even if they do not report ADL limitations. The proportion of any long-standing health related limitations or severe limitations, was lower in people with mental illness compared to subjects with chronic physical conditions or compared to people with both mental and physical health problems. There could be a number of reasons for this: contrary to physical health conditions, mental illness was defined through an instrument measuring mental mood rather than diagnosed mental diseases; the time reference of the mental health instrument was different to the time reference referred to in the GALI; it is possible that subjects with mental health conditions have fewer long-standing limitations compared to subjects with physical conditions; the activities the respondents were considering as "activities people usually do" were physical activities rather than activities such as reading, which require

more cognitive processing and concentration. Hence it may be that the GALI has lower ability to identify the presence of long-standing limitation in the presence of mental health problems solely.

The observed trend of more subjects reporting (severe) long-standing limitations by the chronic morbidity indicator is similar in the stratum of subjects with ADL limitations. As there were only 27 persons without any illness and 10 subjects with only mental health problems, the results of the GALI response in these subgroups should be viewed with caution. In people with ADL limitations, when both mental and physical health conditions were present, the ability to identify long-standing health related activity limitations through the GALI was 0.88 and more than half of these subjects reported themselves to be strongly limited. The POR of having limitations with respect to the composite morbidity indicator was substantially lower when ADL limitations were present. But over and above the effect of ADL-limitations on the GALI response outcome, the effect of having both mental and physical health problems on the GALI response remains substantial.

Independently of the composite morbidity indicator, about 19 % of all subjects with at least one ADL limitations did not perceived themselves to have long-standing limitations as reported by the GALI. Two percent of them had at least one severe ADL limitation. More than half of these subjects had limitations in transfer (either in-, out of bed or in-, out of chair) and one third had problems with dressing/undressing. The possible reasons for this apparent lack of ability of the GALI to identify these subjects as having long-standing limitations include: the lack of a time frame in the ADL questions; a possible process of adaptation: those with a long-term ADL limitation have gone through so that they do not consider themselves as restricted in what they can do; the survey used both a self administered questionnaire (including the GALI instrument) and a face-to-face questionnaire (including the ADL questions); the position of the GALI within the Minimum European Health, where the GALI is the last question following the question referring to long-standing illness and the latter may have a filtering effect. More detailed exploration of these issues is important as since at least one may suggest limitations of the GALI instrument.

A major concern in surveys is that it is not always evident whether observed differences in prevalence and associations are real or a result of differential understanding of concepts of a question and responses by different subgroups. With the exception of age and educational attainment in subjects without ADL limitations the GALI probability distribution as a function of the composite morbidity indicator behaved similarly cross gender and language groups. In those with ADL limitation the homogeneity of the GALI distribution was observed in all subgroups. However given the smaller number of subjects with ADL limitations in the sample, a lack of power cannot be excluded.

It could be argued that the construction of some of the indicators against which we evaluated the GALI is not optimal. For instance one could question that not all of the 29 chronic diseases and conditions in the composite morbidity indicator would necessarily under standard medical treatment lead to disability. To explore this, the analysis was repeated (data not shown) with selections of the diseases. First we excluded all conditions (hepatitis and other liver disorders, kidney stones, diabetes, thyroid disease, glaucoma, cataract, skin disease and uterine prolapse) which were, after adjustment for age and sex, not significantly associated with the presence of ADL limitations. For another analysis we excluded other conditions (allergy, high blood pressure, intestinal problems, other serious kidney diseases, migraine, gallstones and cholecystitis, prostate problems), which were no longer associated with ADL limitations after adjusting for co-morbidity. Both sets of analysis altered the response distributions somewhat but not the conclusions.

The GALI response in relation to indicators of physical limitations (ADL as assessed by severity or by number of limitations or from SF-36 physical domain), an indicator of chronic physical co-morbidity and to indicators of mental health indicates a consistent picture of the ability of the GALI to detect health related activity limitations. The proportion of subjects reporting no long-standing activity limitations on the GALI is high in those without physical limitation, in those without chronic physical conditions or in those without mental health problems. This probability drops rapidly when there are indications for physical limitations, chronic physical co-morbidity or mental health problems. The inverse is observed for the probability of a response “yes, strongly limited” to the GALI instrument. The probability of the response category “yes, limited” followed an intermediate course. Compared to the physical health indicators, the relation between the GALI and mental health indicators, especially the GHQ-12 score, is less clear since more than one-third of subjects with a high level of mental distress as indicated by the GHQ-12 score, reported no long-standing activity limitations. Does this mean that the GALI does not perform well? It is clear that there are clear differences in the time frames considered by respondents in the GHQ-12 (recent past) and the GALI (last six months) and that the GHQ-12 focuses on internal comparison. In addition, the behaviour of the GALI against the SCL-90R co-morbidity score was more in line with the results observed in relation to physical limitation indicators although 20 % of subjects with 4 mental conditions still reported no long-standing activity limitations.

Conclusion

This first evaluation of the GALI is promising and indicates the potential added value of a single item instrument including both physical and mental health related activity limitations. We have shown that the GALI performs appropriately against indicators measuring mental and physical indicators solely and appears to capture activity limitations as a result of either mental or physical problems, even in absence of ADL limitations. Subjects without ADL limitations and with no mental and no physical health problems do not report long-standing limitations. The GALI identifies subjects with ADL limitations and physical or both mental and physical health conditions. The observation that this ability is reduced in subjects with mental conditions or with mental distress, as well as in subjects with only ADL limitations indicates a possible limitation of the instruments which warrants further investigation.

Further evaluations of the GALI are necessary in different settings (general population and specific subpopulations with known health problems and disabilities) and languages. The use of vignettes and qualitative investigations, including cognitive testing, will lead to greater understanding of how different survey populations interpret the GALI and can be useful to confirm the content validity of the GALI as described in this paper. Furthermore the impact of the order of the GALI within the Minimum European Health module as well as test-retest reliability needs evaluation.

With its brevity, the GALI will be a useful adjunct to the self-perceived health question to capture global activity limitations in both health and non-health surveys.

Appendices A–D are available online at www.springerlink.com or www.birkhauser.com

Zusammenfassung

Erfassung von Behinderungen in der Bevölkerung: Evaluation eines neuen Global Activity Limitation Indicator (GALI)

Fragestellung: Der Global Activity Limitation Indicator (GALI), ein Single-item-Instrument, soll evaluiert werden. GALI dient dazu, langanhaltende, gesundheitsbedingte Einschränkungen der Aktivität im Vergleich zu diversen Gesundheitsindikatoren zu erfassen, d. h., im Vergleich zu: einem kompositen Morbiditätsindikator, zu Instrumenten zur Beurteilung der psychischen Gesundheit (SCL-90R, GHQ-12), physischer Komorbidität und physischer Beeinträchtigungen (ADLs, SF-36).

Methoden: Querschnittsdaten (n = 9168) des belgischen 2001-National Health Interview Survey wurden verwendet, um GALI mit anderen Gesundheitsindikatoren bezüglich Geschlecht, Alter, Ausbildungsstand und Sprache zu vergleichen.

Ergebnisse: Die Resultate des GALI waren einerseits mit denen anderer Indikatoren physischer Beeinträchtigungen vergleichbar (Limitations in Activities of Daily Living (by severity or number of limitations), the SF-36 physischer Bereich), andererseits mit jenen der Indikatoren für chronische physische Komorbidität und psychische Gesundheit. Die Wahrscheinlichkeit, das Fehlen von langanhaltenden Aktivitätseinschränkungen mit GALI zu erfassen war bei Personen ohne physische Einschränkungen oder psychischen Krankheiten erhöht. Diese Wahrscheinlichkeit nahm in dem Masse ab, in dem die Anzahl an Einschränkungen, physischer oder psychischer Erkrankungen zunahm.

Schlussfolgerungen: Im Vergleich zu anderen Gesundheitsindikatoren liefert GALI vergleichbare Resultate und scheint langanhaltende Aktivitätseinschränkungen zu erfassen, die im Zusammenhang stehen sowohl mit psychischen wie auch mit physischen Erkrankungen.

Résumé

Surveillance des handicaps dans la population : évaluation d'un nouvel indicateur global (Global Activity Limitation Indicator : GALI)

Objectifs : Evaluer le GALI (Global Activity Limitation Indicator): mesurer les limitations durables de l'activité en lien avec l'état de santé; comparer ces mesures avec un indicateur de morbidité composite, ainsi qu'avec des instruments mesurant la santé mentale (SCL-90R, GHQ-12), les co-morbidités physiques et les restrictions physique (AVQ, SF-36).

Méthodes : Les données (n = 9168) de l'Enquête Nationale sur la Santé en Belgique (2001) ont été utilisées afin de comparer les réponses au GALI avec d'autres indicateurs de santé. Ces réponses ont été comparées selon le sexe, l'âge, l'éducation et la langue.

Résultats : Les réponses au GALI ont été similaires aux réponses obtenues par d'autres indicateurs de limitations physiques (Limitations des activités de la vie quotidienne (par degré de sévérité ou par nombre de limitations), aspects physiques du SF-36). Elles ont également été similaires à un indicateur de co-morbidité physique chronique et à des indicateurs de santé mentale. La probabilité de mentionner dans le GALI une absence de limitation durable de l'activité était élevée chez les sujets ne présentant ni limitation physique, ni trouble mental ou physique. Cette probabilité diminuait soit en fonction de l'augmentation de la sévérité ou du nombre de limitations physiques, soit en fonction du nombre de troubles physiques ou mentaux.

Conclusions : Comparé à d'autres indicateurs de santé, le GALI est un bon indicateur. Il paraît refléter les limitations durables de l'activité physique associées aussi bien avec les troubles mentaux que physiques.

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Address for correspondence

H Van Oyen
Unit of Epidemiology
Scientific Institute of Public Health
J. Wytsmanstraat 14
1050 Brussels, Belgium
e-Mail: h.vanoyen@iph.fgov.be
Tel: +32 2 642 5037
Fax: +32 2 642 5410