

## Standardized general-purpose noise reaction questions

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### ABSTRACT

In 2001 the ICBEN Team 6 published a recommendation for a set of standardized general-purpose noise reaction questions for community noise surveys. These questions and the accompanying response scales have now been translated into 17 different languages (known to the author). An overview of existing ICBEN survey questions and scales will be presented together with a recommendation and method for constructing questions and scales in new languages.

### INTRODUCTION

One of the first serious attempts to combine and compare results from different social surveys on noise annoyance was published by T Schultz in 1978 [1]. Schultz commented that a major obstacle in doing this synthesis was the lack of standardization. Each survey had been conducted using different annoyance questions and different response scales. Even the translation of the scales from a foreign language was not trivial, and could not be based solely on a simple dictionary interpretation.

Several authors subsequently tried to repeat Schultz' analysis, adding new studies and new prerequisites for their work. However, due to differences in study design, different questionnaires, different use of noise indices, etc. these analyses left a number of unsolved questions.

In 2001 the ICBEN Team 6 – Community response to noise – presented the results from an international study group [2]. They recommended that two standardized general-purpose noise reaction questions should be included in community noise surveys in order to facilitate comparisons between different surveys. In these two questions the noise was assessed on an 11-point numerical scale and on a 5-point verbal scale. The scale points of the verbal scale were described by modifiers covering the whole range of annoyance from not at all annoyed to the most extreme annoyance one could imagine.

The exact location at which the annoyance assessment in a survey had been made was often unclear. The ICBEN Team recommended not to use "indoor" or "outdoor", but simply use the phrase "at home" which in English can be interpreted as "inside the residence and outside in the immediate vicinity of the residence" such as in the garden, on a balcony or terrace, on the front porch, etc.

The questions and the verbal scale were initially published in nine different languages [2]. The translation of the questions was done in a forward-backward process; first from English to the

relevant language by one team of linguistic experts and secondly back into English by an other team in order to confirm that the exact meaning had been correctly maintained. The phrase "at home" was given special consideration to make sure that the inside-outside issue was correctly reproduced.

### The ICBEN scale

The construction of the verbal scales was done according to a detailed protocol. A team of respondents having the relevant language as their mother tongue participated. In short their task was as follows: from a set of 21 different modifiers, preselected to cover the whole range from not at all annoyed to the most severe annoyance one could think of, they should assign each modifier an intensity score on the annoyance scale, and pick their preferred modifier to represent each of the scale points on the 5-point scale.

In the subsequent data analysis the resulting list of modifiers was finally established on the basis of the mean intensity score, the intensity score standard deviation, and the net preference score. The net preference score is the difference between the percentage of the test persons preferring the word for a specific scale point position and the percentage that prefer a different position. The procedure is outlined in detail in the test protocol.

Following the procedure given in the initial publication new authors have published similar annoyance questions scales in several other languages: Polish [3], Danish [4], Portuguese – Brazilian [5], Romanian [6], Chinese, Korean and Vietnamese [7]. An ICBEN scale has also been constructed in Thai by Krittika Lertsawat, but this study has not yet been published.

### The ICBEN scale in different languages

	1	2	3	4	5
English	not at all	slightly	moderately	very	extremely
Dutch	helemaal niet	een beetje	tamelijk	erg	extreem
French	pas du tout	légèrement	moyennement	beaucoup	extrêmement
German	überhaupt nicht	etwas	mittelmässig	stark	äusserst
Hungarian	egyáltalán nem	kissé	közepesen	naqyon	rettenetesen
Japanese	mattakunai	sorehodonai	tashô	daibu	hijôni
Norwegian	ikke	litt	ganske	mye	voldsomt
Spanish	absolutamente nada	ligeramente	medianamente	muy	extremadamente
Turkish	hiç değil	hafifçe	orta derecede	çok	şekilde
Polish	wcale nie	mało	średnio	bardzo	skrajnie
Danish	slet ikke	lettere	moderat	kraftigt	ekstermt
Portuguese - Brazilian	nada	algo	medianamente	muito	extremamente
Romanian	absolut deloc	putin	nici mult, nici putin	mult	extrem

<b>Chinese</b>	<b>yi dian ye bu</b>	<b>yi dian dian</b>	<b>zhong deng</b>	<b>fei chang</b>	<b>ji du</b>
<b>Simplified</b>	一点也不	一点点	中等	非常	极度
<b>Traditional</b>	一點也不	一點點	中等	非常	極度
<b>Korean</b>	<b>junhyia</b>	<b>jogum</b>	<b>jebupp</b>	<b>meu</b>	<b>umchungnage</b>
<b>Vietnamese</b>	<b>hoan toan khong on</b>	<b>on mot phan nao</b>	<b>khong qua on</b>	<b>on nhieu</b>	<b>cuc on</b>
<b>Thai</b>	ไม่รบกวน/ ไม่ทำให้รำคาญเลย	รบกวนเล็กน้อย/ ทำให้รำคาญเล็กน้อย	รบกวนพอสมควร/ ทำให้รำคาญพอสมควร	รบกวนอย่างมาก/ ทำให้รำคาญอย่างมาก	รบกวนอย่างมากที่สุด/ ทำให้รำคาญอย่างมากที่สุด

## RECOMMENDED QUESTIONS FOR VERBAL AND NUMERICAL ASSESSMENT OF ANNOYANCE

### English

Thinking about the last (..12 months or so..), when you are here at home, how much does noise from (..noise source..) bother, disturb, or annoy you; Extremely, Very, Moderately, Slightly or Not at all?

Next is a zero to ten opinion scale for how much (..source..) noise bothers, disturbs or annoys you when you are here at home. If you are not at all annoyed choose zero, if you are extremely annoyed choose ten, if you are somewhere in between choose a number between zero and ten.

Thinking about the last (..12 months or so..), what number from zero to ten best shows how much you are bothered, disturbed, or annoyed by (..source..) noise?

### Dutch

Wanneer u denkt aan de afgelopen (...12 maanden of zo.), in welke mate stoort of hinder het geluid van (..geluidbron...) u als u hier, bij u thuis bent; extreem, erg, tamelijk, een beetje of helemaal niet?

Hier is een schaal van nul tot tien waarop u kunt aangeven in welke mate geluid u stoort of hindert als u hier thuis bent. Als u helemaal niet gehinderd wordt kiest u de nul, als u extreem gehinderd wordt kiest u de tien. Als u daar ergens tussenin zit, kiest u een getal tussen nul en tien.

Als u denkt aan de afgelopen (..12 maanden of zo..), welk getal van nul tot tien geeft het beste aan in welke mate u gestoord of gehinderd wordt door geluid van (..geluidbron...) als u hier thuis bent?

## French

Si vous pensez aux (..douze derniers mois..), quand vous êtes ici, chez vous, le bruit de (..source..) vous gêne-t-il: extrêmement, beaucoup, moyennement, légèrement, pas du tout?

Voici une échelle d'opinion graduée de zero à dix. Vous devez noter sur cette échelle la façon dont le bruit de (...source..) vous gêne lorsque vous êtes ici, chez vous: notez zero si le bruit ne vous gêne (ne pas du tout) et notez dix si le bruit vous gêne extrêmement. Si vous êtes entre ces deux situations, choisissez une note intermédiaire entre zero et dix.

Maintenant, si vous pensez aux (..douze derniers mois..), quand vous êtes ici, chez vous, quelle note comprise entre zero et dix exprime le mieux à la façon dont le bruit de (..source..) vous gêne?

## German

Wenn Sie einmal an die letzten (..12 Monate..) hier bei Ihnen denken, wie stark haben Sie sich durch Lärm von (..Quelle..) insgesamt gestört oder belästigt gefühlt: Äußerst, stark, mittelmäßig, etwas, oder überhaupt nicht?

Ich habe hier eine Messlatte von Null bis Zehn, auf der Sie angeben können, wie sehr Sie der Lärm von (..Quelle..) insgesamt gestört oder belästigt hat. Wenn Sie sich äußerst gestört oder belästigt fühlten, wählen Sie die Zehn, wenn Sie sich überhaupt nicht gestört oder belästigt fühlten, geben Sie bitte die Null an, und wenn Sie irgendwo dazwischen liegen, wählen Sie eine Zahl zwischen Null und Zehn.

Wenn Sie nun an die letzten (..12 Monate..) hier bei Ihnen denken, welche Zahl zwischen Null und Zehn gibt am besten an, wie stark Sie sich durch den Lärm von (..Quelle..) insgesamt gestört oder belästigt fühlten?

## Hungarian

Tekintve az utóbbi (..időszakot, 1 évet..) mennyire zavarja Önt a (..zajforrás...) zaja, amikor otthon tartózkodik: rettenetesen, nagyon, közepesen, kissé vagy egyáltalán nem.?

Képzeld el egy 0-tól 10-ig terjedő skálát arról, hogy érzése szerint mennyire zavarja Önt a (..zajforrás..) zaja, amikor otthon tartózkodik. Ha egyáltalán nem zavarja, válassza a 0-t, ha rettenetesen zavarja, válassza a 10-et, ha pedig a kettő közötti mértékben zavarja, válasszon egy megfelelő számot 0 és 10 között. Tekintve az utóbbi (..időszakot, 1 évet..) milyen 0-10 közötti számmal jellemezné azt, hogy a (..zajforrás..) zaja mennyire zavarja Önt?

## Japanese

Kako (..12 ka getsu kurai..) wo furikaette, anata wa jitaku de (..sōon gen wo ireru..) karano sōon de dono teido nayamasareru, aruiwa, jamasareru, urusai to kanjiru deshōka: hijōni, daibu, tashō, sorehodonai, mattakunai?

Tsugi wa, anata ga jitaku de (..sôon gen wo ireru..) karano sôon de dono teido nayamasareru, aruiwa, jamasareru, urusai to kanjiru ka wo shimesu tame no 0 kara 10 made no sôji de arawashita shakudo desu. Moshi, anata ga mattaku urusaku nai to kanjiru nara 0 wo erande kudasai. Hijôni urusai to kanjiru nara 10 wo erande kudasai. Moshi, sono teido ga korera no aida no dokoka ni areba, 0 kara 10 made no sôji no uchi tekito na mono wo erande kudasai. Kako (..12 ka getsu kurai..) wo furikaette, anata ga (..sôon gen wo ireru..) karano sôon de nayamasaretari, aruiwa, jamasaretari, urusai to kanjiru teido wo mottomo yoku arawasu no wa 0 kara 10 made no dono sôji deshôka?

## Norwegian

Tenk etter på støysituasjonen de siste (..12 månedene..). Hvor plaget er du av støy fra (..støykilde..) når du er hjemme? Er du voldsomt plaget, mye plaget, ganske plaget, litt plaget, ikke plaget.?

Angi på en skala fra null til ti hvor plaget du er av støy fra (..støykilde..) når du er hjemme. Hvis du ikke er plaget, velger du null. Hvis du er voldsomt plaget, velger du ti. Hvis du vurderer støyplogen mellom disse grensene, velger du et tall mellom null og ti. Tenk etter på støysituasjonen de siste (..12 månedene..). Hvilket tall mellom null og ti angir hvor plaget du er av støy fra (..støykilde..) når du er hjemme?

## Spanish

Tomando en consideración los últimos (..12 meses..), indique Vd. en qué cuantía le molesta o perturba el ruido producido por (..indicar la fuente de ruido..) cuando se encuentra en su casa: extremadamente, muy, medianamente, ligeramente, absolutamente nada.

A continuación se da una escala de opinión de cero a diez para que Vd. pueda expresar en qué cuantía le molesta o perturba el ruido producido por (..indicar la fuente de ruido..) cuando se encuentra en su casa. Por ejemplo, si Vd. está "absolutamente nada" molesto por el ruido debería escoger el cero, y si Vd. está "extremadamente" molesto debería escoger el diez. Tomando en consideración los últimos (..12 meses..), indique qué número desde el cero al diez expresa mejor la cuantía en que Vd. está molesto o perturbado por el ruido producido por (..indicar la fuente de ruido..).

## Turkish

Yaklaşık son (..12 ayı..) düşündüğünüzde, (..gürültü kaynağından..) gelen gürültü , burada evinizdeyken sizi ne kadar rahatsız etmektedir? Feci şekilde, çok,orta derecede, hafifçe, hiç değil?

Şimdi, burada evinizdeyken (..kaynak..) gürültüsünün sizi ne kadar rahatsız ettiğini "sıfır" ile "on" arasında sayılarla gösteren bir görüş (veya kanaat) ölçeği verilmektedir. Eğer hiç rahatsız değilseniz "sıfır" ı seçiniz, eğer feci şekilde rahatsız iseniz "on"u seçiniz, bunların arasında iseniz "sıfır" ile "on" arasında bir sayı seçiniz. Yaklaşık son (..12 ayı..) düşünerek (..kaynak..) gürültüsünden olan rahatsızlığınızı "sıfır"dan "on"a kadar hangi sayı en iyi gösterir?

## Polish

Myśląc o ostatnich (..12 miesiącach lub podobnym okresie..), kiedy był(a) Pan/Pani w domu, proszę odpowiedzieć, jak bardzo hałas z (..nazwa źródła..) przeszkadzał irytował, dokuczał Panu/Pani: skrajnie, bardzo, średnio, mało, wcale?

Prezentuję Panu/Pani skalę liczbową od 0 do 10 dla wyrażenia opinii jak bardzo (źródło hałasu) hałas przeszkadza, irytuje lub dokucza, gdy jest Pan/Pani w domu. Jeśli nie dokucza Pani/Panu hałas wcale proszę wybrać 0, jeśli dokucza ekstremalnie proszę wybrać 10, jeśli dokucza w sposób „pomiędzy” proszę wybrać liczbę pomiędzy 0 i 10.

Myśląc o ostatnich (..12 miesiącach lub podobnym okresie..) jaka liczba od 0 do 10 najlepiej opisuje jak bardzo przeszkadzający, irytujący, dokuczliwy był hałas pochodzący od (..nazwa źródła hałasu)?

## Danish

Hvis du tænker på de seneste (ca 12 måneder), hvor forstyrret eller generet er du så af støj fra (støjkilde), når du er herhjemme? – Slet ikke generet?, Lettere generet?, Moderat generet?, Kraftigt generet?, Ekstremt generet?

I det følgende/i det næste spørgsmål/nu benyttes en skala fra 0 til 10 for, hvor meget støj generer dig, når du er herhjemme. Hvis du slet ikke føler dig generet, vælg 0; hvis du føler dig ekstremt generet, vælg 10; hvis du ligger et sted der imellem, vælg et tal mellem 0 og 10. Hvis du tænker på de seneste (ca 12 måneder), hvor meget føler du dig så generet af støj fra (kilde), når du er herhjemme?

## Romanian

Luând în considerare ultimele 12 luni, pe perioada cât ați fost acasă, cât de mult v-a deranjat, perturbat sau creat un disconfort zgomotul produs de (sursa). Extrem, mult, nici mult nici puțin, puțin, absolut deloc ?

La următoarea întrebare, notați pe o scală de la 0 la 10 cât de mult v-a deranjat, perturbat sau creat un disconfort zgomotul produs de (sursa) pe perioada cât ați fost acasă. Dacă nu v-a creat deloc un disconfort alegeți 0, dacă v-a creat un disconfort extrem alegeți 10, iar dacă sunteți undeva între aceste două variante alegeți un număr între 0 și 10.

Gândindu-vă la ultimele 12 luni, ce număr de la 0 la 10 indică cel mai bine cât de mult v-a deranjat, perturbat sau creat un disconfort zgomotul produs de (sursa)?

## Chinese (Pinin)

Hui xiang guo qu (12 ge yue zuo you) de shi jian li, dang nin zai jia zhong shi, (mou zhong) zao sheng zai duo da cheng du shang da rao, gan rao huo fan rao nin : te bie, xiang dang, bi jiao, hao xiang you dian, yi dian ye bu?

Xia mian cong 0 dao 10 de shu zi chi du yong yu biao shi dang nin zai jia zhong shi, (mou zhong) zao sheng da rao, gan rao huo fan rao nin de cheng du. Ru guo nin yi dian ye bu gan dao fan rao jiu xuan ze 0, ru guo nin gan dao te bie fan rao jiu xuan ze 10, ru guo nin de gan jue zai liang zhe zhi jian jiu cong 0 dao 10 de shu zi zhong xuan ze yi ge qia dang de shu zi lai biao shi nin shou fan rao de cheng du. Hui xiang guo qu (12 ge yue zuo you) de shi jian li, na ge shu zi neng zui hao di biao shi dang nin zai jia zhong shi, (mou zhong) zao sheng da rao, gan rao huo fan rao nin de cheng du?

## **Korean**

Jinan (sip-igaewol jeongdo)reul saenggak haebomyeon, dangsin-iyegi jip-e it-neun dongan, (soeumwon)eurobuteo balsaengan soeum-idangsineul eolmana sin-gyeong sseu-i-go, banghaedoego, seong-gasige hat-seupnikka; eomcheongnage, mae-u, bigyojeok, jokeum, jeonhyeo geu-reot-ji anta?

Daeumeun (soeumwon) soeum-i dangsin-i yeogi jip-e it-neun dongan dangsineul eolmana sin-gyeong sseu-i-go, banghaedoego, seong-gasige hat-nuenji-e daehan yeong-e-seo sip-kkajieui pyeongga danwi-e daehan geosida. Manyak dangsin-i jeonhyeo seong-gasiji anta-myun yeong-eul seontaekhago, manyak dangsin-i eomcheongnage seonggasidamyun sip-eul seontaekhamyeo, manyak dangsin-i geu sa-i eodinga-e it-damyun yeong-e-seo sip sa-i-eui sut-jareul seontaekhasi-o. Jinan (sip-i gaewol jeongdo)reul saenggak haebomyeon, yeong-e-seo sipkkajieui eo-tteon sut-jaga dangsin-i (soeumwon) soeum eurobuteo sin-gyeong sseu-i-go, banghaedoego, seong-gasinji-reul gajang jal nata-naeneunji sangkak haebosi-o.

## **Vietnamese**

Trong 1 tháng qua, những yếu tố dưới đây làm phiền anh(chị) hoặc gây khó chịu cho anh(chị) ở mức độ nào khi anh(chị) ở nhà? Tiếng ồn từ (...nguồn ồn...): Hoàn toàn không, Một phần nào, Không quá mức, Nhiều, Cực kỳ

Trong khoảng 12 tháng qua, tiếng ồn từ (...nguồn ồn...) đã làm phiền anh(chị), gây khó chịu cho anh(chị) ở mức độ nào? Mức độ ồn ào khó chịu sẽ được thể hiện trên thang số từ 0 đến 10. Nếu anh(chị) hoàn toàn không cảm thấy ồn ào khó chịu thì chọn số 0. Nếu anh(chị) cảm thấy cực kỳ ồn ào khó chịu bạn hãy chọn số 10. Nếu ở mức độ khác, xin anh(chị) hãy thể hiện mức độ đó bằng cách chọn một chữ số tương ứng trong khoảng số từ 0 đến 10. Xin hãy khoanh tròn con số anh(chị) chọn.

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