**ITEM EVALUATION IN THE EA-QOL©-FIELD TEST VERSION**

Similar to the pilot test of the EA-QOL©-questionnaires (1), evaluations of items in the field test versions in this study were based on the predefined following criteria. Item inclusion was supported by an item ability to distinguish between patients with mild-to-moderate and severe esophageal atresia (EA)/tracheoesophageal fistula (TEF) according to the definition in Figure (1), which were demonstrated by a significant difference in item ratings between the two groups mild-to-moderate and severe EA/TEF (p< 0.05). Item inclusion were also supported by cross-cultural clinical expertise regarding the item to be of meaningful clinical importance to patients. Item deletion was supported by item skewness or kurtosis> 2.0, item missing proportion>5% and moreover, for each hypothesized domain, internal consistency as indicated by Cronbach’s alpha coefficient ≥0.7 and an item-total correlation ≥0.3 was expected. Item deletion that increased alpha by at least 0.02 supported deletion. Repeated item problems compared to the pilot study supported deletion as well.

In the EA-QOL©-field test version for children aged 8-17 years old, items which fulfilled criteria in both child-and parent-report strengthened reasons for inclusion or exclusion.

If the items fulfilled at least one criteria supporting rejection, expert consensus by the multidisciplinary author group was used for decision on inclusion or rejection.

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| Figure. One or more of the criteria I-IV were used for inclusion as severe esophageal atresia/tracheoesophageal fistula |
| 1. Delayed primary anastomosis or esophageal replacement |
| 1. Major surgical revision following primary repair (e.g. recurrent fistula, anastomotic leakage) |
| 1. Severe tracheomalacia/tracheobronchomalacia based on findings from a flexible bronchoscopy to have an anteroposterior collapse during coughing and expiration documented as ≥75%, excessive and/or severe\* |
| 1. Presence of associated congenital condition causing disability, defined according to the World Health Organization, as problems in body function or structure as a significant deviation or loss, activity limitations or participation restrictions |
| *\*At both centers, esophageal atresia/tracheoesophageal fistula children undergo bronchoscopy preoperatively in theatre and/or in follow-up care* |

**Reference**

1 Dellenmark-Blom M, Abrahamsson K, Quitmann JH, et al. Development and pilot-testing of a condition-specific instrument to assess the quality-of-life in children and adolescents born with esophageal atresia. Dis Esophagus 2017;30(7):1-9.

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| **THE EA-QOL©-QUESTIONNAIRE FIELD TEST VERSION FOR CHILDREN 2-7 YEARS OLD (PARENT-REPORT). DESCISCION ON REJECTION MARKED WITH RED COLOR.** | | | | | | | | | | | |
|  | **Missing items No. (%)** | **Mean** | **SD** | **Skewness** | **Kurtosis** | **Min/max** | **Clinical item sensitivity (p<0.05)** | **Clinically important (expert consensus)** | **Cronbach’s alpha increases >0.02 when item is deleted** | **Item total correlation <0.3** | **If, item rejected, comments** |
| **EATING** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Is it hard for your child to eat because food sticks in his/her throat? | 2(3.8) | 3.8 | 1.1 | -1.0 | 0.9 | 1/5 |  | Clinically important |  |  |  |
| 1. Is it difficult for your child to eat a full meal? | 1(1.9) | 3.7 | 1.4 | -0.8 | -0.7 | 1/5 |  |  |  |  |  |
| 1. Does eating stress your child? | 1(1.9) | 4.1 | 1.2 | -1.2 | 0.5 | 1/5 |  |  |  |  |  |
| 1. Can your child eat at the pace he/she wants? | 1(1.9) | 4.0 | 1.2 | -1.4 | 0.9 | 1/5 |  |  |  | Yes |  |
| 1. Is your child worried when he/she chokes on food? | 1(1.9) | 3.9 | 1.2 | -0.9 | -1.1 | 1/5 |  |  |  |  |  |
| 1. Does your child avoid eating because he/she is afraid of choking? | 1(1.9) | 4.6 | 0.9 | -2.5 | 6.1 | 1/5 | Lower in children with severe EA |  |  |  | Rejected due to both very high skewness and kurtosis |
| 1. Is it a problem for your child that he/she vomits? | 1(1.9) | 4.2 | 1.0 | -1.1 | 0.9 | 1/5 |  | Clinically important |  | Yes |  |
| 1. Is it a problem for your child to eat food at a party or when he/she is out with friends? | 0(0) | 4.1 | 1.3 | -1.3 | 0.5 | 1/5 | Lower in children with severe EA |  |  |  |  |
| **PHYSICAL HEALTH & TREATMENT** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Does your child get tired easily when he/she plays games or sports? | 0(0) | 3.8 | 1.2 | -0.7 | -0.6 | 1/5 |  |  |  |  |  |
| 1. Does your child have less strength than other children during physically demanding activities? | 0(0) | 3.5 | 1.3 | -0.4 | -1.0 | 1/5 |  |  |  |  |  |
| 1. Are your child bothered by respiratory problems (e.g. coughing, phlegm, or difficulty breathing)? | 0(0) | 3.1 | 1.2 | 0.1 | -0.9 | 1/5 |  | Clinically important |  |  |  |
| 1. Is it a problem for your child that he/she gets respiratory infections easily? | 1(1.9) | 3.1 | 1.4 | 0.02 | -1.2 | 1/5 |  |  |  |  |  |
| 1. Does your child hate taking medicine? | 0(0) | 3.7 | 1.2 | -0.7 | -0.2 | 1/5 |  |  |  |  |  |
| 1. Does your child's health condition make it difficult for your child to sleep at night? | 1(1.9) | 3.9 | 1.2 | -0.9 | 0.7 | 1/5 |  |  |  |  |  |
| **SOCIAL ISOLATION & STRESS** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Is it a problem for your child that his/her health condition involves absence from preschool/school? | 4(7.5) | 4.0 | 1.2 | -1,1 | 0.2 | 1/5 |  |  |  |  |  |
| 1. Is it hard for your child to explain to others what he/she can and cannot do? | 4(7.5) | 4.2 | 1.2 | -1.2 | 0.1 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Does it bother your child that people make comments about him/her? | 3(5.6) | 4.2 | 1.0 | -1.0 | -0.2 | 2/5 |  |  |  |  |  |
| 1. Does it bother your child that people get frightened when your child makes noise (e.g. breathing, clearing his/her throat, coughing, running)? | 2(3.8) | 4.2 | 0.9 | -0.8 | -0.4 | 2/5 |  | Clinically important |  |  |  |

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| **THE EA-QOL©-QUESTIONNAIRE FIELD TEST VERSION FOR CHILDREN 8-17 YEARS OLD (CHILD-REPORT). DESCISCION ON REJECTION MARKED WITH RED COLOR.** | | | | | | | | | | | |
|  | **Missing items No. (%)** | **Mean** | **SD** | **Skewness** | **Kurtosis** | **Min/Max** | **Clinical item sensitivity (p<0.05)** | **Clinically important (expert consensus)** | **Cronbach’s alpha increases >0.02 when item is deleted** | **Item total correlation < 0.3** | **If, item rejected, comments** |
| **EATING** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel it is a problem that food get stuck in your throat when you eat? | 2(3.2) | 3.8 | 1.1 | -0,4 | -1.0 | 1/5 |  | Clinically important |  |  |  |
| 1. Does your health condition restrict you from eating any food? | 2(3.2) | 4.3 | 1.0 | -1.5 | 1.4 | 1/5 |  |  |  |  |  |
| 1. Do you get any pain when you eat because of your health condition? (e.g. when food sticks in your throat, heartburn, stomach ache)? | 2(3.2) | 4.1 | 1.1 | -0.8 | -0.5 | 1/5 |  | Clinically important |  |  |  |
| 1. Do you need to think of drinking a lot when you eat? | 2(3.2) | 3.1 | 1.7 | -0.1 | -1.7 | 1/5 |  | Clinically important |  |  |  |
| 1. Are you afraid when you choke? | 3(4.8) | 3.9 | 1.4 | -0.9 | -0.6 | 1/5 |  |  |  |  |  |
| 1. Does choking make it hard for you to eat? | 3(4.8) | 4.4 | 1.0 | -1.7 | 2.6 | 1/5 | Lower in children with severe EA | Clinically important |  |  |  |
| 1. Can you eat at the pace as children your age? | 2(3.2) | 3.3 | 1.5 | -0.3 | -1.4 | 1/5 |  |  |  |  |  |
| 1. Is it a problem that you vomit after eating? | 2(3.2) | 4.5 | 0.9 | -1.7 | 2.1 | 2/5 | Lower in children with severe EA |  |  |  |  |
| **SOCIAL RELATIONSHIPS** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel like the only one who was born with esophageal atresia? | 0(0) | 3.3 | 1.6 | -0.3 | -1.4 | 1/5 |  |  |  | Yes |  |
| 1. Is it complicated to explain to others what esophageal atresia is? | 0(0) | 3.5 | 1.4 | -0.5 | -1.0 | 1/5 |  |  |  |  |  |
| 1. Do others call you names (e.g. because you are small, have an unusual cough, eat slowly, or because you have a surgical scar)? | 0(0) | 4.5 | 0.8 | -1.3 | 0,8 | 2/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do you feel that others are staring at you (e.g. when coughing, choking, dressing in the locker room)? | 0(0) | 4.4 | 0.9 | -1.7 | 2.5 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do you get tired of people asking about the scar/scars? | 0(0) | 4.0 | 1.2 | -1.0 | 0 | 1/5 |  |  |  |  |  |
| 1. Do others say mean things about you? | 0(0) | 4.7 | 0.7 | -2.3 | 4.9 | 2/5 | Lower in children with severe EA |  |  |  |  |
| 1. Is it easy for you to fit among children your age? | 0(0) | 4.2 | 1.3 | -1.5 | 1.2 | 1/5 |  |  | Yes, increases by 0.109 | Yes | Reject, poor internal reliability with the same problem in the parent-report |
| 1. Does it feel awkward when others ask you about esophageal atresia? | 0(0) | 3.9 | 1.2 | -0.9 | 0.1 | 1/5 | Lower in children with severe EA |  |  |  |  |
| **BODY PERCEPTION** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel different because you have scars? | 0(0) | 4.0 | 1.2 | -0.9 | -0.1 | 1/5 |  |  |  |  |  |
| 1. Are you careful about what you wear because of your scar /scars? | 0(0) | 4.5 | 1.0 | -2.3 | 4.9 | 1/5 |  |  |  |  |  |
| 1. Do you feel awkward when your scar/scars are visible to others (e.g. new people, partner, people in the locker room, or in the swimming pool)? | 0(0) | 4.2 | 1.1 | -1.4 | 1.2 | 1/5 |  |  |  |  |  |
| 1. Do you feel that you are not perfect because you have scars? | 0(0) | 4.5 | 1.0 | -2.3 | 4.8 | 1/5 |  |  |  |  |  |
| 1. Is it a problem for you that are smaller than children your age? | 1(1.6) | 4.3 | 1.1 | -1.5 | 1.5 | 1/5 |  | Clinically important | Yes, increases by 0.033 |  |  |
| **PHYSICAL HEALTH & WELL-BEING** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you have the strength to play sports (e.g. running, playing football) and play as other children your age? | 0(0) | 2.0 | 1.2 | 1.0 | -0.02 | 1/5 |  | Clinically important | Yes, increases by 0.32 | Yes | Reject, poor internal reliability with the same problem in the parent-report |
| 1. Are you bothered by breathing difficulties if you exercise and play? | 1(1.6) | 3.8 | 1.1 | -0.4 | -0.7 | 1/5 | Lower in children with severe EA |  |  | Yes |  |
| 1. Do you have trouble sleeping at night because of your health condition (e.g. acid reflux, heartburn, or respiratory problems)? | 0(0) | 4.1 | 1.2 | -1.1 | 0.1 | 1/5 |  |  |  |  |  |
| 1. Are you worried about your future because of esophageal atresia? (e.g. school, friends, partner, work) | 0(0) | 4.5 | 1.0 | -2.1 | 3.8 | 1/5 |  | Clinically important |  |  |  |
| 1. Does esophageal atresia make you sad? | 0(0) | 4.5 | 0.8 | -2.1 | 5.0 | 1/5 |  |  |  |  |  |

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| **THE EA-QOL©-QUESTIONNAIRE FIELD TEST VERSION FOR CHILDREN 8-17 YEARS OLD (PARENT-REPORT). DESCISCION ON REJECTION MARKED WITH RED COLOR.** | | | | | | | | | | | |
|  | **Missing items No. (%)** | **Mean** | **SD** | **Skewness** | **Kurtosis** | **Min/Max** | **Clinical item sensitivity (p<0.05)** | **Clinically important (expert consensus)** | **Cronbach’s alpha increases >0.02 when item is deleted** | **Item total correlation < 0.3** | **If, item rejected, comments** |
| **EATING** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel it is a problem that food get stuck in your throat when you eat? | 4(5.6) | 3.8 | 1.3 | -0.7 | -0.7 | 1/5 | Lower in children with severe EA | Clinically important |  |  |  |
| 1. Does your health condition restrict you from eating any food? | 3(4.2) | 3.9 | 1.3 | -1.1 | 0.1 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do you get any pain when you eat because of your health condition? (e.g. when food sticks in your throat, heartburn, stomach ache)? | 3(4.2) | 4.2 | 1.0 | -1.0 | 0.0 | 2/5 | Lower in children with severe EA | Clinically important |  |  |  |
| 1. Do you need to think of drinking a lot when you eat? | 4(5.6) | 3.2 | 1.6 | -0.2 | -1.5 | 1/5 |  | Clinically important |  |  |  |
| 1. Are you afraid when you choke? | 4(5.6) | 4.0 | 1.3 | -1.0 | -0.2 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Does choking make it hard for you to eat? | 4(5.6) | 4.1 | 1.2 | -1.3 | 0.7 | 1/5 | Lower in children with severe EA | Clinically important |  |  |  |
| 1. Can you eat at the pace as children your age? | 4(5.6) | 3.4 | 1.5 | -0.4 | -1.4 | 1/5 |  |  |  |  |  |
| 1. Is it a problem that you vomit after eating? | 4(5.6) | 4.5 | 0.9 | -2.0 | 4.3 | 1/5 | Lower in children with severe EA |  |  |  |  |
| **SOCIAL RELATIONSHIPS** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel like the only one who was born with esophageal atresia? | 4(5.6) | 3.6 | 1.5 | -0.6 | -1.1 | 1/5 |  |  |  |  |  |
| 1. Is it complicated to explain to others what esophageal atresia is? | 4(5.6) | 3.6 | 1.4 | -0.5 | -1.0 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do others call you names (e.g. because you are small, have an unusual cough, eat slowly, or because you have a surgical scar)? | 3(4.2) | 4.4 | 0.8 | -1.4 | 1.1 | 2/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do you feel that others are staring at you (e.g. when coughing, choking, dressing in the locker room)? | 3(4.2) | 4.2 | 0.9 | -0.8 | -0.5 | 2/5 |  |  |  |  |  |
| 1. Do you get tired of people asking about the scar/scars? | 3(4.2) | 4.3 | 1.0 | -1.5 | 1.6 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do others say mean things about you? | 4(5.6) | 4.6 | 0.7 | -1.8 | 3.1 | 2/5 | Lower in children with severe EA |  |  |  |  |
| 1. Is it easy for you to fit among children your age? | 2(2.8) | 4.0 | 1.3 | -1.1 | 0.2 | 1/5 |  |  | Yes, increases by o.034 | Yes | Reject, poor internal reliability with the same problem in the child-report. Question may be misleading. |
| 1. Does it feel awkward when others ask you about esophageal atresia? | 3(4.2) | 4.0 | 1.2 | -1.2 | 0.7 | 1/5 |  |  |  |  |  |
| **BODY PERCEPTION** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you feel different because you have scars? | 4(5.6) | 4.1 | 1.0 | -1.2 | 1.2 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Are you careful about what you wear because of your scar /scars? | 3(4.2) | 4.4 | 0.9 | -1.6 | 2.5 | 1/5 |  |  |  |  |  |
| 1. Do you feel awkward when your scar/scars are visible to others (e.g. new people, partner, people in the locker room, or in the swimming pool)? | 3(4.2) | 4.2 | 1.0 | -1.5 | 1.6 | 1/5 |  |  |  |  |  |
| 1. Do you feel that you are not perfect because you have scars? | 5(7.0) | 4.4 | 0.9 | -1.7 | 2.9 | 1/5 |  |  |  |  |  |
| 1. Is it a problem for you that are smaller than children your age? | 5(7.0) | 4.2 | 1.2 | -1.2 | 0.5 | 1/5 |  | Clinically important | Yes, increases by o.042 |  |  |
| **PHYSICAL HEALTH & WELL-BEING** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Do you have the strength to play sports (e.g. running, playing football) and play as other children your age? | 3(4.2) | 2.3 | 1.3 | 0.6 | -0.9 | 1/5 | Higher in children with severe EA | Clinically important | Yes, increases by o.409 | Yes | Reject, poor internal reliability with the same problem in the child-report. Question may be misleading. |
| 1. Are you bothered by breathing difficulties if you exercise and play? | 2(2.8) | 3.7 | 1.1 | -0.2 | -1.3 | 2/5 | Lower in children with severe EA |  |  |  |  |
| 1. Do you have trouble sleeping at night because of your health condition (e.g. acid reflux, heartburn, or respiratory problems)? | 2(2.8) | 4.0 | 1.2 | -1.0 | -0.08 | 1/5 | Lower in children with severe EA |  |  |  |  |
| 1. Are you worried about your future because of esophageal atresia? (e.g. school, friends, partner, work) | 5(7.0) | 4.7 | 0.8 | -2.3 | 4.2 | 2/5 |  | Clinically important |  |  |  |
| 1. Does esophageal atresia make you sad? | 4(5.6) | 4.5 | 0.9 | -2.1 | 4.3 | 1/5 | Lower in children with severe EA |  |  |  |  |