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No. 08, January 2020

TwinLife Scales Manual

F2F1, CATI 1, & F2F2

by Myriam A. Baum*, Christoph H. Klatzka*, Julia Iser, Elisabeth Hahn

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*These authors are joint first authors on this work.

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Web: http://www.twin-life.de/en
TwinLife Scales Manual

For the scales used in face to face interview wave one (F2F1), telephone interview wave one (CATI1), and face to face interview wave two (F2F2)

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*These authors are joint first authors on this work.
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Introduction

The TwinLife study uses items of well-validated psychological scales that are commonly used in contemporary psychological science. Both, entire scales and selected items were chosen. These items have been selected with regard to common selection methods (e.g., factor loadings or predictive power) and represent theoretical assumed latent constructs. This technical report provides information on the psychological scales used in the TwinLife study face to face wave one (for more information on face to face wave one, see Brix et al., 2017), CATI wave one, and face to face wave two. Although the TwinLife data can be used to compute various indexes and scales, in this report we will focus on those scales that clearly emerge from the corresponding literature. As this is rather an excerpt of the survey than a comprehensive documentation on item level, a complete overview of all items can be found under https://paneldata.org/twinlife#instruments. For every construct relevant to this report, 1) a short summary of the scale, 2) an overview of the scale’s items, and 3) relevant references are reported. Items that need to be recoded are indicated by the abbreviation (r) while items that need to be inverted are indicated by the abbreviation (i). Further information on the data structure that may be useful for this report, can be found in Appendix A.

Aim of the German twin family study TwinLife is to investigate the development of social inequalities over the life course (Diewald et al., 2016). For this purpose, household (face to face) and telephone (CATI) interviews take place every year at regular rotation interviewing 4,097 twin pairs of four age cohorts and their families. To cover different domains that are relevant in the context of social inequality, the TwinLife study focuses on six broad categories of constructs: 1) skill formation and education, 2) career, labor market attainment, and welfare, 3) political and social integration and participation, 4) subjective perception of quality of life, 5) physical and psychological health, and 6) psychopathology and deviant behavior. In addition to these domains, many demographic and environmental measures are also assessed. For more information on the TwinLife study, see Hahn et al. (2016) or Mönkedieck et al. (2019).

Please keep in mind that the original survey language was German. Subsequently, all translations provided in this manual are rather an assistance in using the TwinLife data than validated English translations of established scales. For this reason, we recommend you to always consult the original resources first when considering re-using TwinLife’s items.

This number refers to the sample of the first wave face-to-face.
Abbreviations

In this report, several relevant abbreviations are frequently used:

- F2F1 = face to face wave one
- F2F2 = face to face wave two
- CASI = Computer Assisted Self(-administered) Interview
- CAPI = Computer Assisted Personal Interview
- PAPI = Paper And Pencil Interview
- CATI1 = Computer Assisted Telephone Interview wave one

Traffic light system

For a better orientation, a traffic light system is used to indicate whether or not a construct was assessed in face to face wave one (F2F1), telephone wave one (CATI1), and face to face wave two (F2F2). The colors used will be introduced in the following:

- Green: The construct was assessed in this wave
- Orange: The construct was assessed in this wave, but in a modified form (compared to a former wave)
- Red: The construct was not assessed in this wave

Example: This illustrative construct was assessed in face to face wave one and telephone wave one. In face to face wave two, it was also assessed – but in a modified form.
Skill formation and education

Cognitive abilities

Summary

In face to face wave one\(^3\), the Culture Fair Test (CFT; Weiβ, 2006; Weiβ & Osterland, 2012) was used to measure non-verbal (fluid) intelligence as a proxy for general cognitive ability. Fluid intelligence can be defined as the – by biological factors affected – ability to solve problems without having to resort to previous experience (Horn & Cattell, 1966; Schmidt-Atzert & Amelang, 2012). In the TwinLife study, the type of assessment differed slightly according to the age of the surveyed person. For children aged 5 to 9 years, three different subtests (figural reasoning, figural classification, and matrices; CFT 1-R; Weiβ & Osterland, 2012) were used to assess non-verbal (fluid) intelligence. For participants 10 years of age and older, four subtests were used (reasoning additional to the aforementioned three; CFT 20-R; Weiβ, 2006). For the children, the test battery was applied in a paper-and-pencil version (PAPI) administered by a trained interviewer. The older group completed the test computer-based (CASI). For more information on this measure, see Gottschling (2017).

As the participants’ test-time varied, there are two sets of variables (right answers in a given test-time), respectively three sets of sum scores (sum of right answers in a given test-time) that can be used depending on the concrete research question:

- Short version: Right answers given in standard test-time (3 – 4 minutes depending on subtest)
- Long version: Right answers given in the additional minute of test-time\(^4\)
- Sum score: Sum of right answers given in standard test-time (short), in the additional minute (long), and combined (total)

\(^3\) In face to face wave two, this construct was assessed only for new entrants.

\(^4\) The additional minute was given if the participant had not finished the subtest in the regular test time.
Scales and items

CFT 1-R (children aged 5 to 9)

Subtest 1 – Figural Reasoning:

- Short version: igf0540, igf0541, igf0542, igf0543, igf0544, igf0545, igf0546, igf0547, igf0548, igf0549, igf0550, igf0551, igf0552, igf0553, igf0554
- Long version: igf0560, igf0561, igf0562, igf0563, igf0564, igf0565, igf0566, igf0567, igf0568, igf0569, igf0570, igf0571, igf0572, igf0573, igf0574
- Sum scores: igf0580 (short), igf0581 (long), igf0582 (total)

Item example: 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔 🐔

Subtest 2 - Figural Classification:

- Short version: igf0640, igf0641, igf0642, igf0643, igf0644, igf0645, igf0646, igf0647, igf0648, igf0649, igf0650, igf0651, igf0652, igf0653, igf0654
- Long version: igf0660, igf0661, igf0662, igf0663, igf0664, igf0665, igf0666, igf0667, igf0668, igf0669, igf0670, igf0671, igf0672, igf0673, igf0674
- Sum scores: igf0680 (short), igf0681 (long), igf0682 (total)

Item example: 🐔 🐔 🐔 🐔 🐔 🐔 🐔

Subtest 3 - Matrices:

- Short version: igf0740, igf0741, igf0742, igf0743, igf0744, igf0745, igf0746, igf0747, igf0748, igf0749, igf0750, igf0751, igf0752, igf0753, igf0754
- Long version: igf0760, igf0761, igf0762, igf0763, igf0764, igf0765, igf0766, igf0767, igf0768, igf0769, igf0770, igf0771, igf0772, igf0773, igf0774
- Sum scores: igf0780 (short), igf0781 (long), igf0782 (total)

Item example: 🍳 🍳 🍳 🍳 🍳 🍳 🍳
CFT 20-R (aged 10 years or older)

Subtest 1 – Figural Reasoning:

- Short version: igf0140, igf0141, igf0142, igf0143, igf0144, igf0145, igf0146, igf0147, igf0148, igf0149, igf0150, igf0151, igf0152, igf0153, igf0154
- Long version: igf0160, igf0161, igf0162, igf0163, igf0164, igf0165, igf0166, igf0167, igf0168, igf0169, igf0170, igf0171, igf0172, igf0173, igf0174
- Sum scores: igf0180 (short), igf0181 (long), igf0182 (total)

Item example:

Subtest 2 - Figural Classification:

- Short version: igf0240, igf0241, igf0242, igf0243, igf0244, igf0245, igf0246, igf0247, igf0248, igf0249, igf0250, igf0251, igf0252, igf0253, igf0254
- Long version: igf0260, igf0261, igf0262, igf0263, igf0264, igf0265, igf0266, igf0267, igf0268, igf0269, igf0270, igf0271, igf0272, igf0273, igf0274
- Sum scores: igf0280 (short), igf0281 (long), igf0282 (total)

Item example:

Subtest 3 - Matrices:

- Short version: igf0340, igf0341, igf0342, igf0343, igf0344, igf0345, igf0346, igf0347, igf0348, igf0349, igf0350, igf0351, igf0352, igf0353, igf0354
- Long version: igf0360, igf0361, igf0362, igf0363, igf0364, igf0365, igf0366, igf0367, igf0368, igf0369, igf0370, igf0371, igf0372, igf0373, igf0374
- Sum scores: igf0380 (short), igf0381 (long), igf0382 (total)

Item example:
Subtest 4 – Reasoning:

- Short version: igf0440, igf0441, igf0442, igf0443, igf0444, igf0445, igf0446, igf0447, igf0448, igf0449, igf0450
- Long version: igf0460, igf0461, igf0462, igf0463, igf0464, igf0465, igf0466, igf0467, igf0468, igf0469, igf0470
- Sum scores: igf0480 (short), igf0481 (long), igf0482 (total)

Item example:

References


Academic self-concept

Academic self-concept is defined as “a student’s perception of his or her academic competence” (Arens & Waterman, 2015, p. 64). In the TwinLife study, children aged 5 to 7 rated their verbal and mathematical self-concept on the three, respectively four items of the Self-Description Questionnaire for Preschoolers (SDQP; Marsh, Ellis, & Craven, 2002) via CAPI in face to face wave one.

Scales and items

Academic self-concept (children aged 5 to 7)

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes, normally good, about like other children</td>
<td>Yes, really good, better than other children</td>
<td>No, not so good, not as good as other children</td>
<td>No, not good at all, not as good as other children at all</td>
<td>Child understood the question, but doesn't have an answer</td>
<td>Child did not understand the question</td>
</tr>
</tbody>
</table>

Verbal self-concept: asc0100(i), asc0101(i), asc0102(i)

- asc0100: Are you good at reading? (i)
- asc0101: Do you know lots of letters of the alphabet? (i)
- asc0102: Do you know lots of different words? (i)

Mathematical self-concept: asc0103, asc0104(i), asc0105(i), asc0106(i)

- asc0103: Are you good at telling the time? (i)
- asc0105: Do you know lots of different shapes? (i)
- asc0105: Are you good at counting? (i)
- asc0106: Do you know lots of numbers? (i)

References

Self-perceived ability

Summary

Self-perceived ability is defined as “a cognitive representation of one's ability level in an academic achievement situation” (Weidinger, Spinath, & Steinmayr, 2016, p. 117). Self-perceived ability in general was assessed slightly different depending on the age of the interviewed person. Preschool children were assessed via one item, while all school children were assessed via three items in the CAPI module. In the CASI module (face to face wave 1), respectively CAPI module (face to face wave 2), parental report was assessed for all preschool children. The self-perceived ability concerning two specific school subjects (i.e., math and German) was further assessed for school children via self-report. The assessment for school children was based on the “Skalen zum akademischen Selbstkonzept” (English: Scales on the academic self-concept; SESSKO; Dickhäuser, Schöne, Spinath, & Steinsmeier-Pelster, 2002). Perceived ability concerning one’s job was also assessed for participants aged 16 or older via CAPI and was adapted from the Intrinsic Motivation Inventory (IMI; Deci & Ryan, 2003).

Scales and items

Self-perceived ability – in general – SESSKO

Self-report (preschool children): spa0100(i)

“Please tell me whether the following statements apply to you.”

Response format:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- spa0100: Do you think you will do well at school? (i)
**Self-report (school children):** spa0200, spa0201, spa0202(i)

“Please rate how well each of the following statements applies to you.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not talented</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Very talented</td>
</tr>
</tbody>
</table>

- spa0200: I am … for school.

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not much</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Much</td>
</tr>
</tbody>
</table>

- spa0201: I know … at school.

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Difficult</td>
</tr>
</tbody>
</table>

- spa0202: In school many things are … for me. (i)

**Parental report (preschool children):** spa0100(t/u/s), spa0202(t/u/s)

“Please rate the extent to which each statement applies.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies partly</td>
<td>Applies completely</td>
<td></td>
</tr>
</tbody>
</table>

- spa0100(t/u/s): <Name of child> will do well in school.
- spa0202(t/u/s): School will be easy for <name of child>.
Self-perceived ability – Math – SESSKO (school children): spa0300, spa0301, spa0300(i)

“Please answer using the following scale.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not talented</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Talented</td>
</tr>
</tbody>
</table>

- spa0300: I am … in math.

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just a little</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>A lot</td>
</tr>
</tbody>
</table>

- spa0301: I know … in math.

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Difficult</td>
</tr>
</tbody>
</table>

- spa0302: In math, many exercises are … (i)

Self-perceived ability – German – SESSKO (school children): spa0400, spa0401, spa0402(i)

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not talented</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Talented</td>
</tr>
</tbody>
</table>

- spa0400: I am … in German.
Just a little - - - A lot

- spa0401: I know … in German.

Easy - - - Difficult

- spa0402: In German, many exercises are … (i)

Self-perceived job ability – IMI (aged 16 or older): spa0500, spa0501, spa0502, spa0503, spa0504

“Please rate the extent to which each statement applies to you.”

- spa0500: I think I am pretty good at my job.
- spa0501: I think I am doing pretty well at my job, compared to my colleagues.
- spa0502: After working at my job for a while, I felt pretty competent.
- spa0503: I am satisfied with my performance at my job.
- spa0504: I am pretty skilled at my job / at the things I am doing in my job.

References


Motivation

Intrinsic motivation

Summary

Motivation as a construct can, for instance, be categorized in two dimensions: Extrinsic vs. intrinsic motivation (Fetchenhauer, 2017). While behavior shown in the expectation of a subsequent positive effect can be attributed to extrinsic motivation, intrinsic motivated behavior is shown for the sake of the cause itself. In the TwinLife study, the focus was – among other motivational constructs – on intrinsic motivation. Intrinsic motivation was measured with the “Skala zur Erfassung subjektiver schulischer Werte” (English: Scale for the assessment of subjective school values; SESSW; Steinmayr & Spinath, 2010). Anticipated intrinsic motivation in preschool children was assessed via self-report and parental report. Intrinsic motivation of school children was further assessed for school in general as well as for several specific subjects separately (i.e., math and German) for all school children aged 5 or older as a self-report. The construct was assessed via CAPI (self-report) and CASI (parental report) in face to face wave one and face to face wave two.

Scales and items

Anticipated intrinsic motivation

Self-report (preschool children): imo0100(i), imo0101(i), imo0102(i)

“Please tell me whether the following statements apply to you.“

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- imo0100: Do you think you will like school? (i)
- imo0101: Will you like learning things at school? (i)
- imo0102: Are you looking forward to school? (i)
**Parental report (preschool children):** imo0100(t/u/s), imo0101(t/u/s), imo0102(t/u/s)

“Please rate the extent to which each statement applies.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0100(t/u/s): I believe that &lt;name of child&gt; will like school.
- imo0101(t/u/s): I believe that &lt;name of child&gt; will like what he/she will learn at school.
- imo0102(t/u/s): &lt;Name of child&gt; is looking forward to school.

**Intrinsic motivation (school children):** imo0200, imo0201, imo0202

“Please rate the extent to which each statement applies to you.“

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0200: I like doing the things I learn at school.
- imo0201: School is fun.
- imo0202: Things that I learn (at school) are interesting.
Intrinsic motivation – Math – (school children): imo0300, imo0301, imo0302

“Please rate the extent to which each statement applies to you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0300: I like doing math.
- imo0301: Math is fun.
- imo0302: Math is interesting.

Intrinsic motivation – German (school children): imo0400, imo0401, imo0402

“Please rate the extent to which each statement applies to you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0400: I like learning German.
- imo0401: German is fun.
- imo0402: German is interesting.

References

Learning motivation

Summary

Learning motivation can be defined as “a common motivational factor underlying the conceptions of intrinsic motivation, interest, and learning goals” (Spinath & Spinath, 2005, p. 89). In the TwinLife study, the “Skalen zur Erfassung der Lern- und Leistungsmotivation” (English: Scales for the assessment of learning and performance motivation; SELLMO-S; Spinath, Stiensmeier-Pelster, Schöne, & Dickhäuser, 2002) were used to measure learning motivation. For preschool children, anticipated learning motivation was assessed with an adapted version of the SELLMO-S. School children rated their actual learning motivation. These items were assessed as a self-report in the CAPI module. Furthermore, learning motivation related to one’s job was assessed for participants aged 16 or older in the CAPI module with an adapted version of the SELLMO-S.

Scales and items

**Anticipated learning motivation (preschool children):** imo0103(i), imo0104(i), imo0105(i)

“Please tell me whether the following statements apply to you.”

Response format:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- imo0103: Are you looking forward to learning something interesting at school? (i)
- imo0104: Are you looking forward to understanding difficult things? (i)
- imo0105: Are you looking forward to learning as much as possible? (i)
Learning motivation (school children): imo0500, imo0501, imo0502

“Please rate the extent to which the following statement applies to you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0500: In school, I want to learn something interesting.
- imo0501: In school, I want to understand difficult things.
- imo0502: In school, I want to learn as much as possible.

Job learning motivation (aged 16 or older): imo0600, imo0601, imo0602

“Please rate the extent to which each statement applies to you. It is important for me in the context of my professional work…”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- imo0600: … to learn interesting things.
- imo0601: … to get food for thought.
- imo0602: … to gain a deeper understanding.

References

Achievement motivation

Summary

Achievement motivation can be defined as “the need for excellence and significant accomplishment, despite what rewards may be offered after the achievement has been met” (Hsieh, 2011, p. 2). In the TwinLife study, achievement motivation as a self-report was assessed slightly differently depending on the age of the participant (between 7 and 15 years of age vs. aged 16 and older), with more and broader items for older participants. It was further assessed as a parental report for all school children. All items were developed for the TwinLife study and were assessed in the CASI module of face to face wave one and in the CAPI module of face to face wave two.

Scales and items

Self-report (aged 7 to 15): imo0701

“Please rate the extent to which each statement applies to you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not agree at all</td>
<td>Do not agree</td>
<td>Nor</td>
<td>Agree</td>
<td>Agree completely</td>
</tr>
</tbody>
</table>

- imo0701: Good grades are important.

Self-report (aged 16 or older): imo0700, imo0702

“Please rate the extent to which each statement applies to you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not agree at all</td>
<td>Do not agree</td>
<td>Nor</td>
<td>Agree</td>
<td>Agree completely</td>
</tr>
</tbody>
</table>

- imo0700: Good performance is important.
- imo0702: In order to get ahead in life, I am prepared to put in great efforts.
**Parental report (school children): imo0701(t/u/s)**

“Please rate the extent to which the following statement applies.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply</td>
<td></td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
<tr>
<td>at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **imo0701(t/u/s):** Good grades are important for <name of child>.

**References**

GOALS: Items developed for *TwinLife*
Self-efficacy

Summary

Self-efficacy – the evaluation of one's own competencies to be capable of performing actions successfully (Bandura, 1977) – was measured in face to face wave one in the CASI module and in face to face wave two in the PAPI module for participants aged 10 years or older. In the TwinLife study, three items from the “Allgemeine Selbstwirksamkeit Kurzskala” (English: General self-efficacy short scale; ASKU; Beierlein, Kovaleva, Kemper, & Rammstedt, 2012) were used to measure this construct.

Scales and items

**Self-efficacy (aged 10 or older):** sef0100, sef0101, sef0102

“To what extent do you agree with these statements?”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

- sef0100: I can rely on my own abilities in difficult situations.
- sef0101: I am able to solve most problems on my own.
- sef0102: I can usually solve even challenging and complex tasks well.

References

Self-esteem

Summary

According to Rosenberg, Schooler, Schoenbach, and Rosenberg (1995), (global) self-esteem can be understood as “the individual’s positive or negative attitude toward the self as a totality” (p. 141). In the TwinLife study, this construct was assessed either as a self- or as a parental report. As a self-report self-esteem was assessed using three items from pairfam (based on the Rosenberg-scale; Rosenberg, 1965). For the parental report (children aged 5 to 12), two of these items were reformulated. In face to face wave one, the self-report (participants aged 13 or older) and the parental report (children aged 5 to 12) were assessed in the CASI module. In face to face wave two, this construct was assessed as self-report (participants aged 10 or older) in the PAPI module and as parental report (children aged 5 to 12) in the CASI module.

Scales and items

Self-report (F2F1: aged 13 or older; F2F2: aged 10 or older): ses0100(i), ses0101, ses0102

“To what extent do you agree with these statements?”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

- ses0100: At times I think I am no good at all. (i)
- ses0101: I take a positive attitude toward myself.
- ses0102: On the whole, I am satisfied with myself.
Parental report (children aged 5 to 12): ses0200(t/u/s), ses0102(t/u/s)

“Please rate the extent to which the following statements apply.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply</td>
<td>Nor</td>
<td>Applies partly</td>
<td>Applies completely</td>
<td></td>
</tr>
</tbody>
</table>

- ses0200(t/u/s): <Name of child> is self-confident.
- ses0102(t/u/s): I believe, all in all, <name of child> is satisfied with him-/herself.

References


Self-regulation

Summary

Self-regulation was measured in CATI wave one and face to face wave two (CASI) and can be defined as the regulation of one’s own behavior while showing resistance to unwanted behavioral tendencies in favor of desired behavioral tendencies (Baumeister, Vohs, & Tice, 2007; Muraven & Baumeister, 2000). In the TwinLife study, self-regulation was assessed using items of two different questionnaires: Three items of the BISS scale (a German adaption of the Grit Scale (Consistency of Interests); Fleckenstein, Schmidt, & Möller, 2014) and three items of the German short version of the Self-Control Scale (SCS-K-D; Bertrams & Dickhäuser, 2009). This construct was either assessed via self-report (participants aged 10 and older) or parental report (participants aged 9 and younger; only SCS-K-D).

Caution: In this case, higher values mean a lower trait manifestation.

Scales and items

Self-report (aged 10 or older)

“How much do the following statements apply to you?”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Very much</td>
</tr>
</tbody>
</table>

Consistency of interest - BISS: srg0100, srg0200, srg0300

- srg0100: New ideas and projects sometimes distract me from previous ones.
- srg0200: I often set a goal but later choose to pursue a different one.
- srg0300: I become interested in new pursuits every few months.

Self-control – SCS-K-D: srg0400, srg0500, srg0600

- srg0400: I do certain things that are bad for me, if they are fun.
- srg0500: Pleasant activities sometimes prevent me from doing my job.
- srg0600: I wish I had more self-discipline.
Parental report (children aged 5 to 9)

**Self-control – SCS-K-D: srg0400(t/u/s), srg0500(t/u/s), srg0600(t/u/s)**

“We are now talking about some statements that may more or less apply to your child. Please indicate for each statement how you rate <name of child> in comparison to other people.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Very much</td>
</tr>
</tbody>
</table>

- srg0400(t/u/s): <Name of child> does certain things that are bad for him/her, if they are fun.
- srg0500(t/u/s): Pleasant activities sometimes prevent <name of child> from doing his/her duties.
- srg0600(t/u/s): I wish <name of child> had more self-discipline.

**References**


Personality

Summary

To assess personality as a construct, the Big Five Model was used. According to this approach, personality differences can be described by five distinct dimensions: Openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1985). In face to face wave one, two different versions of the Big Five Inventory were used to measure personality in the CASI module. Every participant over 10 years of age rated his or her personality on the Big Five Inventory – Short Version (BFI-S; Gerlitz & Schupp, 2005). For younger children between 5 and 9 years of age, their parents rated their personality on the Big Five Inventory (BFI; Weinert et al., 2007).

Scales and items

Self-report - BFI-S (aged 10 or older)

“I see myself as someone who …”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply to me at all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Applies to me perfectly</td>
</tr>
</tbody>
</table>

Openness: per0103, per0108, per0113, per0115

- per0103: … is original, comes up with new ideas.
- per0108: … values artistic, aesthetic experiences.
- per0113: … has an active imagination.
- per0115: … is eager for knowledge.

---

5 In face to face wave two, this construct was assessed only for new entrants.
Conscientiousness: per0100, per0106(i), per0110

- per0100: … does a thorough job.
- per0106: … tends to be lazy. (i)
- per0110: … does things effectively and efficiently.

Extraversion: per0101, per0107, per0111(i)

- per0101: … is communicative, talkative.
- per0107: … is outgoing, sociable.
- per0111: … is reserved. (i)

Agreeableness: per0102(i), per0105, per0112

- per0102: … is sometimes somewhat rude to others. (i)
- per0105: … has a forgiving nature.
- per0112: … is considerate and kind to others.

Neuroticism: per0104, per0109, per0114(i)

- per0104: … worries a lot.
- per0109: … gets nervous easily.
- per0114: … is relaxed, handles stress well. (i)

Additional item\(^6\): per0116

- per0116: … likes to have fun and doesn’t think about tomorrow.

\(^6\) This item is intended to be part of the scale openness. As data analyses on the factor structure of TwinLife’s personality assessment does not suggest a clear connection to openness, we recommend deciding whether the item is to be included or not depending on the particular research question.
Parental report – BFI (children aged 5 to 9)

“How would you rank your child in comparison to other children of the same age?”

**Openness**: per0403(t/u/s), per0408(t/u/s)(i)

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disinterested</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Hungry for knowledge</td>
</tr>
</tbody>
</table>

- per0403(t/u/s): <Name of child> is disinterested – hungry for knowledge.

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick on the uptake</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Needs more time to understand</td>
</tr>
</tbody>
</table>

- per0408(t/u/s): <Name of child> understands quickly – needs more time. (i)

**Conscientiousness**: per0401(t/u/s), per0406(t/u/s)(i)

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Neat</td>
</tr>
</tbody>
</table>

- per0401(t/u/s): <Name of child> is tidy – untidy.
Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Easily distracted</td>
</tr>
</tbody>
</table>

- per0406(t/u/s): <Name of child> is focused – easy to distract. (i)

**Extraversion:** per0400(t/u/s)(i), per0405(t/u/s)

Response format:

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<thead>
<tr>
<th></th>
<th>1</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicative</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Quiet</td>
</tr>
</tbody>
</table>

- per0400(t/u/s): <Name of child> is talkative – quiet. (i)

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawn</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Sociable</td>
</tr>
</tbody>
</table>

- per0405(t/u/s): <Name of child> is withdrawn – sociable.

**Agreeableness:** per0402(t/u/s)(i), per0407(t/u/s)

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good-natured</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Irritable</td>
</tr>
</tbody>
</table>

- per0402(t/u/s): <Name of child> is good … natured – irritable. (i)
Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defiant</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Compliant</td>
</tr>
</tbody>
</table>

- per0407(t/u/s): <Name of child> is obstinate – compliant.

**Neuroticism: per0404(t/u/s), per0409(t/u/s)(i)**

“How would you rank your child in comparison to other children of the same age?”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-confident</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Insecure</td>
</tr>
</tbody>
</table>

- per0404(t/u/s): <Name of child> is self-confident – insecure.

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fearful</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Brave</td>
</tr>
</tbody>
</table>

- per0409(t/u/s): <Name of child> is fearful – fearless. (i)
References


Career, labor market attainment, and welfare

Job autonomy

Summary

Job autonomy can generally be referred to as the extent to which a job allows freedom, independence, and choice to schedule work, to make decisions, and to choose the methods used to perform tasks (Morgeson & Humphrey, 2006). In TwinLife, job autonomy was assessed with three items from the project of the university in Bielefeld “From Heterogenities to Inequalities – Interactions Between Capabilities in Work and Private Life” (Abendroth, Melzer, Jacobebbinghaus, & Schlechter, 2014). These items were translated and adapted from the Work Autonomy Scales (Breaugh, 1985, 1989). This construct was assessed for all employed participants in face to face wave 2 (via CAPI).

Scales and items

“Please state on a scale of 1 to 5 how much the following statements apply to your work situation.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- aut0101: During my working hours, I can decide on my own when to complete certain tasks.
- aut0102: I can decide on my own how to complete my tasks.
- aut0103: Most of my work involves routine work, which rarely teaches my anything.

(i)
References


Subjective perception of quality of life

Global life satisfaction

Summary

According to Veenhoven (1996), global life satisfaction can be characterized as “the degree to which a person positively evaluates the overall quality of his/her life as-a-whole.” (p. 17). In TwinLife, global life satisfaction was assessed using the “satisfaction with life scale” (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and with an adapted version for children (SWLS-C; Gadermann, Schonert-Reichl, & Zumbo, 2010). The construct was assessed for every participant aged 10 or older. Global life satisfaction was assessed in face to face wave one (via CASI), the first telephone interview (via CATI), and face to face wave two (via PAPI).

Scales and items

“In the following, we would like to know how satisfied you are with your life in general.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

SWLS-C (between 10 and 15 years of age): gls0600, gls0700, gls0800, gls0900, gls1000

- gls0600: In most ways, my life is close to the way I would want it to be.
- gls0700: The things in my life are excellent.
- gls0800: I am happy with my life.
- gls0900: So far, I have gotten the important things I want in life.
- gls1000: If I could live my life over, I would have it the same way.
**SWLS (aged 16 or older):** gls0100, gls0200, gls0300, gls0400, gls0500

- gls0100: In most ways my life is close to my ideal.
- gls0200: The conditions of my life are excellent.
- gls0300: I am satisfied with my life.
- gls0400: So far I have gotten the important things I want in life.
- gls0500: If I could live my life over, I would change almost nothing.

**References**


**Optimism**

**Summary**

Scheier und Carver (1985) defined dispositional optimism as a trait that is characterized by a stable and generalized tendency to expect positive (or negative) outcomes in the future. In *TwinLife*, a shortened version of the German translation of the Life Orientation Test (LOT; Glaesmer, Hoyer, Klotsche, & Herzberg, 2008) was used for participants older than 9 years of age. Optimism was assessed in the PAPI module in face to face wave two.

**Scales and items**

**Self-report (aged 10 or older)**

“In your opinion, how much do the following statements apply?”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>Does not apply much</td>
<td>Partly</td>
<td>Applies somewhat</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

- lot0100: Even in uncertain times, I usually expect the best.
- lot0101: I am always optimistic about my future.
- lot0102: All in all, I expect that more good than bad things will happen to me.

**References**

Burden and stress

Burden and stress related to parenthood

Summary

Parental burden can also be labeled as parenting stress and “can be defined as the aversive psychological reaction to the demands of being a parent.” (Deater-Deckard, 1998, p. 315). In TwinLife, this construct was assessed using the “Eltern-Belastungs-Inventar”, a German version of the parenting stress index (Tröster, 2011). All participants aged 16 or older who had children on their own were asked to fill in these questions via PAPI. This construct was part of the survey in face to face wave two.

Scales and items

Self-Report (aged 16 or older and having a child): ebi0100, ebi0101, ebi0102, ebi0103, ebi0104, ebi0105

“While raising a child, there are certainly times that are burdening and demand a lot of you as mother or father. How do you experience these demands and how do they affect your personal life?”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Does not apply</td>
<td>Does not apply</td>
<td>Not sure</td>
<td>Applies</td>
<td>Applies completely</td>
</tr>
<tr>
<td></td>
<td>at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- ebi0100: I sometimes feel constricted by the responsibility as a mother / father.
- ebi0101: Problems in my relationship occurred because of my children.
- ebi0102: In some situations, I wish I could understand better what is on my children’s minds.
- ebi0103: It bothers me when I realize that I react angrily to my children.
- ebi0104: Some things in parenting are harder for me than I expected.
- ebi0105: Since I am a parent, I have fewer opportunities to meet my friends or to make new friends.
References

**Stress regulation and coping**

**Summary**

One common conceptualization of stress regulation or coping is “changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.” (Lazarus & Folkman, 1984, p. 141). In the *TwinLife* study, coping was assessed differently depending on the participants’ age. Children aged 15 or younger were asked to fill in items adapted from the “Stressverarbeitungsfragebogen nach Janke und Erdmann angepasst für Kinder und Jugendliche” (English: Stress processing questionnaire according to Janke and Erdman adapted for children and adolescents; SVK-KJ; Hampel, Petermann, & Dickow, 1997) either in the CAPI module (when aged under 10) or the PAPI module (when aged 10 or older). For participants aged 16 or older, items from the “Coping Inventory for Stressful Situations” (CISS; Endler & Parker, 1999) were used. These questions were asked in the PAPI module. Coping was part of the questionnaire of the second face to face wave of *TwinLife*.

**Scales and items**

**Self- Report (children aged 15 or younger; F2F2 only) – SVF-KJ**

“When other kids put pressure on me and I am very upset, then…”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Rather no</td>
<td>Maybe</td>
<td>Rather yes</td>
<td>Definitely</td>
</tr>
</tbody>
</table>

**Self-control / task orientation:** svk0100, svk0103, svk0106

- svk0100: …I plan on how to solve the problem.
- svk0103: …I try to figure out why that is.
- svk0106: …I figure out what I can do.

**Emotional coping:** svk0101, svk0104, svk0107

- svk0101: …I have to keep thinking about the situation.
- svk0104: …everything I do seems pointless.
- svk0107: …I would like to avoid it.
Distraction: svk0102, svk0105, svk0108
- svk0102: … I read something that I enjoy.
- svk0105: … I play something.
- svk0108: … first, I make myself comfortable.

Self-Report (children aged 16 or older; F2F2 only) – CISS
“In the following, there are listed several behaviors that people can show to react to difficult, critical or challenging events. Please indicate, to what extent those statements describe the way you deal with these situations.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply</td>
<td>Rather does not apply</td>
<td>Not sure</td>
<td>Rather applies</td>
<td>Applies completely</td>
<td></td>
</tr>
<tr>
<td>at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task orientation: cis0100, cis0103, cis106
- cis0100: I think about the event and learn from my mistakes.
- cis0103: I take corrective action immediately.
- cis0106: I get control of the situation.

Emotional coping: cis0101, cis0104, cis0107
- cis0101: I worry about what I should do.
- cis0104: I blame myself for not knowing what to do.
- cis0107: I feel anxious about not being able to cope.

Distraction: cis0102, cis0105, cis0108
- cis0102: I visit a friend.
- cis0105: I buy myself something.
- cis0108: I go out for a snack or meal.
References


Locus of Control

Summary

Locus of control can be defined as “the extent to which one attributes valued outcomes or reinforcement to either internal or external circumstances” (van Liew, 2013, p. 74). In the TwinLife study, the items to assess locus of control were adapted from the SOEP study (Goebel et al., 2019). There were two different variants of the questionnaire with an adapted variant for children aged 15 or younger. These questions were assessed either via CAPI (children aged 9 or younger) or via PAPI (participants aged 10 or older). Locus of control was part of the survey in face-to-face wave two.

Scales and items

Self-report (school children aged 15 or younger)

“To what degree do you personally agree with the following statements?”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not true</td>
<td>Rather not true</td>
<td>Neither</td>
<td>Rather true</td>
<td>True</td>
</tr>
</tbody>
</table>

**Internal locus:** loc0100, loc0102

- loc0100: It mainly depends on me and my abilities if I am elected as class representative.
- loc0102: How many friends I have depends on me and my behavior.

**External locus:** loc0101, loc0103

- loc0101: Even when I make an effort, I seldom get what I want.
- loc0103: Although I am skilled, I am seldom taken seriously by others.
Self-report (aged 16 or older)

“To what degree do you personally agree with the following statements?“

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fully disagree</td>
<td>Disagree</td>
<td>Neither</td>
<td>Agree</td>
<td>Fully agree</td>
</tr>
</tbody>
</table>

**Internal locus:** loc0100, loc0102

- loc0100: How my life goes depends on me.
- loc0102: One has to work hard in order to succeed.

**External locus:** loc0101, loc0103

- loc0101: I frequently have the experience that other people have a controlling influence over my life.
- loc0103: The opportunities that I have in life are determined by the social conditions.

References

Sensory Processing Sensitivity

Summary

Sensory Processing Sensitivity is proposed to be a trait involving a deeper cognitive processing of stimuli that is driven by higher emotional reactivity (Aron, Aron, & Jagiellowicz, 2012). In the TwinLife study, two versions of questions were used to operationalize Sensory Processing Sensitivity. The Highly Sensitive Child Scale (HSC; Pluess et al., 2018) was adapted for children aged 10 to 15 and the Highly Sensitive Person Scale for older participants (HSP; Aron & Aron, 2013). This construct was assessed in the PAPI module in face to face wave two.

Scales and items

Self-report (children aged between 10 and 15) – HSC

“Please tell us, how well following statements describe you.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Ease of excitation: sps0102, sps0104

- sps0102: I get nervous when I have to do a lot in little time.
- sps0104: I find it unpleasant to have a lot going on at once.

Aesthetic sensitivity: sps0101, sps0103

- sps0101: Some music can make me really happy.
- sps0103: I love nice smells.

Low sensory threshold: sps0100, sps0105

- sps0100: I don’t like watching TV programs that have a lot of violence in them.
- sps0105: Loud noises make me feel uncomfortable.
Self-report (aged 16 or older) – HSP-SF

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not apply at all</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Applies completely</td>
</tr>
</tbody>
</table>

**Ease of excitation:** sps0202, sps0204
- sps0202: I get rattled when I have a lot to do in a short amount of time.
- sps0204: I find it unpleasant to have a lot going on at once.

**Aesthetic sensitivity:** sps0201, sps0203
- sps0201: I am deeply moved by the arts or music.
- sps0203: I notice and enjoy delicate or fine scents, tastes, sounds, works of art.

**Low sensory threshold:** sps0200, sps0205
- sps0200: I make a point to avoid violent movies and TV shows.
- sps0205: I am bothered by intense stimuli, like loud noises or chaotic scenes.

**References**


Physical and psychological health

Depression

Summary
Depressive symptoms can be manifold, but among them the most common are a lowered mood and a lack of energy or interest (Degkwitz, Helmchen, Kockott, & Mombour, 2013). In TwinLife, a shortened and adapted version of the German adaption of Becks Depression Inventory – Fast Screen (BDI; Beck, Steer, & Brown, 2000) was used. This questionnaire was introduced in face to face wave two and was part of the PAPI module for participants aged 10 years or older.

Scales and items

Self-report (aged 10 or older) – BDI-FS: bdi0100, bdi0101, bdi0102, bdi0103, bdi0104, bdi0105, bdi0106

“How often do these following statements apply to you in the last two weeks?”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>2</td>
<td>3</td>
<td>Nearly always</td>
</tr>
</tbody>
</table>

- bdi0100: I am sad.
- bdi0101: I look into the future despondently.
- bdi0102: I feel like a failure.
- bdi0103: It is hard for me to enjoy anything.
- bdi0104: I am disappointed with myself.
- bdi0105: I accuse myself of mistakes and weaknesses.
- bdi0106: I think about harming myself.

References
Psychopathology and deviant behavior

Internalizing problem behavior

Summary

Internalizing problems can be defined as behavioral patterns related to depression, anxiety, and somatic symptoms as well as social aspects such as withdrawal (Bolger & Patterson, 2001). In TwinLife, internalizing problems were assessed through scales adapted from the Strengths and Difficulties Questionnaire (SDQ; Goodman, Meltzer, & Bailey, 1998). It was assessed in face to face wave one as a self-report for participants aged 10 or older (with slightly different wording depending on age) and as parental reports on children aged 9 or younger via CASI.

Scales and items

Self-report

“Please give your answers on the basis of how things have been for you over the last month.”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not true</td>
<td>Somewhat true</td>
<td>Certainly true</td>
</tr>
</tbody>
</table>

**Emotional Symptoms (aged 10 or older):** int0100, int0101, int0102, int0103, int0104

- int0100: I often have headaches, stomach aches or feelings of sickness.
- int0101: I worry a lot
- int0102: I am often unhappy, down-hearted or tearful
- int0103: I am nervous in new situations. I easily lose confidence
- int0104: I have many fears, I am easily scared

---

7 In face to face wave two, this construct was assessed only for new entrants.
Problems with Peers (aged 10 to 17): int0105, int0106(i), int0107(i), int0108, int0109

- int0105: I am usually on my own. I generally play alone or keep to myself.
- int0106: I have one good friend or more. (i)
- int0107: In general I am popular with others. (i)
- int0108: Other children or young people pick on me or bully me.
- int0109: I get along better with adults than with peers.

Problems with Peers (age 18 or older): int0105, int0106(i), int0107(i), int0110, int0111

- int0105: I am usually on my own. I generally keep to myself.
- int0106: I have one good friend or more. (i)
- int0107: In general I am popular with others. (i)
- int0110: I am very reserved; I work out things by myself.
- int0111: Others don't take me seriously or even bully me.

Parental Report (children aged 5 to 9)

“Please give your answers on the basis of the child's behavior over the last six months or this school year. <Name of child>…”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not true</td>
<td>Somewhat true</td>
<td>Certainly true</td>
</tr>
</tbody>
</table>

Emotional Symptoms: int0100(t/u/s), int0101(t/u/s), int0102(t/u/s), int0103(t/u/s), int0104(t/u/s)

- int0100(t/u/s): … often complains of headaches, stomach-aches or sickness.
- int0101(t/u/s): … has many worries, often seems worried.
- int0102(t/u/s): … is often unhappy, down-hearted or tearful.
- int0103(t/u/s): … is nervous or clingy in new situations, easily loses confidence.
- int0104(t/u/s): … has many fears, is easily scared.
**Problems with Peers:** int0105(t/u/s), int0106(t/u/s)(i), int0107(t/u/s)(i), int0108(t/u/s), int0109(t/u/s)

- int0105(t/u/s): … is rather solitary, tends to play alone.
- int0106(t/u/s): … has at least one good friend. (i)
- int0107(t/u/s): … is generally liked by other children. (i)
- int0108(t/u/s): … is picked on or bullied by other children.
- int0109(t/u/s): … gets on better with adults than with other children.

**References**

Externalizing problem behavior

Summary

Externalizing behaviors can be seen as actions characterized by defiance, impulsivity, disruptiveness, aggression, antisocial features, and overactivity (Achenbach & McConaughy, 1987). In TwinLife, externalizing problems were assessed through scales adapted from the strengths and difficulties questionnaire (SDQ; Goodman et al., 1998). It was assessed in face to face wave one\(^8\) as a self-report for participants aged 10 or older (with slightly different wording depending on age) and as parental reports on children aged 9 or younger via CASI.

Scales and items

Self-report (aged 10 or older)

“Please give your answers on the basis of how things have been for you over the last month.”

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not true</td>
<td>Somewhat true</td>
<td>Certainly true</td>
</tr>
</tbody>
</table>

Hyperactivity: ext0100, ext0101, ext0102, ext0103(i), ext0104(i)

- ext0100: I am restless, I cannot stay still for long.
- ext0101: I am constantly fidgeting or squirming.
- ext0102: I am easily distracted, I find it difficult to concentrate.
- ext0103: I think before I do things. (i)
- ext0104: I finish the work I'm doing. My attention is good. (i)

---

\(^8\) In face to face wave two, this construct was assessed only for new entrants.
**Conduct Problems:** ext0105, ext0106(i), ext0107, ext0108, ext0109

- ext0105: I get very angry and often lose my temper.
- ext0106: I usually do as I am told. (i)
- ext0107: I fight a lot. I can make other people do what I want.
- ext0108: I am often accused of lying or cheating /Others say that I don’t tell the truth.
- ext0109: I take things that are not mine from home, work/school or elsewhere.

**Parental report (children aged 5 to 9)**

“Please give your answers on the basis of the child's behavior over the last six months or this school year. <Name of child>…”

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not true</td>
<td>Somewhat true</td>
<td>Certainly true</td>
</tr>
</tbody>
</table>

**Hyperactivity:** ext0100(t/u/s), ext0101(t/u/s), ext0102(t/u/s), ext0103(t/u/s)(i), ext0104(t/u/s)(i)

- ext0100(t/u/s): … is restless, overactive; cannot stay still for long.
- ext0109(t/u/s): … is constantly fidgeting or squirming.
- ext0101(t/u/s): … is easily distracted; concentration wanders.
- ext0102(t/u/s): ... thinks things out before acting. (i)
- ext0103(t/u/s): ... sees tasks through to the end; good attention span. (i)
**Conduct Problems:** ext0105(t/u/s), ext0106(t/u/s)(i), ext0107(t/u/s), ext0108(t/u/s), ext0109(t/u/s)

- ext0104(t/u/s): ... often has temper tantrums or hot tempers.
- ext0105(t/u/s): ... is generally obedient, usually does what adults request. (i)
- ext0106(t/u/s): ... often fights with other children or bullies them.
- ext0107(t/u/s): ... often lies or cheats.
- ext0108(t/u/s): ... steals from home, school or elsewhere.

**References**

Deviant and delinquent behavior

*Deviance*

**Summary**

Additionally to externalizing behaviors, a reformulated self-report version of the SDQ (Goodman et al., 1998) was used for children aged 5 to 9 to assess deviance. This self-report contained items that are indicative for deviant child behavior. The items were assessed in the CAPI module in face to face wave one and two.

**Scales and items**

**Self-report (aged 5 to 9)**

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Occasionally</td>
<td>Very often</td>
</tr>
</tbody>
</table>

**Conduct Problems:** dev0100, dev0101, dev0102, dev0103

- dev0100: Would you say that you are never angry, sometimes angry, or very often angry?
- dev0101: Would you say that you never listen to your parents, sometimes listen to your parents, or very often listen to your parents?
- dev0102: Would you say that you never have arguments with other children, sometimes have arguments with other children, or very often have arguments with other children?
- dev0103: Would you say that you never cheat or lie, sometimes cheat or lie, or very often cheat or lie?

**References**

Environment

School context

School climate / relationship to teachers

Summary

School climate refers to the quality and character of school life and can include norms, interpersonal relationships as well as structural characteristics (Cohen, McCabe, Michelli, & Pickeral, 2009). In TwinLife, there was a focus on one aspect relevant for school climate, namely student teacher interaction. The items originate from the PISA survey (OECD, 2013). This construct was assessed via CAPI for school children aged 13 or older in face to face wave two.

Scales and items

**Student teacher interaction:** edu0700, edu0701, edu0800, edu0801, edu0802

“How much do you disagree or agree with each of the following statements about the teachers at your school?”

Response format:

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<th>1</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

- edu0700: Students get along well with most teachers.
- edu0701: Most teachers are interested in students’ well-being.

“Now, please think about the teachers, you get taught by. How much do you agree with following statements?”

Response format:

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</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

- edu0800: Most of my teachers treat me fairly.
- edu0801: If I need extra help, I will receive it from my teachers.
- edu0802: Most of my teachers really listen to what I have to say.
References


https://doi.org/10.1787/9789264190511-en
Subjective burden at school

Summary

Subjective burden in school shall be defined as the subjective degree of burden, stress, or excessive demands by experiences in or expectations formulated by school. In the TwinLife study, pressure at school was assessed with an adapted set of questions, originating from the NEPS’ additional study in Thuringia (Blossfeld, Roßbach, & von Maurice, 2011). It was assessed for school children older than 12 years of age in face to face wave two via CAPI.

Scales and items

**Self-report (aged 13 or older):** edu0901, edu0902, edu0903, edu0904, edu0905, edu0906, edu0907

“How strongly do you agree with the following statements?”

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</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
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</table>

- edu0901: I often feel tense when I come home from school.
- edu0902: Sometimes I have difficulties falling asleep because I’m thinking about problems at school.
- edu0903: It happens that I react very irritably when people talk to me about school.
- edu0904: I find myself thinking about difficulties at school even during my free time.
- edu0905: After school I’m often exhausted.
- edu0906: The pressure at school is too high.
- edu0907: I don’t have time for anything other than school.

References

Quality of home environment

Summary

The quality of home environment was assessed as chaos, which “occurs when a home environment is characterized by a lack of predictability, routine, organization, and stability” (Tucker, Sharp, Van Gundy, & Rebellon, 2018, p. 3701). It was measured with the Chaos, Hubbub and Order Scale (CHAOS; Matheny Jr., Wachs, Ludwig, & Phillips, 1995). It assesses the degree of “environmental confusion” (e.g., noise or crowding) in children's homes and can be used to rate chaotic home environments. In face to face wave two, participants aged 5 to 10 answered the CHAOS scale via CAPI. In face to face wave one and face to face wave two, participants 10 years and older answered the CHAOS scale in the CASI module. Twins and siblings who did not live at home anymore had to rate their home environment retrospectively (via CASI). Parental report was only assessed in face to face wave one.

Scales and items

Parental report and child’s report (while currently living in the household of parents)

Parental report (F2F1 only) – CHAOS: hoe0100(i), hoe0200, hoe0300, hoe0400(i), hoe0500, hoe0600(i)

“The following statements describe things that happen with many families at home. Please say how much these statements apply to your home.”

Response format:

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<tbody>
<tr>
<td>Is not correct at all</td>
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<td>Rather not correct</td>
<td>Partly correct</td>
<td>Rather correct</td>
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</table>

- hoe0100: The children have a regular bedtime routine.(i)
- hoe0200: You can't hear yourself think in our home.
- hoe0300: It's a real zoo in our home.
- hoe0400: We are usually able to stay on top of things. (i)
- hoe0500: There is usually a television turned on somewhere in our home.
- hoe0600: The atmosphere in our house is calm. (i)
Child report – CHAOS (aged 5 to 19; F2F2 only): hoe0100(i), hoe0200, hoe0300, hoe0400(i), hoe0500, hoe0600(i)

“In the following, I would like to talk with you about your home. Please state how much these statements apply to your home.”

Response format:

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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is not correct at all</td>
<td>Rather not correct</td>
<td>Partly correct</td>
<td>Rather correct</td>
<td>Fully correct</td>
<td></td>
</tr>
</tbody>
</table>

- hoe0100: We have the same bedtime routine every night. (i)
- hoe0200: You can't think in silence in our home.
- hoe0300: At home, everything is very wild and disorderly.
- hoe0400: We are usually able to stay on top of things. (i)
- hoe0500: There is usually a television turned on somewhere in our home.
- hoe0600: At home, the atmosphere is calm and relaxed. (i)

Child report – CHAOS (age 10 or older; respectively aged 10 to 21): hoe0100(i), hoe0200, hoe0300, hoe0400(i), hoe0500, hoe0600(i)

“The following statements describe things that happen with many families at home. Please say how much these statements apply to your home.”

Response format:

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<td>Rather not correct</td>
<td>Partly correct</td>
<td>Rather correct</td>
<td>Fully correct</td>
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</tbody>
</table>

- hoe0100: I have a regular bedtime routine. (i; children aged 10 to 13)
- hoe0200: You can't hear yourself think in our home.
- hoe0300: It's a real zoo in our home.
- hoe0400: We are usually able to stay on top of things. (i)
• hoe0500: There is usually a television turned on somewhere in our home.
• hoe0600: The atmosphere in our house is calm. (i)

Retrospective report of child outside household: hoe0101(i), hoe0201, hoe0301, hoe0401(i), hoe0501, hoe0601(i)

“The following statements describe things that happen with many families at home. Please say how much these statements applied to your home when you still lived with your parents.”

Response format:

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<th>5</th>
</tr>
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<tbody>
<tr>
<td>Is not correct at all</td>
<td>Rather not correct</td>
<td>Partly correct</td>
<td>Rather correct</td>
<td>Fully correct</td>
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</tbody>
</table>

• hoe0101: I used to have a regular bedtime routine. (i)
• hoe0201: You couldn't hear yourself think in our home.
• hoe0301: It used to be a real zoo in our home.
• hoe0401: We were usually able to stay on top of things. (i)
• hoe0501: There was usually a television turned on somewhere in our home.
• hoe0601: The atmosphere in our house used to be calm. (i)

References

Parental behavior and involvement

Parental Involvement

Summary

Parental involvement can generally be defined as parental behavior to support their child's school progress (El Nokali, Bachman, & Votruba-Drzal, 2010). In Twinlife, the scales for parental involvement were adapted from an instrument by Lorenz and Wild (2007) and were assessed as child report on their parents in face to face wave one (via CASI) and face to face wave two (via CAPI). If the participants were older than 18 years, all items were reformulated to assess parental involvement retrospectively.

Scales and items

Child report (F2F1: school children aged 9 or older; F2F2: aged 10 to 20)

“We would like to ask you a few questions about your parents and school. Please tick the answer if the statements apply to your parents.”

Response format:

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<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Not correct at all</td>
<td>Rather not correct</td>
<td>Partly correct</td>
<td>Rather correct</td>
<td>Fully correct</td>
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</table>

Structure: inv0100, inv0101, inv0102

- inv0100: When I study for an exam I know exactly how much effort my parents expect of me.
- inv0101: I know exactly what my parents expect of me in school.
- inv0102: When I come home with a class test, I know beforehand if my parents will be disappointed.
Emotional support: inv0103, inv0104, inv0105

- inv0103: My parents console me and help me when I have problems in school.
- inv0104: When I do not understand something in class I can talk about it with my parents.
- inv0105: My parents are interested in what I have learned in school.

Autonomy: inv0106, inv0107, inv0108

- inv0106: When my parents help me with my studies they encourage me to find the solution myself.
- inv0107: My parents explain to me that I can ask if I want to understand something better.
- inv0108: My parents encourage me to ask questions in class when I didn't understand something.

Control: inv0109, inv0110, inv0111

- inv0109: When I get a poor grade, my parents complain and demand that I work harder.
- inv0110: When I get a poor grade my parents threaten me with punishment (like no TV) if I do not promise to work hard in the future to improve my grades.
- inv0111: When I get a poor grade, my parents accuse me of thinking about too many other things and not enough about school.

References

Parenting Style

Summary

Parenting style can be defined as a constellation of attitudes or a pattern of parental authority towards the child, creating the emotional context for the expression of parent behavior (Leung & Tsang Kit Man, 2014). The scales for parenting style were adapted from pairfam (Huinink et al., 2011). Parenting style was assessed as parental self-report in face to face wave one (via CASI) and child report on their parents in face to face wave one (via CASI or CAPI for children aged 9 or younger) and face to face wave two (via CASI for children aged 10 to 15). If the participants were older than 18 years, all items were reformulated to assess parenting style retrospectively.

Scales and items

Self-report of parents (F2F1 only)

“How often do the following things occur with you and your child?”

Response format:

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<tr>
<th>1</th>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>Never</td>
<td>Seldom</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very often</td>
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Emotional Warmth: par0100(t/u/s), par0101(t/u/s), par0102(t/u/s), par0103(t/u/s)

- par0100(t/u/s): You show <name of child> with words and gestures that you like him/her.
- par0101(t/u/s): You praise <name of child>.
- par0102(t/u/s): You cheer up <name of child> when he/she is sad.
- par0103(t/u/s): You support <name of child> when he/she is having problems.
Psychological Control: par0104(t/u/s), par0105(t/u/s), par0106(t/u/s)

- par0104(t/u/s): If <name of child> does something against your will, you punish him/her.
- par0105(t/u/s): You are disappointed and sad when <name of child> misbehaved.
- par0106(t/u/s): You make it clear to <name of child> that he/she is not to break the rules or question your decisions.

Negative Communication: par0107(t/u/s), par0108(t/u/s)

- par0107(t/u/s): You yell at <name of child> because he/she did something wrong.
- par0108(t/u/s): You scold <name of child> because you are angry at him/her.

Monitoring: par0109(t/u/s), par0110(t/u/s)

- par0109(t/u/s): When <name of child> makes new friends, you talk to him/her about them.
- par0110(t/u/s): When <name of child> makes new friends, you get to know them soon thereafter.

Inconsistent Parenting: par0111(t/u/s), par0112(t/u/s)

- par0111(t/u/s): You threaten <name of child> with a punishment but don't actually follow through.
- par0112(t/u/s): You find it hard to set and keep consistent rules for <name of child>.

Report of children on parents (aged 5 to 9; F2F1 only)

“How often does your mother/your father do the following things?”

Response format:

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<tbody>
<tr>
<td>Never</td>
<td></td>
<td>Occasionally</td>
<td>Very often</td>
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</table>
Emotional Warmth: pas0200(m/f/n/g), pas0201(m/f/n/g), pas0202(m/f/n/g), pas0203(m/f/n/g)
- pas0200(m/f/n/g): Your mother/your father shows you that he/she likes you.
- pas0201(m/f/n/g): Your mother/your father praises you.
- pas0202(m/f/n/g): Your mother/your father tries to cheer you up when you are sad.
- pas0203(m/f/n/g): Your mother/your father supports you when you’re having problems.

Psychological Control: pas0204(m/f/n/g), pas0205(m/f/n/g), pas0206(m/f/n/g)
- pas0204(m/f/n/g): Your mother/your father punishes you when you do/did something against his/her will.
- pas0205(m/f/n/g): Your mother/your father is disappointed and sad because you misbehaved.
- pas0206(m/f/n/g): Your mother/your father makes it clear to you that you are not to question his/her decisions.

Negative Communication: pas0207(m/f/n/g), pas0208(m/f/n/g)
- pas0207(m/f/n/g): Your mother/your father yells at you because you did something wrong.
- pas0208(m/f/n/g): Your mother/your father scolds you because he/she is angry at you.

Monitoring: pas0209(m/f/n/g), pas0210(m/f/n/g)
- pas0209(m/f/n/g): When you make new friends, your mother/your father talks to you about them.
- pas0210(m/f/n/g): When you make new friends, your mother/your father gets to know them soon thereafter.

Inconsistent Parenting: pas0211(m/f/n/g), pas0212(m/f/n/g)
- pas0211(m/f/n/g): Your mother/your father threaten you with a punishment but doesn't actually follow through.
- pas0212(m/f/n/g): Your mother/your father finds it hard to set and keep consistent rules for you.
Report of children on parents (aged 10 or older, respectively aged 10 to 15) – same item wording but different answer format

Response format:

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<td>Sometimes</td>
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</table>

**Emotional Warmth:** pas0100(m/f/n/g), pas0101(m/f/n/g), pas0102(m/f/n/g), pas0103(m/f/n/g)

**Psychological Control:** pas0104(m/f/n/g), pas0105(m/f/n/g), pas0106(m/f/n/g)

**Negative Communication:** pas0107(m/f/n/g), pas0108(m/f/n/g)

**Monitoring:** pas0109(m/f/n/g), pas0110(m/f/n/g)

**Inconsistent Parenting:** pas0111(m/f/n/g), pas0112(m/f/n/g)

**References**

Sibling relationship quality

Summary

Cicirelli (1995) defines sibling relationship as “the total of the interactions (physical, verbal, and nonverbal communication) of two or more individuals who share knowledge, perceptions, attitudes, beliefs, and feelings regarding each other, from the time that one sibling becomes aware of the other” (p. 4). In the TwinLife study, sibling relationship was measured via self-report of twins and siblings. Children between 5 and 14 years of age were asked to rate affection, hostility, and rivalry in their sibling relationship on the Sibling Relationship Inventory (SRI; Boer, Westenberg, McHale, Updegraff, & Stocker, 1997). The Adult Sibling Relationship Questionnaire (ASRQ; Stocker, Lanthier, & Furman, 1997) was used for participants of 15 years and older, measuring warmth, conflict, and rivalry between siblings. In face to face wave one, children aged 5 to 9 rated their sibling relationship in the CAPI module, whereas participants 10 years and older rated their sibling relationship in the CASI module. In face to face wave two, children aged 10 or older also rated their sibling relationship in the CASI module.

Scales and items

**SRI (children aged 5 to 9; F2F1 only)**

“How about you and <name of sibling>?"

Response format:

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<td>Never</td>
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**Affection:** sre0500(t/u/s), sre0501(t/u/s), sre0502(t/u/s), sre0503(t/u/s)

**Twin on co-twin:** sre0500, sre0501, sre0502, sre0503

**Twin on Sibling:** sre0500s, sre0501s, sre0502s, sre0503s

**Sibling on twins:** sre0500(t/u), sre0501(t/u), sre0502(t/u), sre0503(t/u)
• sre0500(t/u/s): What about doing nice things like helping or doing favors for <name of sibling>? How often do you do these kind of things?

• sre0501(t/u/s): Most children are affectionate with their brother or sister sometimes even though they fight at other times. How often are you physically affectionate with <name of sibling> (such as by hugging, kissing, holding hands)?

• sre0502(t/u/s): How about if [target sibling] is hurt or upset, how often do you try to make <name of sibling> feel better?

• sre0503(t/u/s): Some children share secrets with their brothers and sisters and other children don't. How often do you share secrets with <name of sibling>?

**Hostility:** sre0504(t/u/s), sre0505(t/u/s), sre0506(t/u/s), sre0507(t/u/s)

**Twin on co-twin:** sre0504, sre0505, sre0506, sre0507

**Twin on Sibling:** sre0504s, sre0505s, sre0506s, sre0507s

**Sibling on twins:** sre0504(t/u), sre0505(t/u), sre0506(t/u), sre0507(t/u)

• sre0504(t/u/s): Brothers and sisters sometimes cause trouble or start fights or arguments with one another, even if they love each other a lot. How often would you say that you start fights or cause trouble for <name of sibling>?

• sre0505(t/u/s): How often do you feel mad or angry at <name of sibling>?

• sre0506(t/u/s): Children sometimes hurt their brother or sister on purpose like by pushing, punching or hitting him or her. How often do you do these kind of things to <name of sibling>?

• sre0507(t/u/s): Some children are mean to their brothers or sisters sometimes, even if they really care about them. How often would you say you do things to <name of sibling> like tease, bug or call him or her names?
Rivalry: sre0508(t/u/s), sre0509(t/u/s), sre0510(t/u/s), sre0511(t/u/s)

Twin on co-twin: sre0508, sre0509, sre0510, sre0511

Twin on Sibling: sre0508s, sre0509s, sre0510s, sre0511s

Sibling on twins: sre0508(t/u), sre0509(t/u), sre0510(t/u), sre0511(t/u)

- sre0508(t/u/s): Many kids complain that their mothers aren’t fair about how they treat them compared to how their mothers treat their brothers and sisters. How is this for you? How often do you feel that your mother treats <name of sibling> better than she treats you?
- sre0509(t/u/s): How about with your father? How often do you feel that he treats <name of sibling> better than he treats you?
- sre0510(t/u/s): Some children feel jealous or upset at times about the attention or affection their mother gives their brother or sister. How often do you feel sort of jealous about how your mother treats <name of sibling>?
- sre0511(t/u/s): How about with your father? How often do you feel sort of jealous about your father’s attention or affection toward <name of sibling>?

SRI (aged 10 to 14)

“How about you and <name of sibling>?”

Response format:

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<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
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Affection: sre0100(t/u/s), sre0101(t/u/s), sre0102(t/u/s), sre0103(t/u/s)

Twin on co-twin: sre0100, sre0101, sre0102, sre0103

Twin on Sibling: sre0100s, sre0101s, sre0102s, sre0103s

Sibling on twins: sre0100(t/u), sre0101(t/u), sre0102(t/u), sre0103(t/u)
- sre0100(t/u/s): What about doing nice things like helping or doing favors for <name of sibling>? How often do you do these kind of things?
- sre0101(t/u/s): Most children are affectionate with their brother or sister sometimes even though they fight at other times. How often are you physically affectionate with <name of sibling> (such as by hugging, kissing, holding hands)?
- sre0102(t/u/s): How about if <name of sibling> is hurt or upset, how often do you try to make <name of sibling> feel better?
- sre0103(t/u/s): Some children share secrets with their brothers and sisters and other children don't. How often do you share secrets with <name of sibling>?  

**Hostility:** sre0104(t/u/s), sre0105(t/u/s), sre0106(t/u/s), sre0107(t/u/s)

**Twin on co-twin:** sre0104, sre0105, sre0106, sre0107

**Twin on Sibling:** sre0104s, sre0105s, sre0106s, sre0107s

**Sibling on twins:** sre0104(t/u), sre0105(t/u), sre0106(t/u), sre0107(t/u)

- sre0104(t/u/s): Brothers and sisters sometimes cause trouble or start fights or arguments with one another, even if they love each other a lot. How often would you say that you start fights or cause trouble for <name of sibling>?
- sre0105(t/u/s): How often do you feel mad or angry at [target sibling]?
- sre0106(t/u/s): Children sometimes hurt their brother or sister on purpose like by pushing, punching or hitting him or her. How often do you do these kind of things to <name of sibling>?  
- sre0107(t/u/s): Some children are mean to their brothers or sisters sometimes, even if they really care about them. How often would you say you do things to <name of sibling> like tease, bug or call him or her names?

**Rivalry:** sre0108(t/u/s), sre0109(t/u/s), sre0110(t/u/s), sre0111(t/u/s)

**Twin on co-twin:** sre0108, sre0109, sre0110, sre0111

**Twin on Sibling:** sre0108s, sre0109s, sre0110s, sre0111s

**Sibling on twins:** sre0108(t/u), sre0109(t/u), sre0110(t/u), sre0111(t/u)
- sre0108(t/u/s): Many kids complain that their mothers aren't fair about how they treat them compared to how their mothers treat their brothers and sisters. How is this for you? How often do you feel that your mother treats <name of sibling> better than she treats you?
- sre0109(t/u/s): How about with your father? How often do you feel that he treats <name of sibling> better than he treats you?
- sre0110(t/u/s): Some children feel jealous or upset at times about the attention or affection their mother gives their brother or sister. How often do you feel sort of jealous about how your mother treats <name of sibling>?
- sre0111(t/u/s): How about with your father? How often do you feel sort of jealous about your father's attention or affection toward <name of sibling>?

**ASRQ (aged 15 or older)**

“Next there are a few questions about your relationship to <name of sibling>. How about you and <name of sibling>.”

**Warmth:** sre0200(t/u/s), sre0300(t/u/s), sre0302(t/u/s)

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Often</td>
<td>Very Often</td>
</tr>
</tbody>
</table>

**Twin on co-twin:** sre0200, sre0300, sre0302

**Twin on Sibling:** sre0200s, sre0300s, sre0302s

**Sibling on twins:** sre0200(t/u), sre0300(t/u), sre0302(t/u)

- sre0200(t/u/s): How often do you speak with <name of sibling> about things that are important to you?
- sre0300(t/u/s): How much do you try to cheer up <name of sibling> when he/she feels bad?
- sre0302(t/u/s): How close do you feel to <name of sibling>?
Conflict: sre0201(t/u/s), sre0202(t/u/s), sre0301(t/u/s)

Response format:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
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<td>Never</td>
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<td>Often</td>
<td>Very Often</td>
<td></td>
</tr>
</tbody>
</table>

Twin on co-twin: sre0201, sre0202, sre0301

Twin on Sibling: sre0201s, sre0202s, sre0301s

Sibling on twins: sre0201(t/u), sre0202(t/u), sre0301(t/u)

- sre0201(t/u/s): How often do you argue with <name of sibling>?
- sre0202(t/u/s): How often do you do things that upset <name of sibling>?
- sre0301(t/u/s): How annoyed do you get about <name of sibling>?

Rivalry: sre0400(t/u/s)_rec, sre0401(t/u/s)_rec, sre0402(t/u/s)_rec, sre0403(t/u/s)_rec

Twin on co-twin: sre0400_rec, sre0401_rec, sre0402_rec, sre0403_rec

Twin on Sibling: sre0400s_rec, sre0401s_rec, sre0402s_rec, sre0403s_rec

Sibling on twins: sre0400(t/u)_rec, sre0401(t/u)_rec, sre0402(t/u)_rec, sre0403(t/u)_rec
Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My sibling thinks that I generally get more support.</td>
<td>… that I sometimes get more support.</td>
<td>… that we get the same amount of support.</td>
<td>… that she/he sometimes gets more support.</td>
<td>… that she/he generally gets more support.</td>
</tr>
</tbody>
</table>

Recoding

| 2 | 1 | 0 | 1 | 2 |

- sre0400(t/u/s): Does <name of sibling> think your mother supports him/her or you more? (recoding needed)
- sre0401(t/u/s): Does <name of sibling> think your father supports him/her or you more? (recoding needed)

Response format:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My sibling thinks that our mother/father is generally closer to me.</td>
<td>… that our mother/father is sometimes closer to me.</td>
<td>… that our mother/father is equally close to both of us.</td>
<td>… that our mother/father is sometimes closer to her/him.</td>
<td>… that our mother/father is generally closer to her/him.</td>
</tr>
</tbody>
</table>

Recoding

| 2 | 1 | 0 | 1 | 2 |

- sre0402(t/u/s): Does <name of sibling> think your mother is closer to him/her or to you? (recoding needed)
- sre0403(t/u/s): Does <name of sibling> think your father is closer to him/her or to you? (recoding needed)
References


General References


Weidinger, A. F., Spinath, B., & Steinmayr, R. (2016). Why does intrinsic motivation decline following negative feedback? The mediating role of ability self-concept and its...


Appendix A

Variable names

Variable names in the TwinLife data follow a distinctive structure. For a more extensive overview on the data structure, please consult TwinLife on GESIS. In general, variable names consist of a) a variable stem indicating which construct was assessed; b) a number indicating the itemblock; c) a number indicating the exact item; and d) in case of an external report, a suffix indicating about whom there is information available:

Variable stem (construct) - Item block - Item number - (Person code, in case of an external report)

In the following, two examples for variable names are explained more thoroughly.

External Report

pas0100m: pas (Parenting style) - 01 (First itemblock) - 00 (First item in itemblock) - m

(External report on the mother)

Consequently, the item pas0100m represents the child’s rating of parental style, more precisely on how much affection the parent, here the mother, shows.

Person codes suffixes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>t</td>
<td>First-born twin</td>
</tr>
<tr>
<td>u</td>
<td>Second-born twin</td>
</tr>
<tr>
<td>s</td>
<td>Sibling</td>
</tr>
<tr>
<td>m</td>
<td>Mother of twins</td>
</tr>
<tr>
<td>f</td>
<td>Father of twins</td>
</tr>
<tr>
<td>n</td>
<td>Mother’s partner</td>
</tr>
<tr>
<td>g</td>
<td>Father’s partner</td>
</tr>
</tbody>
</table>
Self-report

per0102: per (Personality) - 01 (First itemblock) - 02 (Third item in itemblock)

In result, the item per0102 represents the respondent’s rating on his/her personality via self-report. More precisely, it represents the rating on the tendency to be rude to others.