What´s the difference? Using deliverable components to characterize interventions provided to children and adolescents with behavioral and emotional problems.
Abstract

**Background** – More detailed information on care for children with behavioral and emotional problems may help to improve the effectiveness. Therefore the Taxonomy of Care for Youth (TOCFY) was developed.

**Objective** – The aim of this study is to assess (1) to what extent the number of ‘well-defined’ interventions could be reduced after merging those with a similar profile in terms of contents, and (2) whether this reduction varies in extent between ‘well-defined’ and ‘poorly defined’ interventions.

**Methods** – Professionals scored the appropriateness of the descriptors representing the activities carried out concerning the group of ‘well-defined’ interventions (N=35). Interventions with similar scores on descriptors were merged. The results of this analysis were then compared with the results of an earlier study on characterizing methodical aspects that presented the ‘poorly defined’ interventions.

**Results** – The number of ‘well-defined’ interventions could be reduced to 19 distinct types, with the largest reductions within the main types ‘individual child support’ and ‘family support’. The reductions were somewhat smaller for ‘well-defined’ than for ‘poorly defined’ interventions.

**Conclusions** – The descriptors used in this study enabled to characterize the various types of care offered, thereby creating an overview of distinct interventions. More information on the methodical aspects that represent an intervention could support the choice of the appropriate type of care for children with behavioral and emotional problems.

**KEYWORDS**
Mental health care, child and youth care, primary health care, behavioral problems, emotional problems
Introduction

To improve the effectiveness of the care offered to children with behavioral and emotional problems, the characteristics of care and treatment are of increasing interest (Abraham & Michie, 2008; Ballinger, Asburn, Low, & Roderick, 1999; Garland et al., 2010; Lloyd-Evans, Johnson, & Slade, 2007). Until now no consensus exists about how information on these treatment characteristics could be gathered and arranged, even though it is very important to obtain more knowledge on this in a standardized and structured way. This knowledge may help policymakers and practitioners in making well-founded decisions about the care offered to children with behavioral and emotional problems (Chorpita & Daleiden, 2009; Cjaza, Schulz, Lee, & Belle, 2003; Ezell et al., 2011; Harden & Klein, 2011; Lee & Barth, 2011; Marsh, Angell, Andrews, & Curry, 2012; Miller & Row, 2009; Yohalem & Wilson-Ahlstrom, 2010).

The labelling of interventions does not always accurately reflect the actual contents of an intervention. Identical labels could be used for differing care modules or treatments, while similar treatments might be given different labels (Van Yperen, Van Rest, & Vermunt, 1999; Lloyd-Evans et al., 2007). Therefore, more knowledge is needed concerning the characteristics of care and treatment on a more detailed level. In this way, the contents of interventions become more clear and this also enlarges transparency between professionals concerning the techniques and activities used.

A Taxonomy of Care for Youth (TOCFY) was developed within the context of the Collaborative Center on Care for Children and Youth with behavioral and emotional problems (C4Youth) in the Northern part of the Netherlands in order to gather more information on the most salient aspects of the care process (Evenboer, Huyghen, Tuinstra, Knorth, & Reijneveld, 2012). C4Youth is a collaboration between research, practice, education and policy (Knorth, Reijneveld, Van Eijk, Noordik, & Tuinstra, 2012). The collaboration entails exchange of knowledge between the included parties, and the collection of new knowledge on the process of provision of care. Pivotal in the latter is a longitudinal prospective cohort study, called TAKECARE (Tracing Achievements, Key processes and Efforts in professional care for Children and Adolescents REsearch). For this cohort information is obtained on the entire chain of care and its long-term outcomes as well as on a reference group of children not in care (Verhage, Noordik, Knorth, & Reijneveld, 2014).

TOCFY has been designed to obtain data on the care as provided to this cohort. It comprises six domains of care, i.e., the contents, judicial context, duration, intensity, recipients, and the expertise of the professionals. The contents domain is the most exhaustive one, with the interventions offered within primary health care, child and youth care, and mental health care classified at the meso-level by using categories and subcategories. For example the so-called “care program for behavioral disorders” of one of the participating organizations consists of two categories: a diagnostic trajectory and a treatment trajectory. The treatment trajectory is further divided into subcategories, for example ‘social skills training’ and ‘cognitive behavioral therapy’. The terminology used within the domains judicial context, duration, intensity, recipients, and professional expertise are similar across organizations, enabling an inter-organizational comparison of interventions regarding these domains.
In contrast, the first domain of TOCFY, ‘contents of care,’ contains mainly organization-specific labels of interventions. This facilitates a full response of professionals who were using TOCFY for classifying care—they recognize the labels (Evenboer et al., 2012; Evenboer, Huyghen, Tuinstra, Reijneveld, & Knorth, 2014a). Nevertheless, to enable comparisons of the care offered regarding contents, i.e. the first domain of TOCFY, these interventions have to be further assessed. The contents of interventions can be assessed in several ways. Evenboer, Huyghen, Tuinstra, Reijneveld and Knorth (2014b) used a specific assessment procedure. First, the total amount of interventions offered in a region (the Dutch province of Groningen) was classified into two groups, namely ‘poorly defined’ and ‘well-defined’ interventions. ‘Well-defined’ interventions are those that are included in the thesaurus of the ‘Effective Youth Interventions’ database (Netherlands Youth Institute, 2013); ‘poorly defined’ interventions are those that are not included in here. Second, a standardized list of descriptors was elaborated to characterize the contents of the interventions.

The Database ‘Effective Youth Interventions’ (EYI) of the Netherlands Youth Institute (2013) was used to obtain a list of descriptors of interventions. An overview was provided of the most frequently used descriptors—phrases or ‘techniques’ used to indicate what is being done within an intervention—and reformulated them into a standardized format. An example of a descriptor is the following expression: ‘regulate emotions,’ which was reformulated as: ‘prompting client to regulate emotions.’ Subsequently, the list of standardized descriptors was applied for categorizing the various types of interventions offered to children with behavioral and emotional problems.

The method, further clarified below, was first applied to the group of ‘poorly defined’ interventions, considering this to be the most difficult group to characterize. These ‘poorly defined’ interventions do not have a name or label, but the specific content of these interventions is not clearly described in protocols or manuals. As a consequence, the activities and techniques to be carried out in these ‘poorly defined’ interventions are not transferable and this hinders more research on the effectiveness of these interventions. The results showed that the method enabled us to identify similarities and differences in the contents of these ‘poorly defined’ interventions and to merge interventions with a highly similar profile of activities (Evenboer et al., 2014b), leading to a decrease in the number of distinct interventions. This especially concerned interventions aimed at ‘family support’ and ‘parenting support’.

In this study, the specific assessment procedure was extended to the group of ‘well-defined’ interventions. The aim of this study is to assess (1) to what extent the number of ‘well-defined’ interventions could be reduced after merging those with a similar profile in terms of contents, and (2) whether this reduction varies in extent between ‘well-defined’ and ‘poorly defined’ interventions. Based on the studies of Hibbs (2001) and Van der Linden and De Graaf (2010) we expect that the reduction of interventions into distinct types is larger within the group of ‘poorly defined’ interventions than within the group of ‘well-defined’ interventions.
Method

Sample
Four care organizations in primary health care (PHC, offering N=7 interventions), child and youth care (CYC, N=42), and mental health care (MHC-A, N=31; MHC-B, N=11) participated in the study. The manuals concerning the interventions offered by these four care organizations (in total N=91) were used to obtain more detailed information about the contents of care. Written and informed consent was given by those who actually participated in the study. The design was assessed by the Medical Ethics Committee of the University Medical Center Groningen, and approved without needing full assessment. There is no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Procedure
Briefly, we first categorized interventions and identified relevant descriptors per main type of support. In addition, experts rated all interventions, using these descriptors, resulting in a merge of those ones with highly comparable profiles. The same procedure was already successfully used in a previous study of Evenboer and colleagues (2014b) for assessing the group of ‘poorly defined’ interventions in the same catchment area, thereby offering an opportunity to compare the outcomes in that study with the current findings.

We assessed whether the interventions that came across were conceptually and empirically founded by using four criteria that were formulated and applied by an independent committee of national experts evaluating interventions in the context of accreditation for the EYI databank (Zwikker, Van Dale, & Kuunders, 2009). We determined (1) whether a protocol description was available, (2) whether the intervention was theoretically well-founded, (3) whether research had been done on the intervention, and (4) whether scientific literature had been published on the intervention (cf. Veerman & Van Yperen, 2008). Of the 91 intervention, 35 met all four criteria and were labelled as ‘well-defined’ interventions; the other 56 interventions, which did not meet all four criteria, were labelled as ‘poorly defined’. In the current study we will focus on these ‘well-defined’ interventions – like, for instance, ‘Families First’ and ‘Triple P’ –, and compare findings on these with findings on ‘poorly defined’ ones – like, for instance, ‘parent counseling’ and ‘individual support’.

Thereafter, we categorized the 35 ‘well-defined’ interventions by main type of support, a term indicating the most important activities carried out to improve the functioning and development of children, adolescents and their families. The categorization was made based on the names of the interventions and the treatment manuals available. The terminologies and descriptions of the treatment manuals were the leading indicators for defining the main types of support.

Professionals working at the participating care organizations scored the interventions on descriptors using a seven-point Likert scale ranging from (1) ‘very poor’ to (7) ‘very good’. ‘Very poor’ meant that a descriptor was very inaccurate, while ‘very good’ meant that the descriptor fully
represented the activities that were carried out. A set of 20 descriptors was found to be a feasible amount for enabling a general categorization of the contents of the interventions (cf. Abraham & Michie, 2008). For all interventions carried out by the PHC, CYC and MHCs we randomly selected two professionals who carried out that type of care to score the activities of the intervention. The background of these professionals varied from psychiatry and psychology to behavioral and family counseling. Prior to scoring the interventions, professionals received a short instruction on how to fill in the score forms. Each intervention was assessed by two professionals to increase validity and reliability.

**ANALYSIS**

The interventions were compared to others within the same main type of support category regarding similarities and differences in contents. First, we computed for each intervention mean scores per descriptor, based on the scores of the two raters and compared these means to the overall mean scores per descriptor for each main type of support. In deciding to merge interventions, 60% of these mean scores per descriptor were allowed to differ from the overall mean score per descriptor up to a maximum of 0.5 of a rating point. The total overall mean score of an intervention was allowed to differ by a maximum of 0.5, compared to the overall mean score for the main type of support. Interventions that did not meet both criteria - and thus were not merged with other interventions - were then compared pairwise using the mean scores per descriptor rather than the overall mean scores per descriptor. Subsequently, data from our previous study on ‘poorly defined’ interventions (Evenboer et al., 2014b) were added for reasons of comparison.

**Results**

In total 34 ‘well-defined’ interventions were analyzed, derived from primary health care (N=6), child and youth care (N=13), and mental health care (MHC-A, N=10; MHC-B, N=5). One intervention of MHC-A was not assessed, because it was no longer provided.

The first step (Figure 6.1) resulted in six main types of support, i.e. ‘trauma support’, ‘experiential learning support’, ‘individual child support’, ‘independent living support’, ‘parenting support’, and ‘family support’. Table 6.1 shows the number of interventions before and after the four steps, as well as examples of descriptors per main type of support. Included are also some data on ‘poorly defined’ intervention from our former study (see fifth column).

The reduction in the group of ‘well-defined’ interventions (44%) was somewhat smaller than the reduction in the group of ‘poorly defined’ interventions (52%). The largest reduction was obtained in the category ‘individual child support’ in the group of ‘well-defined’ interventions, while in the group of ‘poorly defined’ interventions this concerned the category ‘family support’.

Prior to scoring the interventions, professionals received a short instruction on how to fill in the score forms. Each intervention was assessed by two professionals to increase validity and reliability.
Figure 6.1: Overview of the procedure used to identify distinct interventions

<table>
<thead>
<tr>
<th>Main type of support</th>
<th>Well-defined N = (before)</th>
<th>Poorly-defined N = (after)</th>
<th>Reduction (%) 'well-defined'</th>
<th>Reduction (%) 'poorly-defined'</th>
<th>Examples of descriptors per main type</th>
</tr>
</thead>
</table>
| Foster care support      | N = 0                     | N = 0                       | N.A.*                       | 50%                           | - Providing information about the situation
                                                                                                             - Recognizing, identifying and acknowledging feelings
                                                                                                             - Addressing feelings of guilt
|                         |                           |                             |                             |                               | - Teaching client how to set rules
                                                                                                             - Stimulating client to relive an event
                                                                                                             - Prompting client to express emotions
| Trauma support           | N = 3                     | N = 3                       | 0.0%                        | 33.3%                         | - Showing client how to deal with unfamiliar learning support situations
                                                                                                             - Facilitating positive experiences
                                                                                                             - Teaching client how to deal with setbacks and frustrations
| Experiential learning support | N = 1                   | N = 1                       | 0.0%                        | 50.0%                         | - Instruction in cognitive restructuring
                                                                                                             - Stimulation motivation
                                                                                                             - Prompting client to express emotions
| Individual child support | N = 20                    | N = 9                       | 55.0%                       | 50.0%                         | - Training in self-regulation
                                                                                                             - Analysing the client’s social environment
                                                                                                             - Providing positive reinforcement
| Independent living support | N = 1                    | N = 1                       | 0.0%                        | 33.3%                         | - Showing clients how to use positive reinforcement
                                                                                                             - Stimulation of interaction
                                                                                                             - Teaching clients to use disciplinary rules
| Parent support           | N = 3                     | N = 2                       | 33.3%                       | 43.7%                         | - Stimulating interaction
                                                                                                             - Giving behavioural instructions
                                                                                                             - Prompting clients to practice behavioural instructions
| Family support           | N = 6                     | N = 3                       | 50.0%                       | 63.6%                         |                                                                                                    |

*N.A.* = Not Applicable for this main type of support

The analysis of the contents decreased the number of distinct interventions, especially within the group ‘individual child support’ (Table 6.1). The results reveal that both different interventions within the same care organization and different interventions belonging to different organizations sometimes had comparable contents (Figure 6.2). For ‘individual child support’ two CYC, four MHC-A and four MHC-B interventions could be considered similar concerning their contents.

Alongside, there were also a number of CYC and MHC-A interventions in ‘individual child support’ that were distinct interventions. ‘Trauma support’ contained three interventions that had to be considered as distinct types of interventions.

In conclusion, the original 34 ‘well-defined’ interventions offered by the four care organizations participating in the C4Youth study could be reduced to 19 distinct interventions.
Overview of the procedure used to identify distinct interventions

categorizing interventions into main types of support

Rating of descriptors of each intervention within each main type of support

identifying descriptors for each main type of support

merging interventions into distinct interventions

Number of interventions for each main type of support, before and after analysis

table 6.1

<table>
<thead>
<tr>
<th>Main type of support</th>
<th>N = (before)</th>
<th>N = (after)</th>
<th>'well-defined'</th>
<th>'poorly-defined'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foster care support</td>
<td>N. A.*</td>
<td>N. A.*</td>
<td>N. A.*</td>
<td>N. A.*</td>
</tr>
<tr>
<td>Trauma support</td>
<td>N = 0</td>
<td>N = 3</td>
<td>N = 3</td>
<td>N = 3</td>
</tr>
<tr>
<td>Experiential learning support</td>
<td>N = 1</td>
<td>N = 1</td>
<td>N = 9</td>
<td>N = 1</td>
</tr>
<tr>
<td>Individual child support</td>
<td>N = 20</td>
<td>N = 1</td>
<td>N = 1</td>
<td>N = 5</td>
</tr>
<tr>
<td>Independent living support</td>
<td>N = 1</td>
<td>N = 1</td>
<td>N = 1</td>
<td>N = 1</td>
</tr>
<tr>
<td>Parent support</td>
<td>N = 6</td>
<td>N = 3</td>
<td>N = 3</td>
<td>N = 3</td>
</tr>
<tr>
<td>Family support</td>
<td>N = 6</td>
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In conclusion, the original 34 'well-defined' interventions offered by the four care organizations participating in the C4Youth study could be reduced to 19 distinct interventions.

*Experiential learning support: Interventions which are aimed at supporting youth by actively engaging in activities within the context of treatment. **Independent living support: Interventions which prepare and stimulate adolescents to independently organize their own housing and life.

**Figure 6.2**  Number of distinct interventions within the six main types of support
Discussion

The aim of this study was to assess (1) to what extent the number of ‘well-defined’ interventions in a catchment area could be reduced after merging those with a similar profile in terms of contents, and (2) whether this reduction varies in extent between ‘well-defined’ and ‘poorly defined’ interventions. The descriptors used in this study enabled the comparison of the contents of ‘well-defined’ interventions within six main types of support. The total amount of these interventions could be reduced to 19 distinct interventions within and across the participating care organizations. The total reduction within the group of ‘well-defined’ interventions (44%) was somewhat smaller than in the group of ‘poorly defined’ interventions (52%).

The relatively large reduction within the group of ‘well-defined’ interventions is in contrast with statements made by Van der Linden and De Graaf (2010), and Hibbs (2001) concerning the ‘evidence based practice revolution’. Despite the fact that these ‘well-defined’ interventions were theoretically founded and research was done on them, they did not seem to be all so unique as it looked like; a considerable reduction was feasible, especially within the main type ‘individual child support’. For the group of ‘poorly defined’ interventions the reduction within the main category ‘family support’ was the largest (63.6%). This is in line with outcomes of Loeffen and colleagues (2004) and Veerman and colleagues (2005); the last ones identified in the Dutch area more than 90 differently labeled ‘family preservation programs’, indicating quite some overlap in methods and target groups.

A substantial part of the interventions was highly similar concerning its contents, especially - as mentioned before - within the main types ‘individual child support’ and ‘family support’. Interventions that were merged for example within ‘individual child support’ involved treatment modules like ‘Emotion Regulation Therapy (ERT), ‘Aggression Regulation Therapy (ART)’, and ‘Social Skills Training (SST)’. It indicates that the contents were rather similar across these interventions on a meso-level of analysis. Or, to put it in other words, although focused on various psychosocial problems (like emotional distress, aggressive behavior or social incompetence) these three interventions seem to make use for the greater part of comparable ‘treatment ingredients’. That does not mean, however, that ERT, ART and SST are identical interventions. Differences concern the type of problem behavior and the target group; factors that will influence the implementation of meso-level descriptors at a micro-level in daily practice.

The outcomes of this study showed that despite the various terminologies that were used to describe the care offered, the contents of a substantial part of the interventions were rather similar or comparable. It concerned not only interventions offered across care organizations, but also within the same care organization. This shows the importance of using standardized descriptors for the contents of care. Although we did not assess inter-rater reliability in terms of total agreement on the scores of a descriptor, we analyzed the amount of cases in which the differences between the scores of both raters on a descriptor were more than two points on a seven-point Likert scale. The proportion of such differences was very small (5.7%) indicating that professionals involved in our study had strong
agreement concerning the descriptors that mostly characterized an intervention.

Until now, a comparison of interventions was rather difficult, and it was even more challenging to link the care received to client characteristics and outcomes across care organizations (Abraham & Michie, 2008; DeJong et al., 2004; Michie et al., 2011). Not being able to study these kinds of associations is a serious threat for gathering scientific knowledge that serves the quality enhancement of our care systems (Michie et al., 2011).

Using descriptors to characterize the contents of interventions is relatively new in the field of primary health care, child and youth care, and mental health care. Abraham and Michie (2008) and Michie et al. (2011) used a set of labels concerning ‘behavior change techniques’ to characterize interventions that were aimed at physical activity, healthy eating or smoking cessation. Another example of classifying interventions is the Distillation and Matching Model (DMM) of Chorpita and Daleiden (2009). The DMM classifies interventions based on their contents, target group and specific type of problem behavior to be tackled. In this way, evidence-based ‘practice elements’ or treatment operations across interventions could be classified in a sophisticated way. It also provides more opportunities to investigate the effectiveness of interventions as it classifies treatment operations on a meso/micro level. The method that was used in our study focused specifically on characterizing the contents of all interventions offered to children with behavioral and emotional problems and their families within a specific catchment area.

Studies of Abraham and Michie (2008), Michie and colleagues (2011) and Chorpita and Daleiden (2009) showed that for gathering knowledge on techniques and activities of care and treatment provided, a discipline-specific taxonomy is important. Also within other fields of care discipline-specific classifications were used, for example to classify nursing techniques within hospitals (Stocker-Schneider & Haynes Slowik, 2009; Thoroddson, 2005). In this way, professionals within various care settings are able to closely monitor the care that is being provided.

**STRENGTHS AND LIMITATIONS**

A strength of this study is that the descriptors used to classify the contents of the interventions were defined independently of the organization-specific labels used by the four care organizations themselves. These descriptors provided a standard which allowed greater insight into the contents of the care offered. Another strength is that we were able to compare the contents of the interventions used by different types of care organizations in the field of primary health care, child and youth care, and mental health care. In addition, the interventions were characterized by two professionals, decreasing the likelihood of bias during the assessment of the interventions.

A limitation of the study might be that despite using the EYI databank’s thesaurus we may have overlooked some important descriptors of the care offered—only the 20 most frequently used descriptors were selected. Nevertheless, 20 is a relatively large number of descriptors to characterize an intervention. Moreover, the scores of the descriptors by the professionals were generally rather high, suggesting they were good representations of the activities and operations carried out as part of an intervention.
IMPLICATIONS
Further research is needed to assess whether and to what degree the contents of the ‘poorly defined’ and ‘well-defined’ interventions are similar as well.

An implication for practice is that the interventions offered by the four care organizations might be reduced to a smaller set of prototype interventions per main type of support. These prototypes of interventions could be used to provide a more transparent and systematic overview of distinct interventions per organization. The method in this study can also be applied to the package of interventions offered by other care organizations. This could not only encourage better communication between professionals within care organizations but also across them (Jager, Reijneveld, Metselaar, Knorth & De Winter, 2014), and may actually support clients and their caregivers in choosing the appropriate type of care.

Besides using more standardized descriptors for characterizing care, there should also be more strict guidelines to describe interventions. Application of guidelines, inspired by a model of Hoffman and colleagues (2014), resulted in improved reports on interventions and helped professionals to better structure these interventions in daily practice.

Comparative information on the contents of regularly applied interventions will be of interest for training purposes. (Future) professionals can be educated in using the descriptors, formulated on the meso-level, as a baseline of competencies to be appropriated. They may function as a starting point for application with different types of problems and different target groups at a more detailed micro level. Professionals being more aware of the techniques and activities used in a specific situation and recording this type of information, could provide care organizations with more knowledge on potentially effective treatments tailored for a specific target group. On the longer term, this could enhance more positive outcomes for children, adolescents and their families with behavioral and emotional problems.

The Taxonomy of Care for Youth (TOCFY) may enable in the future to classify the most salient aspects of the care offered to children with behavioral and emotional problems, and then to investigate the connection between the problem behavior, the care they receive and the outcomes that become apparent after leaving care (Maschi, Hatcher, Schwalbe, & Rosato, 2008; Miller & Row, 2009; Ten Brink, Veerman, De Kemp, & Berger, 2004). In this way, we get indications about what kind of care could be offered to children with a specific type of behavioral or emotional problem, thereby optimizing the care process. The method that was used to develop TOCFY and the specific assessment procedure elaborated in this study are also applicable in other care settings, countries and cultural contexts. Although our findings show that the TOCFY instrument is promising, we recommend to test it in other areas and contexts as well.

CONCLUSION
The number of ‘well-defined’ interventions in the target region could substantially be reduced, especially within the main type ‘individual child support’. For the ‘poorly defined’ interventions the
The greatest decrease was reached regarding ‘family support’. Assessing the similarity and distinction between interventions in a region will help to get a clearer overview of the care offered.
References


