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Professionalizing Care Workers: Outcomes of a 'Motivational Interviewing' Training in Residential Youth Care

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ABSTRACT

Behavioral change in adolescents is often an important aim of residential youth care, but difficult to achieve. Care workers can increase the intrinsic motivation of adolescents to change their behavior by applying Motivational Interviewing (MI). The aim of this study is to investigate whether there is a difference in workers' performance vis-à-vis adolescents before and after an MI training course. To measure this difference, we coded transcripts of audio recordings of one-on-one conversations between adolescents and workers, using the MITI 4.2.1 and MISC 2.5. We compared the transcripts made before the MI training course with the transcripts made after the training course. The results show that the 13 workers made significantly more use of MI adherent behaviors after the training course. Moreover, a trend toward using fewer MI non-adherent behaviors after the training was observed. The results suggest that workers are able to evoke more 'change talk' with adolescents after a training course. In conclusion, after attending a training course, workers are able to engage in conversations that are more in line with the MI-spirit. However, these are still not "real" MI conversations yet. We recommend to train workers more intensively in how to apply MI.

Introduction

Residential youth care offers 24/7 care to young people between 0 and 23 years of age who cannot either temporarily or permanently live at home (Boendermaker, Van Rooijen, Berg, & Bartelink, 2013). Young people are placed in residential facilities generally because of serious behavioral problems and/or due to contextual factors, such as neglect, abuse, or parents who lack parenting skills. The young people who live in residential facilities are usually between 12 and 18 years old. Although they have various problems, the problems most prominent among these adolescents are usually externalizing behavioral problems (Harder, Knorth, & Zandberg, 2006). Generally speaking, they are unmotivated or only vaguely motivated to

change their behavior (Harder, 2011), which contrasts with the fact that a goal of residential youth care is changing behavior (i.e., reducing behavioral and developmental problems) (Harder & Knorth, 2015).

Motivation for behavioral change, or the lack of it, is not a fixed personality trait. It is determined by dynamic child and contextual factors, and care professionals can influence it (Miller, 1999). Care workers working in a residential youth care facility can play a particularly important role in achieving behavioral change among adolescents, because they play an active role in their daily environment. In this context, it is important for professionals to build a good *therapeutic working relationship* with the adolescents (Geenen, 2014).

Motivational Interviewing (hereinafter MI) is an effective method for achieving behavioral change in people by focusing on creating a good therapeutic working relationship (Miller & Rollnick, 2013). MI is a " … collaborative, goal-oriented style of communication with particular attention to the *language of change*. It is designed to strengthen personal motivation and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion" (Miller & Rollnick, 2013, p. 29, our italics). Although developed for treatment of addiction (Arkowitz, Miller, & Rollnick, 2015), MI seems just as useful in 24/7 youth care, since its focus on client autonomy appeals to adolescents: Autonomy and independence are exactly the developmental challenges central to their present stage in life (Feldstein & Ginsburg, 2006; Naar-King & Suarez, 2011). The use of MI skills can help residential care workers to create a *positive therapeutic relationship* with adolescents and to increase adolescents' *intrinsic motivation for change* (Harder, 2011). Residential care workers who follow MI principles in their work show competences such as empathy, and they apply *MI adherent* skills, such as seeking collaboration with adolescents and emphasizing their autonomy. Moreover, they adhere to MI norms for basic competences and skills. The first basic competence is the percentage of 'complex reflections' in relation to 'simple reflections.'[1] At least 50% of complex reflections need to be made while using MI correctly. The second basic competence is the ratio of the number of reflections made to the number of questions asked: According to MI norms, for every question raised two reflections must be made. At the same time, residential care workers, who work according to MI principles, avoid *MI non-adherent* behavior, such as confronting adolescents, or giving them information and advice without their permission, as much as possible (Moyers, Manuel, & Ernst, 2014).

Common methods used to acquire skills, such as Motivational Interviewing skills, by practitioners are one-time clinical workshops and self-study (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004). However, MI is a complex set of skills that requires continued support in order to build ability (Miller et al., 2004). For instance, according to Schwalbe, Oh, and Zweben (2014), at least three additional coaching sessions after an MI

training workshop are needed over a period of six months in order to implement the MI skills acquired.

A meta-analysis by Magill et al. (2014) has revealed that MI adherent behaviors lead to more 'change talk' expressed by clients. Furthermore, MI non-adherent behaviors lead to less 'change talk' and more 'sustain talk.' 'Change talk' refers to a person's own utterances in favor of change (Miller & Rollnick, 2013) and is associated with actual behavioral change (Moyers, Martin, Houck, Christopher, & Tonigan, 2009). 'Sustain talk' refers to a person's own utterances about maintaining the (undesirable) behavior (Miller & Rollnick, 2013) and is associated with absence of behavioral change (Magill et al., 2014). It is possible that a person has reasons for change and, at the same time, reasons for maintaining the status quo. This is often expressed within the same sentence and is known as ambivalence. According to MI, it is the role of the professional to elicit 'change talk' (Miller & Rollnick, 2013).

The often serious and complex problems among adolescents in residential care make it difficult for residential care workers to build good therapeutic work relationships with them (Harder, 2011). There are also questions about the effectiveness of residential youth care (Whittaker, Del Valle, & Holmes, 2015). It seems difficult to achieve long-term behavioral change among this target group (Harder, 2018; Knorth, Harder, Zandberg, & Kendrick, 2008): Should positive changes occur in young people during treatment, for instance, they tend to then disappear over time (Frensch & Cameron, 2002). The training of residential care workers in MI might contribute to an increase in the quality and effectiveness of residential youth care (cf. Harder, 2018).

Little research has been done into the outcomes of training courses on the skills of residential care professionals. In addition, to the best of our knowledge, the outcomes of an MI training course have never been investigated before in residential youth care (cf. Eenshuistra, Harder, & Knorth, 2019). To gain more insight into this matter, this study aims to investigate whether residential care workers change their behavior toward adolescents after completing an MI training course, and, consequently, whether adolescents show more 'change talk' and less 'sustain talk.' We will examine this by focusing on the following questions:

(1) To what extent do residential care workers use more MI adherent and fewer MI non-adherent skills after an MI training course than before?
(2) To what extent have residential care workers developed basic competences characteristic of MI after an MI training course?
(3) To what extent are residential care workers able to evoke more 'change talk' and less 'sustain talk' with the adolescents after an MI training course?

This study is a continuation of a previously published study about a baseline measurement of recordings of one-on-one conversations between residential care workers and adolescents (Eenshuistra, Harder, Van Zonneveld, & Knorth, 2016). In the present study, we expect to see an increase in MI adherent skills and a decrease in MI non-adherent ones among residential workers. We further expect the participants to at least attain the norm as drawn up for the two basic MI competences. These norms are at least 50% complex reflections in relation to the total amount of reflections made and at least a ratio of reflections/questions of 1/1 (Moyers et al., 2014). Furthermore, it is expected that workers will be able to evoke more 'change talk' and less 'sustain talk' with adolescents after an MI training course (Miller & Rose, 2009).

Method

The study is part of "A Better Basis" a research project carried out at the University of Groningen and funded by *ZonMw* (the Netherlands Organization for Health Research and Development).

Setting

The study focuses on adolescents and their mentor (residential care worker) at one of the three participating locations of a residential youth care facility in the North of the Netherlands, which expressed interest in participating in the study.

Two of the locations provide independent training for young people aged 12 to 18 who cannot either temporarily or permanently live at home due to adverse circumstances. These young people, and usually their parents, often have various problems. The other participating location offers both forced and voluntary treatment to adolescents aged 12 to 18 with psychiatric and behavioral problems. Three of the living groups of this location are involved in the research.

During their stay, the adolescents are assigned to a mentor with whom they hold one-on-one conversations. The mentor is one of the pedagogical staff members at the residential group. The allocation of a mentor is usually based on who is (coincidentally) available at the time of placement of the adolescent. The mentor plays a central role in the implementation of the individual treatment plan of the adolescent.

The treatment model that is currently applied by residential care workers in the group is the *social competence model* (Durrant, 1993; Slot & Spanjaard, 2016). This token economic model is based on the assumption that the cause of adolescents' problems is a lack of skills. As a result, care workers aim to improve the circumstances of the adolescents by teaching them skills or

competences (Harder, 2018). The social competence model is regularly used in residential youth care facilities to achieve behavioral change with adolescents. According to this model, adolescents can gain points for showing desirable behavior or lose points when showing undesirable behavior. The "level" of the adolescent is based on points obtained over a certain period of time (Drumm et al., 2013; Mohr, Martin, Olson, Pumariega, & Branca, 2009; Tompkins-Rosenblatt & VanderVen, 2005). By giving adolescents points for their behavior, *extrinsic motivation for change* is stimulated.

Participants

The sample consisted of 13 residential care workers, who work in one of the three participating residential treatment groups. For recruitment of the residential care workers, we made use of "convenience sampling" (Henry, 1990). Table 1 contains the personal background characteristics of the residential care workers who participated in the study.

Table 2 shows the characteristics of the adolescents who participated in the pretest and posttest measurements.

Instruments

Motivational Interviewing Treatment Integrity 4.2.1
The behavior of the residential care workers during the one-on-one conversation with the adolescents was coded using the Dutch version of an instrument called the Motivational Interviewing Treatment Integrity (MITI) 4.2.1.

Table 1. Characteristics residential care workers (N = 13).

	M	SD (range)
Age	38.1	8.8 (26–54)
	N	*%*
Gender [male]	7	53.8
Nationality [Dutch]	13	100.0
Level of education		
Higher education	8	61.5
Secondary vocational education	5	38.5

Age on the date of submission of the pretest recording.

Table 2. Characteristics adolescents during pretest (N = 11) and posttest (N = 11).

	Pretest		Posttest	
	M	*SD (range)*	*M*	*SD (range)*
Age	16.1	1.4 (13–17)	15.1	1.8 (12–17)
	N	*%*	*N*	*%*
Gender [male]	10	90.9	7	63.6
Placement [voluntary]	7	63.6	6	54.5

During both measurement moments, two adolescents participated in two one-on-one conversations

(Moyers et al., 2014). The MITI aims to assess the *MI skills* that care professionals use during their conversations with clients. The MITI consists of two parts: Global scores and behavior counts. For the present study, we only used the behavior counts, because we were mainly interested in the type of MI adherent/non-adherent behaviors, along with adolescents' responses to these behaviors, during the conversation. Behavior counts map specific behavior by care professionals and subdivide different types of behavior using the following codes: 'Giving Information' feeds the client neutral information; 'Persuade without Permission' attempts to influence or persuade the client without stressing the client's autonomy; 'Persuade with Permission' attempts to persuade the client to change but seeks collaboration with the client or stresses the client's autonomy; 'Question' asks the client questions; 'Reflection Simple' briefly summarizes the client's story, staying close to the client's own words; 'Reflection Complex' gives deeper meaning to the client's words or emphasizes what has been said; 'Affirm' highlights something positive about the client; 'Seeking Collaboration' attempts to share power with the client or recognizes the client's expertise; 'Emphasizing Autonomy' makes the client responsible for decisions and actions related to change; and 'Confront' confronts the client by correcting, accusing or criticizing the client (Moyers et al., 2014). In this study, we added the code 'Other' for utterances that do not meet the specific MITI codes.

In the MITI, the codes 'Affirm,' 'Seeking Collaboration' and 'Emphasizing Autonomy' correspond to MI adherent behavior. In this study, we added the code 'Persuade with Permission' to this list, because this is considered as a behavior that is used by therapists who apply MI during conversations. The codes 'Confront' and 'Persuade without Permission' reflect MI non-adherent behavior. Research has demonstrated the good reliability of the MITI 4.2.1. Interrater reliability tests, using non-expert undergraduate coders on the scales we used, varied between the values 0.73 and 0.97 (Moyers, Rowell, Manuel, Ernst, & Houck, 2016). In our study, two team members coded the transcripts. We first coded the transcripts independently, then we compared the codes. We discussed the codes that deviated from each other intensively and ultimately decided on the final code together. We worked with consensus scores, because the received one-on-one conversation recordings did not always fit well with the MITI model. This sometimes made it difficult to code the transcripts. By using consensus scores, we enhanced intercoder agreement.

Motivational Interviewing Skills Code 2.5
We used the Motivational Interviewing Skills Code (MISC) encoding scheme, version 2.5 (Houck, Moyers, Miller, Glynn, & Hallgren, 2013) to measure *motivation for change* among adolescents during the one-on-one conversations. The MISC 2.5 consists of 'behavior counts' and a global score for 'client self-exploration.' For the present study, we only used the behavior

counts, because we were mainly interested in varieties of 'change and sustain talk' that adolescents showed during the conversations.

Each utterance of the adolescent was coded as 'change talk' if it reflected an inclination *toward* changing the target behavior, and as 'sustain talk' if it reflected an inclination *away from* it. Both 'change talk' and 'sustain talk' could be coded into the following categories: (a) 'Commitment,' the intention regarding the introduction or maintenance of a behavior change or implementation of a behavior change strategy; (b) 'Reasons' as to why one should change or not change; (c) 'Ability,' the belief/disbelief in one's own capacity or capability to change the target behavior; (d) 'Desire', a wish for change/no change, including statements regarding a client's motivation for change; (e) 'Need,' the necessity for changing or maintaining the target behavior; (f) 'Taking Steps,' when the client made a recent behavior change against or toward the target behavior; (g) 'Other,' for utterances that do not fit well in the categories above but are about changing or maintaining the target behavior (Houck et al., 2013).

Utterances that did not fall within the previous categories were coded 'FN' (Follow/Neutral/Ask). This encompasses the response of the adolescent, which follows along with that of the residential care worker but does not involve a change of (toward or against) the specific target behavior. If the adolescent asks a question, seeks the advice or opinion of the care worker, or requests information, this code is also used (Houck et al., 2013).

Currently, there is no information available about the reliability and validity of the MISC 2.5. Research about the previous version of the MISC showed that the reliability of the MISC was reasonable. For all scales, the mean Gower coefficients were at least 0.83 (De Jonge, Schippers, & Schaap, 2005). We chose to code the transcripts using "consensus scores" in a similar manner as we did with the MITI, because the recorded conversations often had multiple objectives. This sometimes made it a challenge to determine the specific behavior change objectives of the conversation and to assess adolescents' 'change talk' and 'sustain talk' with the MISC.

GridWare/State Space Grids

GridWare makes it possible to give a visual presentation of multivariate time series of ordinal or categorical data. GridWare is based on the State Space Grid (SSG), developed by Lewis and colleagues, and inspired by the *Dynamic Systems approach* (Lamey, Hollenstein, Lewis, & Granic, 2004; Van Geert, 2014). According to Hollenstein (2007, p. 386) the SSG method is " … a graphical approach that utilizes ordinal data and quantifies these data according to two dimensions that define the state space for the system." In particular, GridWare is based on two basic dynamic systems concepts: A 'state space' and an 'attractor.' The *state space* corresponds to the two dimensional grid in GridWare, in which all state possibilities are displayed in

a cell on the grid (Lamey et al., 2004). For example, the states in our study constitute all the behaviors of the residential care workers (for instance, MI adherent behavior) and adolescents (for instance, 'change talk'). An *attractor* is the state that occurs the most in a system (Hollenstein, 2013).

Procedure

The residential care workers each conducted two *one-on-one conversations* with an adolescent living in a residential group, both of which were recorded with an audio recorder. The first recording was made as a baseline measurement (pretest), before any training in MI. The second recording was made after following the MI training course (posttest). We first intended to collect video recordings of the one-on-one conversations. Due to the negative response on the part of the residential care workers about making video recordings, we opted for audio recordings instead.

The residential care workers approached the adolescents about participating in the study. Their participation was voluntary, and they provided their written consent; those under 16 required the additional consent of a parent or guardian. All adolescents in the posttest recordings except two were adolescents other than those who had participated in the pretest recordings, due to the high turnover of young people within the groups. One of the two adolescents, who participated in both measurements, had one-on-one conversations with two different residential care workers.

We received 27 audio recordings of one-on-one conversations between residential care workers and adolescents during the pretest (Eenshuistra et al., 2016). We have included only 13 of these conversations for this study, however, due to the dropout of care workers during the posttest. This dropout was caused mainly by illness among residential care workers, staff turnover, and reorganizations within teams. The 13 conversations that constitute the pretest measurement were recorded between October and November 2015, and lasted between 5:20 and 55:41 minutes. The residential care workers were instructed to conduct the one-on-one conversation with the adolescent in their "usual" manner in order to create a baseline for these conversations.

Between October and December 2015, the residential care workers followed a three-day MI training course. The training sessions were conducted by a trainer from MINTned, the Dutch association of MI trainers. The following topics were discussed during the training course: Reasons why people change, ambivalence, intrinsic motivation, phases of behavioral change according to Prochaska and DiClemente (1982), the four processes within MI (engage, focus, evoke, plan), empathy, basic conversation techniques (open questions, reflective listening, giving information and advice, confirming and summarizing), resistance and the MITI (behavioral counts

and global markers). The course also included several assignments geared to practicing MI skills in class along with the option of receiving individual coaching three times. The offer of individual coaching was meant to ensure that MI was being implemented. Coaching consisted of targeted feedback from the MI trainer using an audio recording of a one-on-one conversation with an adolescent, which the residential care workers submitted and which was aimed at further developing their MI skills. However, residential care workers rarely made use of the option to receive individual coaching.

The residential care workers attended a refresher workshop between April and June 2016, which briefly summarized the principles of MI, where they received feedback on the first audio recording they submitted, were introduced to the *Up2 U Treatment Module* (Harder & Eenshuistra, 2017), and completed assignments to further acquaint themselves with the module. Up2 U is an MI-based manual for conducting one-on-one conversations with adolescents in residential youth care, aimed at increasing their *intrinsic motivation* to change their problematic behavior. We developed Up2 U in collaboration with residential care workers and adolescents living in residential care. The manual consists of concrete instructions and examples with regard to the application of MI in practice, so that residential care workers can apply MI more easily in their daily practice (Up2 U is written in Dutch and available on request; Harder & Eenshuistra, 2017).

The 13 conversations that constitute the posttest measurement were recorded between June and November 2016, and lasted between 6:28 and 34:52 minutes. We instructed the residential care workers to conduct a one-on-one conversation with an adolescent following the principles of MI as closely as possible, with support from the Up2 U manual.

Data Analysis

The audio recordings were transcribed by the principal researcher, research assistants, and Master's students. They then coded a maximum of 20 minutes of each conversation. We used the website *www.random.org* to generate random 20-minute excerpts of all conversations that exceeded 20 minutes. However, because we wanted to start all conversations with the residential care worker and end the conversations with the adolescent, we sometimes had to deviate slightly from the randomly selected 20 minutes.[2]

We analyzed and described the overall frequencies of care workers' behaviors using numbers, percentages, mean, standard deviation, and range. We used SPSS (version 24) to conduct paired T-tests in order to expose statistically significant differences in MI adherent and MI non-adherent behavior before and after the training course. Although the adolescents during the posttest measurement were mostly different from those participating in the pretest measurement, we also used paired T-tests in order to expose statistically

significant differences in 'change talk' and 'sustain talk' expressed by the adolescents. We chose to use a paired T-test, because we expected that the residential care workers, who participated during both measurement moments, were able to evoke more 'change talk' and less 'sustain talk,' regardless of the adolescent that they had the conversation with. For both paired T-tests, we used the percentage distribution of specific behavior relative to the total number of behaviors so as to account for the differences in length of the interviews. Differences were considered statistically significant at α <.05. Due to the small research group, we considered differences between α 0.05 – α 0.10 as a trend. In addition, the effect size (Cohen's d) was calculated for the differences that were statistically significant. We interpreted d = .20 as a small effect, d = .50 as a medium effect, and d = .80 as a large effect (Cohen, 2016).

We created two indices to determine to what extent the participants met the MI norms for basic competences and skills (cf. Table 3). The first was the percentage of 'Complex Reflections,' which refers to the number of complex reflections divided by the total number of reflections made by the care workers. The percentage of complex reflections of 40%-50% is considered as reasonable, a percentage of 50% or more as good. The second was the ratio of the number of reflections made to the number of questions asked (Moyers et al., 2014). A ratio of reflections/questions of 1/1 is considered as reasonable, a ratio of 2/1 as good.

To give a visual presentation of the interaction between a residential worker and an adolescent (a SSG), we used the software GridWare (Lamey et al., 2004). To be able to use GridWare, we re-encoded the MITI and MISC codes and placed these new codes in two columns in Excel: One column for the utterances of the worker and one column for those of the adolescent. For example, we gave the MITI code 'MI adherent' the code 1. We then copied the columns in *Notepad* to make a suitable file for GridWare.

GridWare uses an x-axis and a y-axis. In this study, the codes on the x-axis indicate the residential care worker's behavior; the codes on the y-axis indicate the adolescent's behavior. All possible codes for the residential care worker are: MI Adherent, Giving Information, Reflections, Questions, MI Non-adherent, Other, and Combination. The code 'Combination' refers to a combination of

Table 3. Behavior counts pretest.

	N	%	M	SD (range)
Giving Information	20	1.7	1.5	1.4 (0–4)
Persuade without Permission	54	4.5	4.2	4.1 (0–14)
Persuade with Permission	1	0.1	0.1	0.3 (0–1)
Question	666	56.0	51.2	24.5 (27–109)
Reflection Simple	142	11.9	10.9	7.4 (0–31)
Reflection Complex	56	4.7	4.3	3.8 (1–12)
Affirm	5	0.4	0.4	0.7 (0–2)
Seeking Collaboration	10	0.8	0.8	1.1 (0–3)
Emphasizing Autonomy	10	0.8	0.8	1.2 (0–4)
Confront	21	1.8	1.6	2.3 (0–7)
Other	204	17.2	15.7	11.3 (1–34)

different codes, for example, a reflection and question used in one utterance. We only used the combination of codes for the GridWare analyzes; to calculate scores we used the true total numbers of behavior counts.

The four codes for the adolescent are Change Talk, Change Talk & Sustain Talk, Sustain Talk, and Follow/Natural/Ask. Dots and lines between these dots represent each conversation graphically. In this study, we used a graphical representation of all conversations together. Considering readability, we used the dots in the SSG. Thus, it is possible to examine the combinations of actions of residential care workers and reactions of adolescents that occurred during the conversations and, by doing so, to identify the most common action and reaction.

Results

Behavior Counts Residential Care Workers

Table 3 gives an overview of all behavior counts made by the residential care workers during the pretest.

Table 4 gives an overview of all behavior counts made by the residential care workers during the posttest.

MI Non-adherent Behavior

The measurements taken before the training course show 75 instances of MI non-adherent behavior by the residential care workers, that is, 6.3% of all 1189 behaviors, with 'persuade without permission' most prominently present (54 times). Confronting behavior is exhibited 21 times (see Table 3). The posttest measurements reveal 32 instances of MI non-adherent behavior, equaling 3.1% of all 1040 behaviors, with 'persuade without permission' (26 times) outnumbering 'confront' (6 times) (see Table 4).

The following excerpt is an example of an MI non-adherent statement made by a residential care worker: *"I understand that this makes you aggressive, but it's*

Table 4. Behavior counts posttest.

	N	%	M	SD (range)
Giving Information	48	4.6	3.7	3.5 (0–10)
Persuade without Permission	26	2.5	2.0	2.0 (0–7)
Persuade with Permission	13	1.3	1.0	1.3 (0–4)
Question	497	47.8	38.2	13.3 (20–64)
Reflection Simple	105	10.1	8.1	4.1 (1–16)
Reflection Complex	57	5.5	4.4	3.2 (0–11)
Affirm	40	3.8	3.1	2.1 (1–7)
Seeking Collaboration	39	3.8	3.0	2.7 (0–8)
Emphasizing Autonomy	13	1.3	1.0	1.1 (0–3)
Confront	6	0.6	0.5	1.0 (0–3)
Other	196	18.8	15.1	13.9 (0–44)

not smart for you to start copying that kind of behavior, really … Maybe what I'm saying sounds very complicated, but it would be better for you to rise above it all and just report it when things really get annoying." The staff member is persuading the adolescent without permission: giving advice without emphasizing the adolescent's autonomy. An example of a statement that shows how the residential care worker disagrees with the adolescent and confronts him is *"But you'll be jeopardizing your goal, kid."* Nine residential care workers showed less MI non-adherent behavior during the posttest measurement than before; the difference is not statistically significant ($\alpha = .078$, t(12) = 1.928).

MI Adherent Behavior

The pretest measurements reveal 26 instances of MI adherent behavior by the residential care workers, that is, 2.2% of all 1189 behaviors, taking the form of 'emphasizing autonomy' (10 times), 'seeking collaboration' (10 times), 'affirming' (5 times), and 'persuading with permission' (1 time) (see Table 3). The posttest measurements yield 105 instances of MI adherent behavior, equaling 10.1% of the total number of 1040 behaviors, and including 'affirming' (40 times), 'seeking collaboration' (39 times), 'emphasizing autonomy' (13 times), and 'persuading with permission' (13 times) (see Table 4).

One example of a residential care worker seeking collaboration is: *"So, what would you like to learn now?"* The worker thus seeks consensus about what the adolescent would like to learn. Another residential care worker used the following statement to affirm the adolescent, highlighting something positive about him: *"But you did the right thing again in that situation: You didn't do drugs. That makes you pretty strong in that sense, doesn't it? I mean, saying: 'I'm not doing drugs now."* The residential care workers exhibited statistically significantly more MI adherent skills after the training course than before ($\alpha = .000$, t(12) = −4.899, *d* = 1.4).

Basic Competences of Residential Care Workers

As a group, the residential care workers did not meet the MI requirements imposed on the percentage of complex reflections and the ratio of reflections made to questions asked, neither in the pretest nor posttest. The percentage of complex reflections in the pretest was 28%, in the posttest this was 35%. The ratio reflections/questions in the pretest was 1/3.4, and in the posttest 1/3.1.

At the individual level, one residential care worker received a 'reasonable' mark on making complex reflections in both the pretest and the posttest. Three staff members scored a 'good' mark on this index in the pretest; this number rose to four for the posttest. The ratio of reflections and questions asked remained below the norm for all residential care workers in the pretest.

One residential care worker scored a 'reasonable' mark in the posttest, whereas the others remained below the norm.

Interaction Patterns

Figure 1 shows the SSG of the interactions between all the residential care workers and adolescents together during the pretest.

What stands out from the SSG is that the most common interaction pattern is when the residential care worker asks a question and the adolescent responds with Follow/Neutral/Ask (FN) (see top row Table 1, fourth cell from the left). An example of such an interaction is:

Residential care worker : "How are you?"
Adolescent : "Yeah, good."

Every action of the residential care worker, with the exception of MI adherent behavior, leads mostly to a neutral (FN) response on the part of the adolescent (see top row Table 1). The residential care workers evoke 'change talk' 244 times and 'sustain talk' 189 times with the adolescents. Both 'change talk' and 'sustain talk' are mostly evoked by asking questions (see bottom row Table 1, fourth cell from the left and second row from the bottom, fourth cell from the left).

Figure 2 shows the SSG of the interactions between all the residential care workers and adolescents together during the posttest.

Again, the most common interaction pattern found in the conversations is the residential care worker asking the adolescent a question and the adolescent responding neutrally (FN) (see top row Table 2, fourth cell from the left). All actions of the residential care worker mostly lead to a neutral response (FN) on the part of the adolescent (see top row Table 2). The residential care workers evoke 'change talk' 262 times and 'sustain talk' 173 times with the adolescents. Compared with the pretest, the residential care workers evoke 18 times more 'change talk' and 16 times less 'sustain talk'. Both differences are not statistically significant (change talk α = .199, t (12) = −1.359; sustain talk α = .722, t(12) = −.364). As with the pretest, both 'change talk' as well as 'sustain talk' are mostly evoked by asking questions (see bottom row Table 2, fourth cell from the left and second row from the bottom, fourth cell from the left).

Discussion

The aim of our study was to investigate whether residential care workers change their behavior toward adolescents, and if there are changes in evoking 'change talk' and 'sustain talk' with adolescents after completing an MI training course. As expected, residential care workers use significantly more MI adherent skills after following an MI training course than before. The effect size of this
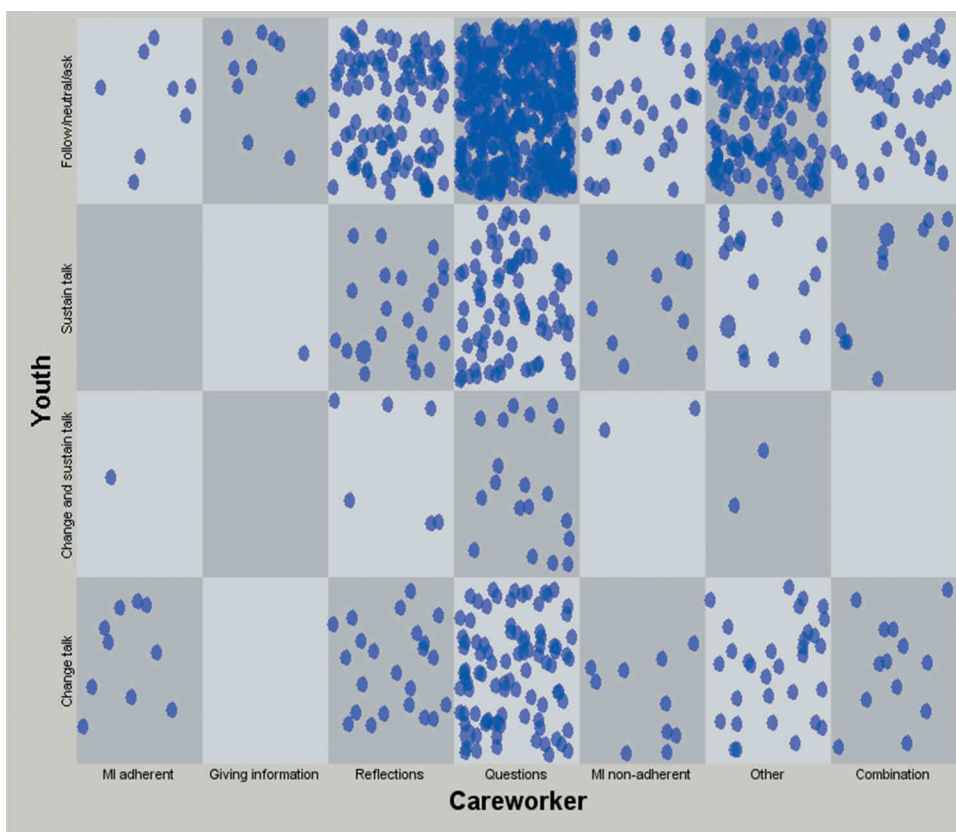
Figure 1. Pre-test interactions between residential care workers and adolescents according to MI. Residential care worker behavior plotted on the x-axis and adolescent reaction on the y-axis.

difference is very large ($d = 1.4$). Regarding MI non-adherent behavior of the residential care workers, we observed a trend in the expected direction. A potential explanation for finding a significant difference for MI adherent behavior and not for MI non-adherent behavior is that the current working method in residential youth care focuses mainly on the extrinsic motivation of adolescents, for example, by giving adolescents points for showing desirable behavior. This treatment model is opposed to the principles of MI, which perhaps makes it difficult for staff members to refrain from MI non-adherent behavior. In this context, it is notable that the use of a "points and level" system was recently criticized: To achieve actual behavior change and emotional growth, the method does not seem to be very effective (Drumm et al., 2013).

Contrary to our expectations, the majority of the residential care workers had not acquired the basic MI competences after the MI training course or, if they had, had only managed to do so in a limited way. A very plausible explanation for this finding is that the MI training course may not have been intensive enough. Schwalbe et al. (2014) stated that three to four additional feedback or coaching sessions were needed over a period of six months in order to safeguard
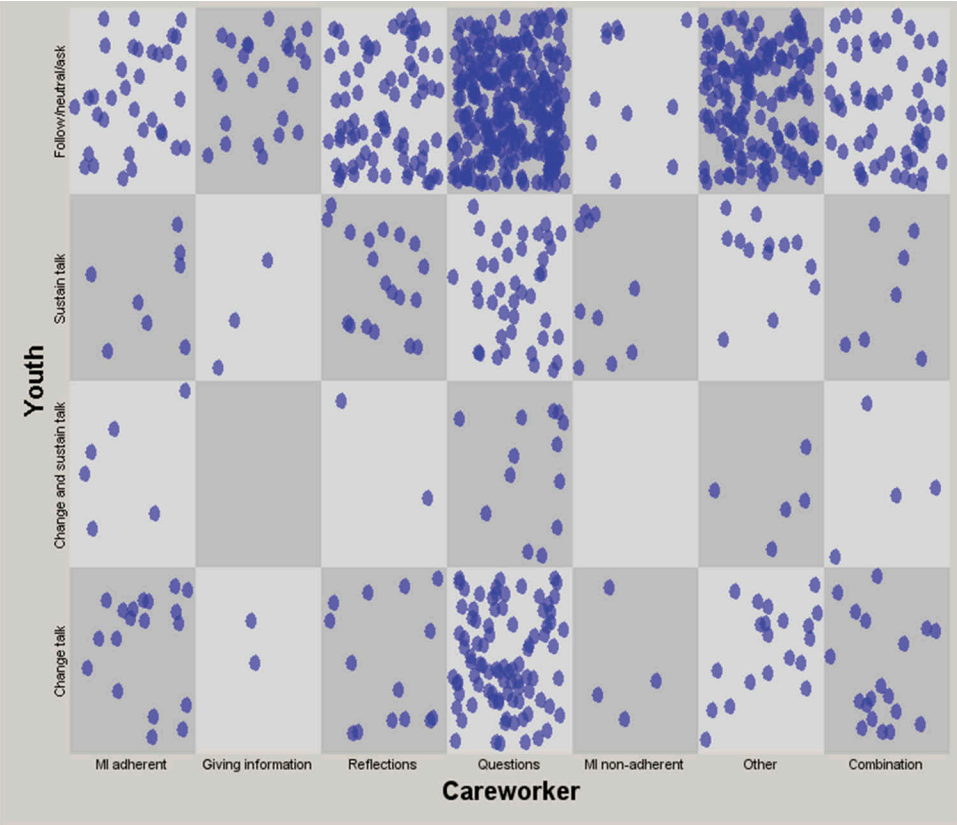
Figure 2. Post-test interaction between residential care workers and adolescents according to MI. Residential care worker behavior plotted on the x-axis and adolescent reaction on the y-axis.

the MI skills acquired. Although three individual coaching sessions were available to residential care workers during this study, this option was rarely used.

In line with our hypothesis, the residential care workers were able to evoke more 'change talk' and less 'sustain talk' with the adolescents after the MI training course compared with before the training course. However, this difference was very small and not statistically significant. Furthermore, for measurements both before and after the training course, the most common action-reaction pattern was the action of 'asking a question' by the residential care worker, followed by a neutral response on the part of the adolescent. Moreover, almost all the other behaviors of the residential care workers during both measurement moments led most to a neutral response. Our previous research (Eenshuistra et al., 2017) showed that only one residential care worker saw their task as achieving behavior change with the adolescent. Most residential care workers saw this as only *partly their task*; they indicated that it was also the adolescents' task. Certain sensitive topics, such as suicide, were also not discussed during a one-on-one conversation, because this was considered to be the behavioral scientist's task. The topic most often mentioned in the one-on-one

conversations, by both residential care workers and adolescents, was "how the adolescent is doing." This suggests that the one-on-one conversations are not very change-focused. In addition, the residential care workers used many combinations in one utterance; as a result, the adolescent may fail to respond to the MI adherent behavior, which leads to a reaction other than 'change talk.'

Strengths and Limitations

One strength of this study is the use of observations and SSG to understand the interaction patterns between residential care workers and adolescents during their conversations. To the best of our knowledge, this is the first study that has used observations in order to examine the interactions between group care workers and adolescents during one-on-one conversations in residential youth care. We are aware of the studies of Bastiaanssen et al. (2014) and Van den Berg (2000). However, these authors conducted an observational study in residential youth care regarding interactions between group care workers and children *under* the age of 12. Moreover, to our knowledge, the use of SSG has not been used before in residential youth care with regard to the interactions between residential staff and adolescents during one-on-one conversations. Such detailed observations provide a good overview of what is actually happening in practice (Harder & Knorth, 2015) and where opportunities for improvement lie. Our study shows that there are indeed improvements that can be made by residential care workers in contact with adolescents. Another major strength is that this is, to the best of our knowledge, the first study that examines the outcomes of an MI training course on the behaviors of residential care workers (cf. Eenshuistra, Harder, & Knorth, 2019). With this research, we learned about the possible effects that an MI training course could have on the skills of professionals working in residential care. We found that residential care workers *can* improve their skills by following an MI training course.

One limitation is that a relatively small sample of residential care workers and adolescents participated in the present study. This was caused by the unforeseen large number of dropouts in our study group, which was related to illness among the residential care workers, along with other factors. Moreover, there was a certain reluctance in regard to making recordings. Residential care workers especially responded negatively to making video recordings; as a result, we proposed making audio recordings instead. The response still remained relatively low. Due to the small number of remaining participants and the study design, we cannot be certain that the perceived changes in the behavior of the residential care workers are the result of participating in the training course. Moreover, the results may not generalize to residential care workers/adolescents beyond the sample in the present study.

Another limitation of our study is that the conversations often were not that targeted, due to the multiple objectives. This sometimes made it difficult

to determine the specific behavior change objectives of the conversation and to assess adolescent 'change talk' and 'sustain talk' with the MISC. This could have affect the reliability of both the MITI and the MISC.

Research has shown that providing a short training program and a manual explaining the intervention to professionals is insufficient when it comes to implementing an intervention into practice. It is also known that, over time, it is possible for care workers to add components of the intervention themselves and not end up using any or all of the components of the intervention (Stals, 2012). Research clearly shows that well-implemented interventions are very important for positive outcomes for young people (Durlak & DuPre, 2008; Eames et al., 2009). In contrast, poorly implemented interventions are associated with poor outcomes (Berwick, 2003). A complex method such as MI especially requires continued support in order to acquire new skills and retain old ones (Miller et al., 2004). By adding a refresher workshop, providing the residential care workers with feedback through the recordings that they have submitted for this study, and offering individual coaching, we tried to ensure that the intervention was implemented. This seemingly proved insufficient, however; only a small number of participants made use of the individual coaching option, for instance. As a result, it may still be unclear to some residential care workers how they can apply the MI skills in practice in actuality.

Implications

While the conversations during the measurement that took place after the training course certainly possessed more MI characteristics, they were not "true" MI conversations yet. The conversations still contained MI non-adherent behavior, the norms of basic competence were generally not attained, and there was room for improvement when it came to eliciting 'change talk.' We therefore recommend training professionals *more intensively* in the application of MI, and specifically when it comes to the Up2 U treatment module, which is an MI-based manual specifically designed for group care workers in residential care (Harder & Eenshuistra, 2017). For example, training could be offered with more emphasis on activities that specifically promote practicing forming reflections in the moment as an alternative for asking questions. In addition, care workers can be supported to identify and internalize the negative impact of MI non-adherent skills and positive impact of MI adherent skills. Moreover, training care workers explicitly in having more focused conversations with their youth could help facilitate more change-oriented conversation, thus supporting more change. We also recommend including individual coaching as an integral part of the training course (cf. Schwalbe et al., 2014), alongside the three-day training course event and the Up2 U manual.

Another important aspect for transferring the training course into actual practice is the *support of peers and supervisors* (Grossman & Salas, 2011). To ensure

this kind of support, it would be desirable for *all*, or at least three, residential care workers per team – along with their supervisors in the department or facility – to participate in this training course (Klest, 2014), instead of just a certain number of residential care workers from various departments, as was the case in this study. This could help to anchor the training program in the organization, thereby increasing the chances of successful implementation and thus of achieving long-term behavioral change in young people (cf. Stals, 2012). In addition, it would be interesting to monitor if care workers who participate in a training course are (more) satisfied with their daily work.

Another recommendation is for our research to be conducted again using a *larger research group*. Using a larger research group makes it possible to conduct a Randomized Controlled Trial (RCT). This envisages studying a select group of residential youth care workers, some of whom would not participate in the training course during the research period, while others would. Moreover, with RCT it is possible to make more robust statements about causality, that is, whether any change in residential care workers' behavior, if observed, has actually been caused by the training course. Another possibility would be using a *case study design*, in which a small number of professionals would be intensively followed using multiple measurements before, during, and after the training course (Kazdin, 2011).

Notes

1. 'Complex reflections' are utterances of care workers, which give deeper meaning to the client's words or emphasize what has been said. 'Simple reflections' are utterances of care workers that briefly summarize the client's story, staying close to the client's own words.
2. If the adolescent started the conversation based on the selection, the utterance of the residential care worker before the adolescent's utterance was added to the selection. In addition, if the conversation ended with the residential care worker, the successive utterance of the adolescent was added to the selection. Furthermore, if we coded from the beginning of the conversation and the adolescent started the conversation, we did not include the adolescent's utterance.

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