


A Cluster Randomized Controlled Trial Testing the Effectiveness of Houvast: A Strengths-Based Intervention for Homeless Young Adults

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Abstract

Objective: To test the effectiveness of Houvast: a strengths-based intervention for homeless young adults. **Method:** A cluster randomized controlled trial was conducted with 10 Dutch shelter facilities randomly allocated to an intervention and a control group. Homeless young adults were interviewed when entering the facility and when care ended. Repeated-measures analyses and logistic regression analyses were conducted by the principle of intention-to-treat framework ($N = 251$). **Results:** Improvements were demonstrated on quality of life; satisfaction with family relations, finances, and health; employed or in school; depression; care needs; autonomy; competence, and resilience in both conditions. A higher proportion of homeless young adults who received care according to Houvast were still receiving care at follow-up and successfully completed the trajectory compared to those who received care as usual. **Conclusion:** Homeless young adults seem to benefit from service provision in general. Further research on the effectiveness of Houvast is needed after sufficient model fidelity has been achieved.

Keywords

homeless young adults, strengths based, quality of life, randomized controlled trial

Introduction

Homelessness among young adults is a widespread social problem. Approximately 9,000 young adults in the Netherlands are homeless (Brummelhuis & Drouven, 2011), and 70% of these young adults are between 18 and 23 years of age; this equals 0.20% of the total population of that age CBS (2014). Although homelessness among young adults is a frequently mentioned problem in European countries, data on the prevalence of homeless young adults are lacking or are difficult to interpret. The number of homeless young adults (aged 18–24) in the United States ranges from 750,000 to 2 million (Whitbeck, 2010). The most common reasons for young adults to leave their home prematurely are family conflicts and physical, emotional, or sexual abuse (Slesnick, Dashora, Letcher, Erdem, & Serovich, 2009; Van der Ploeg & Scholte, 1997). Homeless young adults are usually facing multiple hardships and problems, such as mental problems (Tucker, Edelen, Ellickson, & Klein, 2011; Whitbeck, Hoyt, & Bao, 2000), physical problems (J. Wolf, Altena, Christians, & Beijersbergen, 2010), and substance use problems (Beijersbergen, Jansen, & Wolf, 2008; Korf, van Ginkel, & Wouters, 2004; S. L. Wenzel, Tucker, Golinelli, Green, & Zhou, 2010). Many homeless young adults received care as a child and/or adolescent, but many had unsuccessful experiences with these youth care institutions and lost

their trust in social service systems and even in professionals in general (Planije, van 't Land, & Wolf, 2003; Thompson, Pollio, Constantine, Reid, & Nebbitt, 2002). Thus, the need for appropriate care is high for this vulnerable group, but what interventions are effective and do fit with homeless young adults' needs?

Research on the effectiveness of interventions for homeless young adults is scarce. A review published in 2009 described 32 services and interventions for runaway and homeless youth (Slesnick et al., 2009). The six intervention studies included in this review focused on case management and vocational

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training interventions, substance abuse treatment interventions, and HIV prevention and assessed the following outcomes: quality of life, substance use, homelessness, and medical and mental health. It was concluded that among those young adults who received care according to the intervention, improvements were found on life satisfaction, family contact, individual and family functioning, social stability, and condom use. A decline was found for substance use and high-risk behavior.

The review on effective interventions for homeless young adults by Altena, Brilleslijper-Kater, and Wolf (2010) included 11 studies and also provided the results of a quality assessment of these studies. This review showed that a variety of interventions were used for homeless young adults and only a few of these interventions had been formally evaluated, namely (intensive), case management programs, independent living programs, brief motivational interventions, cognitive behavioral interventions, living skill/vocational interventions, peer-based interventions, and supportive housing programs. These studies assessed a variety of outcomes: drug and alcohol use, mental health, material comfort, safety, homelessness, and tenability outcomes. Drawing conclusions appeared to be difficult because conclusions were limited by the heterogeneity of the interventions, participants, methods, and outcome measures. However, interventions that used cognitive behavioral approaches appeared to be most promising.

Both reviews concluded that there is no convincing evidence for the effectiveness of a specific intervention for homeless young adults, and more research, including rigorous designs to increase the reliability and validity of the study findings and to determine what specific interventions are beneficial for homeless young adults, is needed.

In the Netherlands, both homeless young adults and professionals have expressed the need for improving the quality of care for homeless young adults. Therefore, an intervention was developed in close collaboration with homeless young adults and professionals. Houvast is a strengths-based intervention developed to improve the quality of life of homeless young adults by focusing on their strengths and stimulating their capacity for self-reliance (Krabbenborg, Boersma, & Wolf, 2013; J. Wolf, 2012a, 2012b).

Besides containing the effective elements in the review of Altena et al. (2010), as described above, Houvast is based on (1) experiences of homeless young adults and professionals with service delivery and their views on appropriate care and (2) theoretical and conceptual models. To investigate the critical ingredients of an effective intervention for homeless young adults, focus groups, interviews, and workshops were held with professionals and homeless young adults. The results revealed the following critical ingredients: a constructive working relationship based on trust and mutual respect and fostering hope, high-quality communication, a positive nonjudgmental approach, problem solving, the need to always provide a second chance, and a focus on the young adults' strengths and what they can do instead of focusing on their problems and what they cannot do (J. Wolf, 2005). This corresponds with other studies in that homeless young adults desire a more

personal involvement of professionals (De Rosa et al., 1999); that is, professionals should be respectful, empathic, honest, and supportive and should encourage them without disregarding their autonomy (Beijersbergen et al., 2008; Bender, Thompson, McManus, Lantry, & Flynn, 2007; De Winter & Noom, 2003; Planije et al., 2003; Thompson, McManus, Lantry, Windsor, & Flynn, 2006; J. Wolf & van der Laan, 2005). They express a great need for autonomy and want to be in control over their own recovery process and their own lives (Bender et al., 2007; Karabanow, 2003). However, at the same time, they seek social support and help to improve their housing, social network, financial situation, and their health (Darbyshire, Muir-Cochrane, Fereday, Jureidini, & Drummond, 2006). Homeless young adults stress the importance of a reciprocal relationship in which professionals express genuine interest in them and believe in their abilities and strengths (Darbyshire et al., 2006; De Winter & Noom, 2003; Thompson et al., 2006).

The strengths-based approach, developed by C. A. Rapp and Goscha for persons with mental illness (C. A. Rapp & Goscha, 2011), was chosen as the basis for Houvast. The critical ingredients matched well with this strengths-based approach. The strengths-based approach is characterized by a fundamental assumption that homeless young adults have strengths, talents, and aspirations and that their environments consist of resources and opportunities. The strengths model emphasizes that the capacity for growth and recovery is an innate characteristic of human beings. During a strengths-based trajectory, the young adult is the director of his or her own recovery process and the focus is on achieving goals that homeless young adult has set for themselves. In contrast, a more commonly used policy is a problem-oriented approach. This is characterized by paying attention to people's problems and ineffective coping abilities. Consequently, the cause of a problem is labeled (categorized) and a treatment plan is devised to teach the young adult how to cope with behavioral deficiencies. During a problem-focused trajectory, the goals are often driven by service providers, because professionals are seen as knowing what is best for clients (C. A. Rapp & Goscha, 2011).

The strengths-based approach has been applied to a variety of groups, such as mentally ill people (Barry, Zeber, Blow, & Valenstein, 2003; Macias, Farley, Jackson, & Kinney, 1997; Macias, Kinney, Farley, Jackson, & Vos, 1994; Stanard, 1999), homeless youth (Saewyc & Edinburg, 2010), people with substance use problems (R. C. Rapp & Lane, 2013; R. C. Rapp et al., 2008; Siegal et al., 1996; Siegal, Li, & Rapp, 2002), and abused women (Song & Shih, 2010). Among mentally ill people, positive outcomes were found on number of hospitalizations, social functioning, social support, consumer income, physical health, symptomatology, and family responsibility (Barry et al., 2003; Macias et al., 1994, 1997). Quality of life also improved in one study (Stanard, 1999). Among homeless youth, positive changes were found on self-esteem, emotional distress, suicidality, substance abuse, and risky sexual behaviors (Saewyc & Edinburg, 2010). Also in the field of substance abuse, treatment retentions (Siegal et al., 2002),

linkage (R. C. Rapp et al., 2008), and employment outcomes improved and the involvement with the criminal justice decreased (C. A. Rapp & Lane, 2013; Siegal et al., 1996). In addition, in the field of abused women, the strengths-based approach proved to be effective; women showed a significant decrease in depression, had a better life satisfaction, and a growth of sense of self and empowerment (Song & Shih, 2010).

In addition to the strengths model, Houvast is based on theoretical and conceptual models, namely, the concept of resilience (Saleebey, 2006), the self-determination theory (Ryan & Deci, 2000), the concept of citizenship (J. R. Wolf, 2002), and the model of social quality (Van der Maesen & Walker, 2005; J. Wolf, 2012b). These theoretical concepts are important, because they focus on social embedding of people in society, which guarantees a minimum level of quality of life, as it refers to the fundamental social rights of citizens (citizenship). Furthermore, they emphasize different aspects of social participation (social quality) and outcome measures pertaining to positive functioning (resilience and self-determination), which are essential elements of the Houvast intervention (J. Wolf, 2012b).

The present study evaluated the effects of the Houvast intervention in shelter facilities for homeless young adults by using a cluster randomized controlled trial. Quality of life was chosen as the primary outcome measure, as it is an important indicator of homeless young adult's experience of their life (Bender et al., 2007; Johnson, Whitbeck, & Hoyt, 2005; Thompson, Pollio, Eyrych, Bradbury, & North, 2004). Furthermore, the few available effect studies among homeless young people (Ferguson & Xie, 2008; Wagner et al., 1994) and those among homeless people, including homeless youth (Bearsley & Cummins, 1999; Hubley, Russell, Palepu, & Hwang, 2014), showed improvement in the quality of life after receiving care. Also, it was found that quality of life was associated with different positive outcomes such as psychological well-being and independent housing (Hubley et al., 2014; Thompson et al., 2004; J. Wolf, Burnam, Koegel, Sullivan, & Morton, 2001). The current study investigated the effect of Houvast compared with care as usual on general quality of life (primary outcome), functional and social outcomes, health outcomes, care needs, and strengths outcomes.

Method

Design

The effectiveness of the Houvast intervention was investigated by means of a pretest–posttest cluster randomized controlled trial. The facilities were randomly allocated to the intervention group ($n = 5$) or the control group ($n = 5$). The shelter facilities provided ambulant or residential care, which was equally distributed among each group. The homeless young adults were unaware of the condition (Houvast or care as usual) to which the shelter facility was assigned (Krabbenborg et al., 2013). We used data from two waves: baseline and follow-up measurement. Baseline measurement was conducted within approximately 2 weeks after young adults entered the shelter

facility. Follow-up measurement took place when homeless young adults had received care for a period of 6 months consecutively, because this was the average duration of care of young adults in a shelter facility at the time we started this study. In total, 77.3% of the participants ended care at an earlier stage, and to prevent selection bias, these participants were interviewed immediately after ending care. Consequently, there was variation in the duration of exposure to the intervention for each homeless young adult. The average duration of exposure was 156 days ($SD = 49.71$), and this ranged from 27 days to 238 days. This study complies with the criteria for studies that have to be approved by an accredited Medical Review Ethics Committee in Arnhem-Nijmegen region. Upon consultation, the Ethics Committee stated that due to the behavioral character of the intervention, the study was exempt from formal review (registration number 2011/260). This study was funded by the Netherlands Organization for Health Research and Development (ZonMw) and is registered at the Dutch trial register (registration number NTR3254, <http://www.trialregister.nl/trialreg/admin/rctview.asp?TC=3254>). The study is described elsewhere, and for more detailed information, we refer to this work (Krabbenborg et al., 2013).

Procedure and Participants

Figure 1 presents a flowchart illustrating the inclusion of shelter facilities and participants. Homeless young adults were recruited from 10 shelter facilities that wanted to participate in the study and met the following inclusions criteria: (a) not living with their parents while receiving care and (b) having received care for more than 2 weeks. In total, we contacted 35 shelter facilities for homeless young adults and invited them to visit an introductory meeting about the study. Of those 35 shelter facilities, 17 did not show an interest in the study and 8 did but eventually chose not to participate due to financial restrictions, implementation of other methods, involvement in other studies, and internal reorganizations. Shelter facilities were included in the study if they met the following inclusion criteria: (a) targeted at delivering ambulant and/or residential care to homeless young adults age ≥ 18 years (not specifically at teenage mothers or in general to homeless adults), (b) provision of care to at least 15–20 homeless young adults per year, and (c) regularly providing care for at least 3 months consecutively.

The professionals working in the shelter facilities registered all homeless young adults at the time of entering the shelter facility and approached them to participate in the study. In total, 393 homeless young adults were approached, of whom 142 (36.1%) were not interviewed for the following reasons: (a) they had already left the shelter facility before an interview appointment was made (14%), (b) no interest (10%), (c) they would rather spend time on other activities, such as spending time with friends (5%), and (d) unknown reasons (50%). After participants expressed interest in participating, the professional or contact person of each shelter facility provided contact information about this potential participant to the researcher who subsequently scheduled an interview appointment. Before the

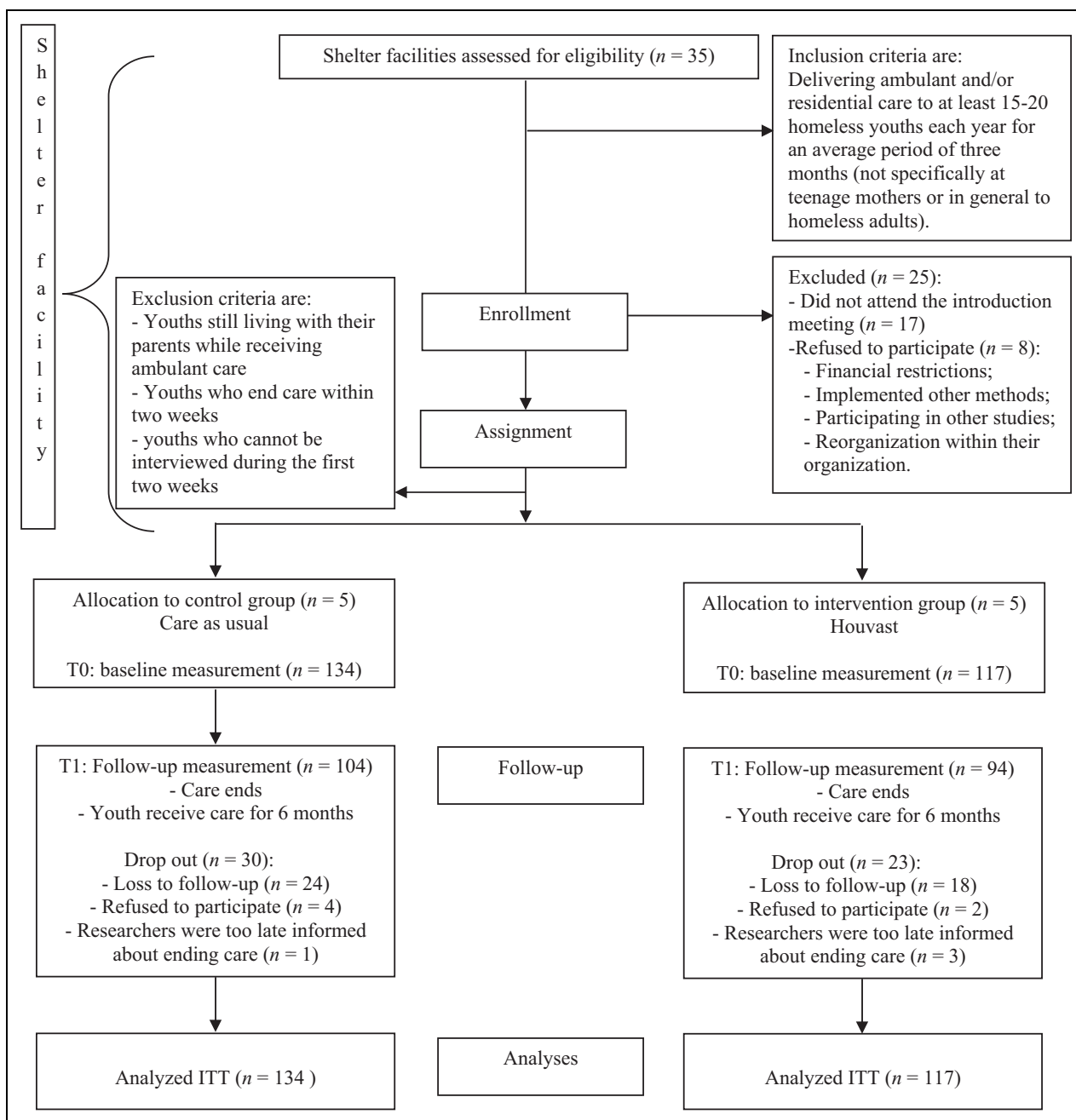


Figure 1. Flowchart of the inclusion of the shelter facilities and the participants.

start of the interview, written consent was obtained. The homeless young adults received €10 for participating in the baseline interview and an additional €20 for completing the follow-up interview. The baseline and follow-up interviews were administered face-to-face by trained research assistants who had experience or affinity with working with vulnerable people. The structured interviews lasted on average 90 min. We used a variation of a multiform design (Little & Rhemtulla, 2013), designed to spread missing data across blocks of questions, by using two questionnaires (Forms 1 and 2), the content of which was identical, however, the order in which questions

were asked differed. We randomly assigned homeless young adults to Form 1 or Form 2. The data were collected between December 2011 and October 2013.

After the data collection was finished, we contacted the contact person of each shelter facility telephonically to provide the reason for finishing care as described in the file of the ex-participant. We first coded whether a participant finished care before the follow-up measurement. If care did not end after the follow-up, the ex-participant received the score "still receiving care." If care did end before the follow-up, the ex-participant received the score "finished care." We then distinguished four

reasons for finishing care: successfully completed, dropped out of care, moved or transferred care to another care provider, and other reasons.

The participants were between 17 years¹ and 26 years, and the average age was 20 years; 68.1% were male, 51% had a Dutch background, 75% had a low level of education (31.9% had no education or finished only primary school and 43.1% completed prevocational secondary education or lower secondary vocational education), 60.2% were homeless for more than 3 months, and 76.1% had received residential care. In total, 53 (21%) of the 251 homeless young adults in the 10 participating shelter facilities dropped out of the study. Thus, 198 participants were interviewed in the follow-up. We compared completers and dropouts on baseline measures to study whether the dropout was systematic. We did not find statistically significant differences for age, $t(249) = -1.55, p > .05, d = .25$; gender, $\chi^2(1, N = 251) = 1.06, p > .05, \phi = -.07$; ethnicity, $\chi^2(1, N = 251) = 4.56, p > .05, \phi = .04$; duration of homelessness, $\chi^2(1, N = 251) = 0.08, p > .05, \phi = .02$; and type (residential or ambulant) of care, $\chi^2(1, N = 251) = 2.87, p > .05, \phi = .11$. However, we did find statistically significant differences for educational level in that completers had a higher educational level compared to those who dropped out of the study (Fisher's exact test $< .05, \phi = .21$).

Implementation of Houvast

Before the start of our study, each of the shelter facilities had their standard way of providing support to homeless young adults. Some shelters were working according to the eight-step model (van Leeuwen-den Dekker & Heineke, 2004) or a derivative thereof. This provides professionals primarily a structure for working with homeless youth based upon planning. Despite the fact that there was much variation between shelter facilities, all facilities have the aim to improve the living conditions of homeless young adults and to provide them with skills that enable them to become autonomous adults. Professionals provide support on different living domains, such as housing, social network, education, and finances. We refer to this as care as usual.

Professionals, team leaders, supervisors, and managers of the shelter facilities in the experimental condition were trained in the Houvast intervention by experienced trainers contracted by the researchers. From October 2011 to January 2012, all professionals working with homeless young adults received a 4-day training, and the team leaders received a 2-day training provided by experienced trainers. During the training sessions, they learned the principles of the Houvast intervention, for example, how to identify strengths and capabilities of young adults, how to use naturally occurring resources (e.g., make use of community facilities), and how to make use of the young adults' available resources (e.g., friends). Professionals and team leaders learned how to use the tools of the Houvast intervention, for instance, a strengths assessment. The strengths assessment is a tool that helps the professional and the homeless young adults to identify and make use of multiple strengths

young adults possess and support the recovery process. The strengths assessment in Houvast is organized into 10 life domains (e.g., social relationships, finances, and social security) and 3 temporal orderings (past, present, and future). These life domains correspond to those life areas that homeless young adults generally are most concerned about. The professional is seeking information reflective of the homeless young adult's talents, aspirations, and confidence and the opportunities, resources, and social relations from his or her environment. Also, team leaders were taught how to support professionals in adhering to Houvast and to maintain Houvast's quality standards. In April and May 2012, the supervisors received their 6-day training in Houvast. All supervisors had first to complete the training for professionals or team leaders before attending the training for supervisors. During the first 3 days, the supervisors were trained in the strengths principles and the tools of Houvast and how to provide supervision. The remaining 3 days were used for supervised practice. In addition, two to three managers of each shelter facility attended a meeting with the researchers in which they received additional information on the study and were given guidelines on how to optimize the implementation of Houvast in their shelter. In September 2012, all professionals and team leaders attended a follow-up training day with their team. For detailed information about the Houvast intervention, we refer to J. Wolf (2012a, 2012b).

The degree of model fidelity of an intervention may have an impact on the effectiveness of this intervention (Fukui et al., 2012). We therefore measured the model fidelity of Houvast in the five shelter facilities in the intervention group. Fidelity was measured between June and September 2012. During a 1-day audit to the shelter facility model fidelity was investigated using the Dutch version of the Strengths Model Fidelity Scale (C. A. Rapp & Goscha, 2006), which consists of 10 indicators corresponding to 3 subscales: structure, supervision, and clinical practice. The results showed that scores on 3 of the 10 indicators of fidelity were sufficient, 6 months after the introduction of the Houvast intervention in the shelter facilities and the training of professionals and team leaders in Houvast: case-load ratio, group supervision, and strengths assessment. Each shelter facility received a report with a set of recommendations to improve model fidelity. Based on the results, additional booster sessions were organized between April and June 2013. In these booster sessions, given by a certified trainer, recommendations from the shelter's fidelity report were discussed. In addition, key elements of Houvast were again practiced using role-play games. The results of this fidelity measurement, described in previous work (Krabbenborg, Boersma, Beijersbergen, & Wolf, 2013; Krabbenborg, Boersma, Beijersbergen, Goscha, & Wolf, 2015), will be taken into account when drawing conclusions on the effectiveness of Houvast.

Measures

Quality of life. General quality of life was measured with the brief Dutch version of the Lehman Quality of Life Interview

(Lehman, 1988; Lehman, Kernan, & Postrado, 1995; J. Wolf, 2007). The response scale ranged from *terrible* (1) to *delighted* (7), and higher scores reflected a satisfaction with general quality of life. It was measured with 2 identical items, asking participants how they feel about their life in general. These questions were asked at the beginning and at the end of each interview. Cronbach's α was .74 at baseline and .82 at follow-up.

Functional and social outcomes. Satisfaction with social relations, family relations, finances, and health was measured with the brief Dutch version of the Lehman Quality of Life Interview (Lehman, 1988; Lehman et al., 1995; J. Wolf, 2007). The response scale ranged from *terrible* (1) to *delighted* (7), and higher scores reflected a satisfaction with that particular domain. Satisfaction with social relations was measured with 3 items, for example, "How do you feel about the things you do with other people?" Cronbach's α was .71 at baseline and .74 at follow-up. Satisfaction with family relations was measured with 2 items, for example, "How do you feel about the way you and your family act toward each other?" Cronbach's α was .86 at baseline and .91 at follow-up. Satisfaction with finances was measured with 3 items, for example, "How do you feel about the amount of money you get?" Cronbach's α was .83 at baseline and .81 at follow-up. Satisfaction with health was measured with 3 items, for example, "How do you feel about your health in general?" Cronbach's α was .67 at baseline and .63 at follow-up.

Employed or in school was measured with two questions, asking whether the participant is following education and whether the participant had work with a labor contract. If any question was answered with "yes," the participant scored *yes*, coded as 0, on employed or in school. If both questions were answered with "no," the participant scored *no*, coded as 1, on employed or in school.

Care needs. Care needs was measured using an adapted version of the Short Form Quality of Life and Care Index (Wennink & van Wijngaarden, 2004). The items are formulated as follows: "Do you want help with . . ." A total score is made by adding the *yes* responses on the following 19 care domains: housing, finances, work, daily activities, household, self-care, family, social contacts, physical health, mental health, alcohol use, drug use, safety for yourself, safety for others, resilience, traffic, food, teeth, and basic skills (reading, writing, and calculating).

Mental health outcomes. Depression, anxiety, and somatization were measured with subscales of the Brief Symptom Inventory (BSI-53; De Beurs & Zitman, 2005; Derogatis, 1975, 1993). The constructs were measured with 6 or 7 items. The response scale ranged from *not at all* (0) to *extremely* (4). Cronbach's α of the depression subscale was .85 at baseline and .87 at follow-up. Cronbach's α of the anxiety subscale was .77 at baseline and .76 at follow-up. Cronbach's α of the somatization subscale was .83 at baseline and .78 at follow-up.

Alcohol use, soft drug use, and hard drug use were measured with the European Addiction Severity Index (Kokkevi et al., 1993; McLellan et al., 1992). The constructs were measured with a single item. Alcohol use was measured by asking whether or not the participant drank five or more glasses per day during the past 30 days. Soft drug use was measured by asking whether the participant used cannabis during the last 30 days. Hard drug use was measured asking the participants whether they used heroin, methadone, cocaine, crack, amphetamine, ecstasy, or gamma-hydroxybutyric acid during the last 30 days. Questions answered with *yes* were coded as 0 and with *no* as 1.

Strengths outcomes. The Basic Psychological Needs Scale (Deci & Ryan, 2000; Johnston & Finney, 2010; Vlachopoulos & Michailidou, 2006) was used to measure autonomy, competence, and relatedness. The scale consists of 3 subscales and 21 items. The response scale ranged from *not true at all* (1) to *definitely true* (7). An example from the autonomy subscale is "I feel like I can decide for myself how to live my life." An example from the competence subscale is "I really like the people I interact with." An example from the relatedness subscale is "I often do not feel very capable." Each subscale reflects the extent to which young adults feel satisfied with that particular need. At baseline, Cronbach's α of was .62 for autonomy, .59 for competence, and .75 for relatedness. At follow-up, Cronbach's alpha was .64, .58, and .75, respectively.

Resilience was measured with the Dutch Resilience Scale (Portzky, Wagnild, De Bacquer, & Audenaert, 2010; Wagnild & Young, 1993). The scale contains 25 items. The response scale ranged from *strongly disagree* (1) to *strongly agree* (4). Examples of items include "I am able to manage myself more than anyone else" and "My belief in myself gets me through hard times." Cronbach's α of the scale was .88 at baseline and .89 at follow-up.

Analysis Plan

In order to study the effect of the Houvast method on the outcome variables, we performed repeated-measures analysis of variance (ANOVA; for continuous outcomes) and logistic regression (for dichotomous outcomes). In the design of our study, the shelter facilities were randomized instead of the participants. As a consequence, the participant's characteristics might not be adequately randomized, which is problematic if those characteristics are also correlated with the outcome variables. We tested whether the intervention and control groups differed at baseline on general participant characteristics, and there were no statistically significant differences between the Houvast group and the care-as-usual group on age, $t(249) = -.01, p > .05, d = .00$; gender, $\chi^2(1, N = 251) = 0.12, p > .05, \phi = .02$; ethnicity, $\chi^2(1, N = 251) = .21, p > .05, \phi = .03$; educational level (Fisher's exact test $> .05, \phi = .13$); duration of homelessness, $\chi^2(1, N = 251) = 0.03, p > .05, \phi = -.01$; and type (residential or ambulant) of care, $\chi^2(1, N = 251) = 3.20, p > .05, \phi = -.11$. As our purpose was to

Table 1. Descriptive Statistics (mean [SD] or %) for the Baseline (T0) and Follow-Up (T1) Measures.

Outcome measures	T0			T1		
	Houvast (n = 134)	Care as usual (n = 117)	Total (N = 251)	Houvast (n = 94)	Care as usual (n = 104)	Total (N = 198)
Quality of life	4.68 (1.29)	4.43 (1.20)	4.55 (1.25)	5.41 (0.97)	5.09 (1.25)	5.24 (1.14)
Satisfaction with social relations	5.68 (0.87)	5.59 (1.09)	5.63 (0.99)	5.66 (0.89)	5.46 (1.03)	5.55 (0.97)
Satisfaction with family relations	4.08 (1.74)	3.90 (1.65)	3.98 (1.69)	4.84 (1.72)	4.42 (1.74)	4.62 (1.74)
Satisfaction with finances	3.30 (1.74)	2.68 (1.55)	2.97 (1.67)	3.95 (1.64)	3.43 (1.56)	3.68 (1.62)
Depression	1.76 (0.84)	1.92 (0.87)	1.84 (0.85)	1.59 (0.74)	1.75 (0.80)	1.67 (0.78)
Anxiety	1.74 (0.74)	1.77 (0.73)	1.76 (0.73)	1.74 (0.77)	1.67 (0.57)	1.70 (0.67)
Somatization	1.67 (0.76)	1.68 (0.75)	1.68 (0.75)	1.57 (0.61)	1.61 (0.65)	1.59 (0.63)
Satisfaction with health	4.87 (1.22)	4.52 (1.30)	4.68 (1.27)	5.09 (1.00)	4.77 (1.15)	4.92 (1.10)
Care needs	4.58 (2.47)	4.55 (2.72)	4.57 (2.60)	3.92 (2.68)	3.71 (2.77)	3.81 (2.73)
Autonomy	5.00 (0.81)	4.88 (0.94)	4.94 (0.88)	5.19 (0.83)	4.94 (0.87)	5.06 (0.86)
Competence	4.94 (0.84)	4.73 (0.95)	4.82 (0.90)	5.01 (0.96)	4.94 (0.87)	4.97 (0.91)
Relatedness	5.36 (0.79)	5.26 (0.90)	5.31 (0.85)	5.46 (0.80)	5.28 (0.83)	5.37 (0.82)
Resilience	3.28 (0.42)	3.15 (0.43)	3.21 (0.43)	3.41 (0.36)	3.23 (0.42)	3.33 (0.40)
Employed or in school	37.6%	20.9%	28.7%	43.6%	38.5%	40.9%
Alcohol users	39.3%	44.4%	42.0%	38.3%	54.8%	47.0%
Soft drugs users	58.6%	60.9%	59.8%	52.7%	59.6%	56.3%
Hard drugs users	18.4%	16.5%	17.4%	14.1%	15.7%	14.9%

Note. T0 = baseline; T1 = follow-up.

examine what impact Houvast had on outcomes and because we wanted to minimize power loss due to including too many variables in the effect analyses, we did not include these variables as covariates in the repeated-measures analyses and the logistic regression analyses.

The data in this study are nested by design, that is, shelter facilities in participants in time. This will potentially violate the assumption of independence of the sampling elements and could result in smaller standard errors. That in turn will result in an overestimation of the significance of parameter estimates. In order to overcome the problem of nonindependence, one could perform a multilevel analysis. However, that is not without problems. The randomization was done over shelter facilities (instead of over participants), which makes the intervention a third-level variable. As a result, there are only 10 third-level observations (e.g., the number of shelter facilities). According to Hox (2002), these numbers are too small to test the effect of Houvast with intervention as a third-level variable. An alternative for a multilevel analysis could be a fixed-effects model, where shelter facilities are included in the regression as dummy variables. In order to estimate the effect of Houvast, we should add the intervention variable to the model. However, because the intervention is confounded with the shelter facilities (due to the design), it will result in perfect multicollinearity. In conclusion, neither analysis is feasible, and therefore, we resorted to ANOVA and logistic regression.

The attrition between the baseline and follow-up was approximately 21%. If the dropouts are very deviant from the completers, it could lead to biased conclusions. To cope with this problem, we performed intention-to-treat (ITT) analyses. In an ITT analysis, missing data are imputed using the multiple imputation procedure in SPSS. For continuous variables, the predictive mean matching method was used, and for the

categorical variables, we used the logistic regression method. The results that we report, except for the univariate descriptives, are based on 20 imputed data sets. For the repeated-measures ANOVA, the results are reported by averaging the scores, whereas for the logistic regression analysis, the results are reported by averaging the effects (i.e., pooling).

Results

Descriptives

Table 1 presents the descriptive statistics for the baseline and follow-up measures. At baseline, participants were “equally satisfied and dissatisfied” to “mostly satisfied” with their general quality of life and their health. The participants were “mostly satisfied” to “pleased” with their social relations, “equally satisfied and dissatisfied” with their family relations, and “unhappy” to “mostly dissatisfied” with their financial situation. According to Dutch norm scores, homeless young adults had severe depression, anxiety, and somatization problems (De Beurs, 2011). On average, they had 4 to 5 care needs (of the 19 care needs). Participants were neither satisfied nor dissatisfied with their autonomy, competence, and relatedness and their level of resilience was high. At baseline, 28.7% of the homeless young adults were employed or in school. The percentage of alcohol and substance use ranged as follows: 42.9% used at least five glasses of alcohol per day in the last 30 days, 59.8% used soft drugs, and 17.4% used hard drugs the last 30 days.

Baseline and Follow-up Differences

Differences between conditions on baseline and follow-up were evaluated using an independent sample *t*-test for

Table 2. Results of the Repeated-Measures ANOVA for the Continuous Outcome Measures.

Outcome measures	Time		Houvast		Time × Houvast	
	F(1,249)	η_{p2}	F(1,249)	η_{p2}	F(1,249)	η_{p2}
Quality of life	73.62	.23***	5.38	.01*	0.17	.00
Satisfaction with social relations	4.88	.02*	1.27	.01	0.52	.00
Satisfaction with family relations	31.42	.11***	2.03	.01	0.52	.00
Satisfaction with finances	51.93	.17***	11.11	.04***	0.22	.00
Depression	11.92	.05***	3.69	.02	0.00	.00
Anxiety	0.50	.02	0.03	.00	1.86	.01
Somatization	1.95	.01	0.14	.00	0.12	.00
Satisfaction with health	7.61	.03**	6.45	.03*	0.17	.00
Care needs	27.57	.10***	0.34	.00	0.79	.00
Autonomy	4.91	.02*	3.98	.02*	1.20	.01
Competence	6.75	.03**	2.30	.01	1.30	.01
Relatedness	0.80	.00	2.36	.01	1.62	.01
Resilience	30.18	.11***	6.79	.03**	0.35	.00

Note. Analyses were carried out on the 20 imputed data sets; presented estimates are based on the average scores over the 20 data sets. ANOVA = analysis of variance.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

continuous variables and a χ^2 test for categorical variables. At baseline, homeless young adults in the intervention group scored higher on the following variables compared to those receiving care as usual: satisfaction with finances, $t(248) = 3.00$, $p < .05$, $d = .38$; satisfaction with health, $t(248) = 2.19$, $p < .05$, $d = .28$; resilience, $t(248) = 2.44$, $p < .05$, $d = .31$; and employed or in school, $\chi^2(1, N = 251) = 8.53$, $p < .05$, $\phi = .19$. At follow-up, homeless young adults in the intervention group scored higher on quality of life, $t(196) = 2.05$, $p < .05$, $d = -.29$; satisfaction with finances, $t(195) = 2.28$, $p < .05$, $d = -.33$; satisfaction with health, $t(196) = 2.08$, $p < .05$, $d = -.30$; resilience, $t(196) = 2.50$, $p < .05$, $d = -.46$; and autonomy, $t(196) = 2.10$, $p < .05$, $d = -.29$, compared to those in the control group. In addition, those receiving care as usual scored higher on alcohol use, $\chi^2(1, N = 198) = 5.40$, $p < .05$, $\phi = -.17$, at follow-up.

Changes Between Baseline and Follow-up

Differences across time were evaluated using the paired samples t -test for continuous variables and the McNemar's test for categorical variables. Across time, there were improvements for the following variables: quality of life, $t(197) = -7.63$, $p < .05$, $d = .56$; satisfaction with family relations, $t(191) = -4.88$, $p < .05$, $d = .36$; satisfaction with finances, $t(195) = 6.40$, $p < .05$, $d = .44$; satisfaction with health, $t(196) = -2.16$, $p < .05$, $d = .15$; depression, $t(196) = 3.09$, $p < .05$, $d = -.21$; care needs, $t(197) = 4.67$, $p < .05$, $d = -.32$; autonomy, $t(197) = -2.38$, $p < .05$, $d = .17$; competence, $t(197) = -2.78$, $p < .05$, $d = .20$; resilience, $t(197) = -4.69$, $p < .05$, $d = .30$; and employed or in school (McNemar's test = $p < .05$, $\phi = .38$). Participants showed a decline across time on satisfaction with social relations, $t(193) = 2.140$, $p < .05$, $d = -.14$.

Repeated-Measures ANOVA

Table 2 presents the results of the repeated-measures analyses. We found significant time effects for quality of life, satisfaction with family, satisfaction with finances, satisfaction with health, autonomy, competence, and resilience, indicating that all participants improved over time on these outcomes, regardless of the condition. Significant time effects were also found for depression, amount of care needs, and satisfaction with social relations, meaning that all participants decreased over time on these outcomes, regardless of the group. Next to the effects of time, significant differences were found between the intervention and control group only on quality of life. This indicates that at both time points, the participants receiving Houvast had higher scores on quality of life. However, they did not improve more than the control condition, given the insignificant time by group interaction. The same result was found for satisfaction with finances, satisfaction with health, autonomy, and resilience, with participants in the Houvast condition showing better scores both at baseline and at follow-up but not showing much improvement in comparison with participants in the control condition.

Logistic Regression Analysis

Table 3 presents the results of the logistic regression. The results indicate that if participants drank alcohol and used soft drugs at baseline, there was a higher probability that they also drank alcohol (95% confidence interval [CI] [0.14, 0.63]) and used soft drugs (95% CI [0.41, 0.24]) respectively at follow-up measurement. Furthermore, if participants were employed or in school at baseline, there was a higher probability that they were also be employed or in school at follow-up (95% CI [0.07, 0.71]). The effect of Houvast was not significant on any of the four categorical outcomes at the follow-up. In addition, the

Table 3. Results of the Logistic Regression Analyses for the Categorical Outcome Measures.

Outcome at T1	Outcome at T0		Houvast		Outcome at T0 × Houvast	
	OR	95% CI	OR	95% CI	OR	95% CI
Employed or in school	0.26**	[0.07, 0.71]	1.65	[0.78, 3.51]	0.44	[0.11, 1.69]
Use of alcohol	0.29**	[0.14, 0.63]	1.47	[0.68, 3.11]	1.12	[0.36, 3.54]
Use of soft drugs	0.09**	[0.41, 0.24]	1.12	[0.43, 3.12]	0.91	[0.25, 3.35]
Use of hard drugs	0.47	[0.14, 1.57]	1.39	[0.51, 3.79]	0.35	[0.07, 1.86]

Note. The reference group for employed or in school is “being employed or in school” and for substance use is “using alcohol, soft drugs, or hard drugs.” OR = odds ratio; CI = confidence interval; T0 = baseline; T1 = follow-up.

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

effect of the interaction (T0 × Houvast) was not significant, indicating that the probability that participants receiving Houvast used alcohol, soft drugs, hard drugs or that they were in school or employed at follow-up measurement was not higher than for participants receiving care as usual.

Additional Analyses for Finishing Care Before the Follow-up Measurement

As 77.3% of the participants ended care at an earlier stage, we ran additional analyses to test whether the intervention and control group differed (a) on the amount of participants who ended care before the follow-up measurement and (b) in their reasons for ending care at an earlier stage. In the intervention condition, a higher proportion of homeless young adults (58.8%) were still receiving care at the time of the follow-up measurement compared to those in the control condition (41.2%), $\chi^2(1) = 5.88, p < .05, \phi = .16$. Table 4 presents the differences between both the groups in percentages. Of those participants who ended care at an earlier stage, there are differences between the intervention and control groups on reasons for finishing care, $\chi^2(3) = 11.78, p < .05, \phi = .26$. In the intervention group, a higher proportion of homeless young adults successfully completed the trajectory, a lower proportion of homeless young adults dropped out of care, and a lower proportion moved or transferred their care to another care provider compared to those receiving care as usual.

Discussion and Application to Practice

The present study contributes to the few existing intervention studies for homeless young adults by examining the effectiveness of a strengths-based intervention in 10 Dutch shelter facilities for homeless young adults receiving ambulatory or residential care. The results showed that homeless young adults in general improved on quality of life, satisfaction with family relations, satisfaction with finances, satisfaction with health, depression, autonomy, competence, and resilience. In addition, homeless young adults had fewer care needs, and a higher percentage was employed or in school at follow-up. Contrary to our expectation, all homeless young adults showed a decline on satisfaction with social relations. No significant differences were found between the intervention and the control groups

Table 4. Reasons for Homeless Young Adults to Finish Care Within 6 Months After Baseline Measurement.

	Houvast (n = 69; %)	Care as usual (n = 105; %)
Reasons for finishing care		
Successfully completed the trajectory	56.5	35.2
Dropped out of care	26.2	41.9
Moved or transferred care to another care provider	14.5	22.9
Other	2.9	0

between baseline and follow-up measurements on all outcomes. However, a higher proportion of homeless young adults receiving care according to Houvast was still receiving care at the time of follow-up measurement compared to those receiving care as usual. In addition, a lower proportion of homeless young adults who received care according to the Houvast intervention dropped out of care and a higher proportion positively completed the trajectory.

Our study showed that, in general, homeless young adults show improvements when receiving care. Comparing the present results with other studies is difficult because the strengths-based approach has not yet been tested on its effectiveness in homeless young adults. Nevertheless, our findings are to a large extent consistent with previous studies, showing that homeless young adults benefit from service provision. Previous studies among homeless youth receiving case management in a drop-in center found improvements on psychological distress and substance use over a 12-month period (Slesnick, Kang, Bonomi, & Prestopnik, 2008) and improvements on substance abuse, depression, social stability, internalizing and externalizing problems, and emotion and task-oriented coping over a 6-month period (Slesnick, Prestopnik, Meyers, & Glassman, 2007). Further, a previous study among homeless youth using shelter or crisis services found positive 6-week effects for and a significant decrease in days on the run, school suspension and/or detention, being sexually active or not, perceived family support, and self-esteem and employment (Thompson et al., 2002). A remarkable finding in the present study is that homeless young adults’ satisfaction with social relations declined even though shelter facilities paid much attention to building and maintaining a social network. Possibly, due to receiving

care, homeless young adults became more conscious of their current social network mostly consisting of other homeless people and discovered that the support provided by them does not satisfy their true needs and sometimes pose significant risks to their well-being (S. Wenzel et al., 2012). Furthermore, often permission was required to have friends over at the shelter facility. Consequently, homeless young adults could be reluctant to invite friends or other acquaintances to the shelter facility.

Our study showed that homeless young adults who received care according to the Houvast intervention did not show much improvements in comparison with those receiving care as usual. What possible explanation can be given for this result? At first, it could be that the effects of Houvast will become evident in the long run. The results showed that none of the shelter facilities achieved a sufficient fidelity score. Shelter facilities obtained a sufficient score on three indicators, and professionals are still learning to adhere to the model. One of the reasons for the low fidelity is that a comprehensive approach is needed when implementing Houvast. Such an approach should include building an infrastructure that supports the implementation and maintenance of the Houvast intervention over time, making financial resources available and ensuring supportive leadership for organizations to adopt the strengths-based approach and for taking the necessary measures to make that happen (e.g., investing in supervision). More information on the fidelity assessment of the Houvast intervention and suggestions on how to improve fidelity can be found in previous work (Krabbenborg, Boersma, Beijersbergen, et al., 2013; Krabbenborg Boersma, Beijersbergen, Goscha, et al., 2015). The insufficient model fidelity score may explain why no differences were found between the homeless young adults in the intervention and control groups. As described earlier, the strengths-based approach has been demonstrated to be effective (C. A. Rapp & Goscha, 2011). Also, previous studies showed that, in case of an effective intervention, higher fidelity scores produce better client outcomes (Blakely et al., 1987; Bond, Evans, Salyers, Williams, & Kim, 2000; Cuddeback et al., 2013; Drake et al., 2001; Fukui et al., 2012; McGrew, Bond, Dietzen, & Salyers, 1994; McHugo, Drake, Teague, & Xie, 1999; Teague, Bond, & Drake, 1998). Therefore, the low fidelity ratings may be due to the timing of the fidelity assessment. The fidelity assessment was performed 6 months after the introduction of Houvast and the trainings of professionals. Despite provision of intensive trainings and the enthusiastic responses from professionals, this half year period probably was too short for professionals to fully adopt the Houvast intervention.

A second explanation for not finding an effect of Houvast could be that the strengths-based approach has gained enormous popularity in recent years. Some shelter facilities in the control group indicated that they used some principles of the strengths-based approach. Although these shelter facilities did not receive training in Houvast, were not familiar with the theoretical framework of Houvast, and did not use the tools of the Houvast intervention, it was unethical to forbid shelter facilities to use strengths-based principles. This could have led to

having shelter facilities in the intervention and control groups with too much similar characteristics resulting in not finding differences between the two groups.

Third, based on the fact that homeless young adults in general showed improvements, it may also be that shelter facilities in the Netherlands in general provide high-quality care to homeless young adults. Despite the financial crisis in recent years, which also affected shelter facilities, homeless young adults still could get help from well-educated professionals working in shelter facilities paid by the government.

Although shelter facilities in the intervention group did not achieve model fidelity, and results of homeless young adults in the intervention group were not distinctive from those in the control group, it seems that working according to Houvast does have an influence on how successfully a trajectory is completed. The percentage of service utilization at follow-up among homeless young adults who received care according to Houvast was higher compared to those receiving care as usual (58.8% vs. 41.2%). This corresponds to previous studies among substance users who found that strengths-based case management contributed to treatment retention and, in turn, to less drug use (R. C. Rapp, Siegal, Li, & Saha, 1998; Siegal et al., 2002; Siegal, Rapp, Li, Saha, & Kirk, 1997). Also, other studies among (homeless) substance users demonstrated that longer service utilization is associated with enhanced long-term outcomes (e.g., quality of life and client satisfaction; Brunette, Drake, Woods, & Hartnett, 2001; Grella & Stein, 2006; Vanderplasschen, Wolf, Rapp, & Broekaert, 2007). Thus, in these studies, treatment duration appeared to be an essential element of successful treatment because longer stays provide the ability to learn skills to maintain abstinence and more flexibility in the transition back to the community (Brunette et al., 2001). Whether longer service utilization among homeless young adults in the intervention condition results in enhanced long-term outcomes cannot be concluded and would be interesting for future research. However, it seems likely that professionals already made small steps toward becoming a co-participant in the recovery process of a homeless young adult rather than an expert (Cox, 2001; Itzhaky & Bustin, 2003) and that homeless young adults and professionals already benefited from the small improvements professionals have made.

This study expands on the current available literature on intervention studies for homeless young adults because no previous study presented results of a strengths-based intervention before. Further, we used a randomized cluster controlled trial, making this a methodologically strong study. Despite the use of this design, this study has some limitations. Because homeless young adults left the shelter facility at different time points, the duration of exposure to Houvast or care as usual was not equal for each homeless young adult. Controlling for this variable was not possible because interpreting "duration of exposure" is impossible. A long or short exposure can be explained in either a positive or a negative way depending on the reasons for finishing care. For instance, a short duration of exposure could mean that homeless young adults left the shelter facility

because they achieved their goals early. On the other hand, it could also be that homeless young adults were forced to leave the shelter facility, for example, because they violated the rules of the shelter facility. Secondly, we asked the contact person in each shelter facility for the reason of ending care of each homeless young adult after the data collection was finished. Subsequently, we categorized the given reasons for further analyses. This retrospective way of collecting data could have led to less reliable answers given by the contact persons, because they had to retrieve information from more than 1 year ago in some cases.

For future research, it would be interesting to make a distinction between four different subgroups: homeless young adults receiving ambulatory care while being housed, homeless young adults receiving ambulatory care while not being housed (i.e., living on the streets or sleeping with friends and receiving ambulatory care for only a few hours a week), homeless young adults receiving residential care, and homeless young adults who are not receiving any care (though the latter is hard to achieve in the Netherlands). In the present study, homeless young adults receiving ambulatory care while being housed and not being housed were combined. Due to loss of power, it was not possible to distinguish between two different variants of ambulatory care in the present study. As already proven among housed homeless adults (i.e., young adults who live with their family) in a previous research by J. Wolf, Burnam, Koegel, Sullivan, and Morton (2001), their overall quality of life and satisfaction with housing, leisure, and money improved better than nonhoused homeless adults. Furthermore, future research should focus on long-term effects of the Houvast intervention and care in general and investigate the job satisfaction among professionals. A positive approach in organizations could lead to more job satisfaction among employees and higher motivation to innovate improvements in their work (Seligman & Csikszentmihalyi, 2000).

The present study is the first to report on the effectiveness of a strengths-based intervention among homeless young adults in shelter facilities. The results suggest that homeless young adults benefit from service provision in general, regardless of whether they had received care according to Houvast or care as usual. Further, dropping out of care is less likely, and a positive completion of the trajectory is more likely, when homeless young adults receive care according to Houvast compared to care as usual. However, conclusions about the effectiveness of the Houvast intervention are difficult to achieve because of low fidelity scores in shelter facilities who worked according to Houvast. Much needs to be done for attaining model fidelity of Houvast in these shelter facilities. Further research on the effectiveness of Houvast is needed after sufficient model fidelity has been achieved to improve the living situation of these vulnerable young adults.

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Authors' Note

Registration Dutch trial register (registration number NTR3254, (<http://www.trialregister.nl/trialreg/admin/rctview.asp?TC=3254>).

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Note

1. Even though the shelter facilities officially provide support to homeless young adults from the age of 18 years and older, they presented us with four youth who were still 17 years old but approaching their 18th birthday who wanted to participate. Since in the Netherlands in the case of a nonmedical study, youth from the age of 11 years and older can independently consent participation, these four participants were included in the study sample.

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