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“What matters to you?”: A randomized controlled effectiveness trial, Using Systematic Idiographic Assessment as an intervention to Increase Adolescents’ perceived control of their mental health



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ABSTRACT

Introduction: Over the last decades, many Western countries have seen an increase in mental health difficulties in the adolescent population. Among Norwegian adolescents, internalizing symptoms are most prevalent, and 10%–38% of adolescents seek out primary health care services for mental health problems. This study examined whether an idiographic measure designed for adolescents called Assert, which uses variables individually selected by the adolescents, could improve user involvement, locus of control, mental health, and quality of life.

Methods: This study conducted a randomized controlled effectiveness trial using Assert in primary healthcare. A community sample of 150 Norwegian adolescents aged 12–23 years ($M = 16.2$; $SD = 2.2$) were randomized to the Assert or control group. Of the participants 27 (18%) were male. The adolescents and 52 counsellors from primary healthcare services responded to online questionnaires. Of the counselors, 92.8% were female and trained in the use of systematic idiographic assessment.

Results: Adolescents who used Assert scored significantly lower on external LoC, attributing less of their mental health improvement to chance, fate, or luck. However, the intervention showed no effect on the symptoms of mental health, QoL, or user involvement.

Conclusions: Using Assert in primary healthcare may enhance adolescents’ sense of being able to influence their life circumstances and mental health by allowing them more control of their treatment. However, this approach might not be successful in reducing symptoms.

“What Matters to You?”: A Randomized Controlled Effectiveness Trial, Using Systematic Idiographic Assessment as an Intervention to Increase Adolescents’ Perceived Control of their Mental Health.

Of all mental illnesses diagnosed in adults, 75% has its onset in adolescence (Ruiz & Primm, 2010). In the last few decades, many Western countries have seen a trend of increasing mental health difficulties in adolescents (Kim & Hagquist, 2018) and a higher prevalence of emotional disorders, especially among young women (Collishaw, 2015). These trends also manifest in Norway, where about 6% of boys and 19.7% of girls experience significant self-reported mental health problems; these figures have increased by about 4% since 2011 (Bakken, 2017). According to a Norwegian national survey, 15.2% of high school-age adolescents were troubled by symptoms of depression (Bakken, 2019). Among high school students, 34%–38% visited a school health nurse in 2017, and 10%–20% visited a low threshold adolescent health clinic (Bakken, 2018; Bakken, Frøyland, & Sletten, 2016). Among older

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adolescents (16–24 yrs), 18% have visited a psychologist within the last year (Bufdir, 2018). Primary healthcare for adolescents, including mental healthcare and early intervention are vital in reversing these trends. Although the Norwegian government has established low-threshold services that provide assessment, counselling, and follow-up, these services are mostly not adapted to the needs of adolescents.

1. Adolescent autonomy, user involvement, and locus of control

Autonomy is a central developmental issue for adolescents because they are expected to gradually take more responsibility for their well-being and develop better self-regulation to lower their dependence on others (Sameroff, 2010). Adolescents therefore need a supportive and independence-fostering environment (McElhaney & Allen, 2001; Pardeck & Pardeck, 1990).

One way to facilitate adolescents' development of autonomy in mental health services is to involve them more in their treatment. Increasing their influence on decisions about their treatment can strengthen their autonomy and coping skills and, in turn, make them less dependent on health services in the future (Storm & Edwards, 2013; WHO, 1998, 2005). While this idea has received increasing attention over the last decades, research on the effects of adolescent user involvement is scarce and consistently reveals that children and adolescents are rarely asked for their views by those making decisions affecting their lives (Aubrey & Dahl, 2006). However, studies have shown that children and adolescents are able to give meaningful feedback on their therapy and experiences with service providers (Davies & Wright, 2008). Adolescents also value meaningful involvement in their treatment and in decisions about their treatment (Davies & Wright, 2008). Involving adolescents helps to establish mutually defined goals, which may increase positive outcomes and reduce drop out (Chorpita, Bernstein, & Daleiden, 2008; Weisz & Chorpita, 2011). However, involving adolescents is not always done consistently during treatment, and service providers or parents often define treatment aims for young people and speak on their behalf (Weisz et al., 2011), which can be problematic, since discrepancies often exist between adolescents' and parents' perceptions of mental health problems (e.g., Garland, Lewczyk-Boxmeyer, Gabayan, & Hawley, 2004; Godley, Fiedler, & Funk, 1998; Klein, 1991).

Experiencing control over the circumstances that affect one's mental health is associated with better mental health outcomes (e.g., Kurtović, Vuković, & Gajić, 2018); this is called locus of control (LoC). LoC is defined as the degree to which individuals attribute causes of life events to internal or external factors; in other words, how much control they perceive to have over the conditions of their lives, and to what degree they believe they can impact the conditions (Rotter, 1966). Persons who have a high degree of *external* LoC tend to believe that their life is controlled by external factors, while individuals with a high degree of *internal* LoC have more perceived control over their lives (Ryan & Deci, 2000). LoC has been found to relate to autonomy (Noom, Deković, & Meeus, 2001). Several international studies have documented the association between adolescents' symptoms of depression and anxiety and an external LoC (e.g., Kim, 2003; Kurtović et al., 2018; Takakura & Sakihara, 2000; Weisz, Sweeney, Proffitt, & Carr, 1993; Yu & Fan, 2016). A high degree of external LoC also relates to less self-competence, and self-esteem (Hunter & Csikszentmihalyi, 2003; Kurtović et al., 2018), reduced problem-solving abilities (Kliwer, 1991) and less happiness (April, Dharami, & Peters, 2012). By contrast, internal LoC is associated with better mental health and fewer psychological symptoms (e.g., Armstrong & Boothroyd, 2008; Jain & Singh, 2015; Kurtović et al., 2018; Shojaee & French, 2014), and less anxiety (Kim, 2003) and depression (Kim, 2003; Takakura & Sakihara, 2000; Weisz et al., 1993; Yu & Fan, 2016).

Programs that influence LoC have shown varying results, ranging from unsuccessful psychoeducational strategies (Fertman & Chubb, 1992) to programs that have increased internal attribution (Autry & Langenbach, 1985; Nowicki & Strickland, 1973). It is therefore beneficial to develop and evaluate more successful interventions for facilitating the development of a healthy LoC.

2. The Assert assessment procedure

This study implemented an intervention to promote adolescents' perception of control and their participation in treatment. The intervention uses an ideographic approach to assessment and follow-up called Assert, which places emphasis on the concerns each adolescent presents to their counsellor (see the Methods section for a detailed description). The study, which is a randomized controlled effectiveness trial, examines whether Assert will contribute to meaningful changes in adolescents' perceived user involvement, LoC, mental health, or quality of life (QoL). This study is the first to systematically apply and evaluate Assert, and to our knowledge, the first evaluation of an ideographic measure in a Norwegian primary mental healthcare context.

Assert is based on a salutogenic view of mental health, meaning that we should move from asking, "What is the matter with you?" to "What matters to you?" (e.g., Doyle, Reed, Woodcock, & Bell, 2010; Kebede, 2016; Lang, Hoey, Whelan, & Price, 2017). The salutogenic model of health seeks to explain the relationship between health, stress, and coping, i.e., the elements that promote good health (Antonovsky, 1979). We considered an ideographic approach appropriate because of the nature of the services where it was implemented, which are typically the adolescents' first touch with professionals dealing with mental health concerns. No referral is needed to get an appointment, and the services are free and offer short-to medium-term counselling. If the adolescent needs a longer and more intensive treatment, they are referred to specialized services. As the length of counselling and number of sessions can vary substantially, an early alliance with the adolescents is crucial. Therefore, an easily implemented ideographic procedure was deemed appropriate to understand the core of the adolescents' concerns from the start. Being a systematic ideographic approach, it provides a rational basis for assessment, decisions, and actions in psychosocial interventions (Haynes, Mumma, & Pinson, 2009) and can be used to ensure user participation (Law, 2006); it is therefore of increasing interest for monitoring progress in psychotherapy (see Barlow & Nock, 2009; Weisz et al., 2011; Wolpert et al., 2012).

By using this continuous and systematic form of ideographic assessment, one can ensure that the adolescent is involved

throughout the duration of the counselling. Additionally, the counsellor remains informed of what matters to the adolescent and can thus adapt the counselling accordingly. Through the scoring system, Assert displays how the adolescent develops in line with their personalized topics during the counselling. In essence, the purpose of using Assert is to help the adolescents specify goals and needs *that matter to them*, adapt the counselling to each adolescent's unique needs, and demonstrate to the adolescent that the counsellor takes them seriously.

We proposed four research questions: (1) Do adolescents in the Assert group show an increase in internal LoC and a decrease in external LoC? compared to the control group, meaning (2) Compared to the control group, do adolescents in the Assert group perceive themselves to be more involved in their counselling? (3) Do adolescents in the Assert group vs controls show improved scores on the measures of mental health and QoL? (4) Do adolescents that report a higher degree of external LoC also report lower QoL and more mental health issues?

3. Method

3.1. Participants and recruitment

A community sample of 150 adolescents aged 12–23 years were recruited from 11 municipalities in Eastern Norway. The wide age range was selected to reflect all help-seeking adolescents presenting at primary health care services. In Norway, caring for this age group is a part of such services' responsibility. All participants sought help from these services for mental health problems. Of the sample, 27 (18%) were male, and the mean age was 16.2 years ($SD = 2.2$). Of the participants, 93.1% were in education, 4.1% were employed, and 2.7% were neither in education nor employed. These percentages are similar to the Norwegian average of 93% (With, 2017). Adolescents aged 12–23 years who sought help were eligible for participation and were recruited consecutively to the study by their counsellor in their first session. The exclusion criteria were severe psychopathological disorders, drug addiction, or intellectual disabilities. No data were collected regarding the adolescents that did not meet the inclusion criteria. All participating adolescents could enter a lottery to win a tablet or a headset. The participants were randomly allocated to one of two conditions: (1) The intervention condition, where Assert was used throughout the counselling and scored in every session, or (2) the control condition, where the counsellors were instructed to provide treatment as usual. The randomization process was computerized, and participants were individually randomized in blocks of four, so that for every four adolescents each counsellor recruited, two were allocated to the intervention condition and two to the control condition.

With this randomization procedure, each counsellor would treat participants in both the intervention and control conditions. Hence, contamination between the groups could not be ruled out. This could make the differences between the intervention and control groups smaller, putatively yielding more conservative estimates. Block randomization makes it more likely that each counsellor treats adolescents in both groups, if the counselors recruited few participants. The counselors were not informed of the randomization sequence.

Although 258 adolescents were assessed for eligibility, 68 declined to participate, leaving 190 cases; 40 were then removed before the analyses because of data collection errors ($n = 23$), no reported outcome data at pre-test ($n = 15$), or no age variable ($n = 2$), leaving 150 complete cases for the analyses. The intervention group comprised 70 (46.7%) participants. Gender and age were similar in both groups.

3.2. Measures

Assert. Assert is an idiographic assessment procedure designed to repeatedly measure the needs, goals, and concerns of adolescents aged 12–23 years in primary care counselling. The original version of Assert by the Norwegian Knowledge Centre for the Health Services (see Nordheim & Vege, 2016) was further developed and adapted by the current research team. The Assert assessment focuses primarily on one question administered to the adolescents: "What matters to you?" The counsellor asks this question in the first session with the adolescent. Working with the counsellor, the young respondents determine the most important concerns they want to address during their sessions. Up to three topics can be defined regarding what matters to the adolescent, such as problems, goals, and areas of life. After the adolescent has written these goals or topics down in the Assert measure, the counsellor and adolescent work together to find a suitable way forward. Each adolescent will have their own, unique version of Assert. For example, an adolescent struggling with anxiety-related problems might state, "It's important to me to stop worrying so much." In all subsequent sessions, the counsellor starts by asking, "In the last session you said it was important to you to stop worrying so much. Is this still important to you?" If the adolescent answers "yes," they move on to scoring, where the counsellor asks, "On a scale from one to ten, how do you feel about this topic now?" The adolescent gives a score ranging from 1 ("not good at all") to 10 ("very good"). If the topic is no longer important, the adolescent can replace or remove it.

LoC. The Multidimensional Health Locus of Control (MHLC) scale (Wallston, Strudler Wallston, & DeVellis, 1978), is an 18 item self-report measure to assess an individual's belief about what influences their health. The scale comprises four dimensions, each reflecting a style of attribution: (1) *internal*: changes in health are due to one's own efforts (e.g., "I am directly responsible for my condition getting better or worse."); (2) *chance*: changes in health are due to chance, luck, or fate (e.g., "Luck plays a big part in determining how my condition improves."); (3) *doctor* (in our case counsellor): changes in health are due to the counsellor's efforts (e.g., "If I see my doctor regularly, I am less likely to have problems with my condition."); (4) *others*: changes in health are due to the efforts of other people (e.g., "The type of help I receive from other people determines how soon my condition improves.>").

In this study, all external dimensions were combined into one external subscale because LoC is often dichotomized on an internal

and external scale (e.g., Nowicki & Duke, 1974). The MHLC scale has been widely used in research and is reported to have a Cronbach's alpha in the 0.60–0.75 range, a test-retest stability coefficient in the range of 0.60–0.70 (Wallston, 2005), and its validity has been shown in several populations (Wallston, 2005). In this study, the MHLC scale had a Cronbach's alpha of .66, which is within the range of previous studies with MHLC.

Mental health problems. The Norwegian version (Heiervang, Elgen, Heyerdahl, & Young, 1999) of the Strengths and Difficulties Questionnaire Self-report version (SDQ-S) contains 25 items organized in five subscales: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items), and prosocial behavior (5 items). In addition, the emotional and peer relationship problems can be combined to an internalizing scale, and the conduct problems and hyperactivity can be combined to an externalizing scale. The prosocial scale is not included in the SDQ-S total score. This study used the impact supplement, which asks the adolescent about chronicity, distress, social impairment, and burden to others (Goodman, 1997). In this study, Cronbach's alphas were .72 for the total scale of the SDQ-S and 0.74 for the impact supplement.

QoL. The Norwegian version (Jozefiak, 2012) of the Inventory of Life Quality in Children and Adolescents (ILC) is a self-report questionnaire measuring health related QoL in children and adolescents aged 6–18 years (Mattejat & Remschmidt, 2006).

The ILC consists of one item for a global evaluation of QoL and six items about well-being regarding the respondent's physical and mental health, perception of activities when alone, and perceived relationship to friends, family, and school. The total scale ranges from 0 to 28, where a higher score indicates better QoL (LQ₀₋₂₈), and the problem score ranges from 0 to 7, indicating the number of areas in the adolescent's life where he/she experiences reduced QoL (PR₀₋₇). The Norwegian version of the ILC shows satisfactory norms, validity, and reliability (Kristensen & Hove, 2013). Although ILC is designed for children and adolescents under the age of 18, using the same measure for the entire sample made the comparison of all participants possible and seemed to outweigh the potential drawback of using two measures—one for those under 18 and another for those over 18. ILC has also been used in studies with older adolescents (> 18 yrs), who showed no deviations in scores compared with younger adolescents (< 18 yrs) (Eilertsen, Jozefiak, Rannestad, Indredavik, & Vik, 2012; Jozefiak, Greger, Koot, Klöckner, & Wallander, 2019). In this study, the ILC had a Cronbach's alpha of .75.

User involvement. To assess the adolescents' perception of user involvement, we used four of seven items suitable for adolescents from the Involvement Indicators Scale (Tambuyzer & Van Audenhove, 2015), which elicited the respondents' opinions about how involved they were in their treatment. The responses were scored on a five-point Likert-scale, where a high score indicates a high degree of perceived user involvement. In addition, three items used in a Norwegian report on adolescents and user involvement (Andersson, 2009) were included, giving a total of seven items. Items include “Decisions about the help I receive are made with me” and “I receive information I can understand.” The scale had an internal consistency of $\alpha = .84$ in this study.

3.3. Procedure

The 52 counsellors were employed in primary healthcare services. The sample consisted of 53.8% nurses, 13.4% educators, 11.5% psychologists, 7.7% social workers, 5.8% psychologists in training, and 5.8% other professions. The counsellors were 92.8% female and had a mean age of 45.7 ($SD = 11.4$).

The content of the counselling given to the adolescents in both groups was not a focus of this study and was therefore not tracked. Putatively, counselling approaches were dependent on the education and skills of the individual counsellor. The approaches could include cognitive-behavioral approaches, involve family members in sessions, or use more eclectic supportive counselling. As every counsellor treated the participants in both conditions, the same type of counselling was likely used with the adolescents in both groups. The difference between the two treatment groups was essentially whether Assert was used to define and follow-up adolescents' unique topics for the treatment. In the control group, the counsellors were instructed to proceed with their usual means of assessment and follow-up without using Assert. Hence, the main focus of the study was to determine how well any treatment, as it is practiced in real life services, was adapted to the adolescents' needs through using Assert.

All data were collected using online questionnaires, and links were distributed to the participants via text messages and e-mail. Pre-test data were collected immediately after completion of the consent form, and the SDQ and ILC were distributed every four weeks or until the end of the counselling. The MHLC questionnaire was distributed at pre-test and at the end of the counselling, while the user involvement questionnaire was only distributed at the end of the counselling. The total mean number of counselling sessions was 7.3 (median: 6, minimum: 2, maximum: 24), and both groups had similar numbers. The analyses done in this study used pre-test and last available measurement (named post-test). All cases were controlled to see if they used Assert consistently; 59 (84.3%) in the intervention group used Assert, compared to none in the control group.

3.4. Statistical analysis

Cronbach's alpha values were calculated for the outcome measures. ANCOVA was used to investigate the differences between intervention group and control group at the end of the counselling and adjusted for scores at pre-test (Vickers & Altman, 2001). Linear regression analyses were conducted to investigate whether the scores on the MHLC subscales and dimensions could predict the SDQ total, SDQ impact scale, LQ₀₋₂₈, or PR₀₋₇ at pre-test. Effect sizes were calculated based on the procedure described by Morris and DeShon (2002), taking the correlation between the pre- and post-test into account ($\sigma D = \sigma 2 \cdot 1 - \rho$). SPSS ver. 23 (IBM, 2015) was used for the analyses.

Table 1
Mean scores on outcome measures at pre- and post-test.

| Measure | Assert group | | | | Control group | | | |
|-------------------------|--------------|---------------|-----------|---------------|---------------|---------------|-----------|---------------|
| | Pre-test | | Post-test | | Pre-test | | Post-test | |
| | <i>n</i> | <i>M (SD)</i> | <i>n</i> | <i>M (SD)</i> | <i>n</i> | <i>M (SD)</i> | <i>n</i> | <i>M (SD)</i> |
| SDQ-S, total score | 70 | 16.50 (4.67) | 57 | 15.72 (4.29) | 80 | 15.80 (5.39) | 66 | 15.08 (5.04) |
| SDQ-S, internalizing | 70 | 8.90 (3.32) | 57 | 8.21 (3.14) | 80 | 8.88 (3.76) | 66 | 8.73 (3.75) |
| SDQ-S, externalizing | 70 | 7.60 (3.29) | 57 | 7.51 (3.03) | 80 | 6.93 (3.00) | 66 | 6.30 (2.63) |
| SDQ-S, impact score | 69 | 2.26 (2.21) | 56 | 2.13 (2.64) | 80 | 2.69 (2.61) | 65 | 2.83 (3.01) |
| ILC, LQ ₀₋₂₈ | 68 | 16.65 (4.56) | 56 | 17.16 (4.02) | 80 | 16.96 (4.26) | 65 | 16.69 (4.47) |
| ILC, PR ₀₋₇ | 68 | 4.01 (1.87) | 56 | 3.61 (2.10) | 80 | 3.88 (2.03) | 65 | 3.66 (1.90) |
| MHLC, internal | 70 | 23.00 (3.91) | 27 | 23.44 (5.20) | 80 | 22.53 (4.99) | 39 | 23.56 (4.24) |
| MHLC, chance | 70 | 18.61 (4.64) | 27 | 17.26 (5.19) | 80 | 18.91 (5.34) | 39 | 19.05 (4.62) |
| MHLC, helper | 70 | 13.00 (2.55) | 27 | 12.04 (2.30) | 80 | 12.76 (2.37) | 39 | 12.46 (2.66) |
| MHLC, others | 70 | 11.93 (2.30) | 70 | 11.93 (2.30) | 80 | 11.76 (2.03) | 39 | 10.62 (2.34) |
| MHLC, external | 70 | 43.54 (6.87) | 27 | 40.19 (6.09) | 80 | 43.44 (6.29) | 39 | 42.13 (6.13) |
| User involvement | N/A | N/A (N/A) | 34 | 34.71 (4.71) | N/A | N/A (N/A) | 55 | 34.47 (5.29) |

Note. SDQ-S: Strengths and Difficulties Questionnaire; ILC: Inventory of Life Quality in Children and Adolescents; MHLC: Multidimensional Health Locus of Control.

4. Results

This study examined whether applying Assert could influence LoC, user involvement, mental health, or QoL. Table 1 presents the mean scores at pre-test and post-test. The ILC total score (LQ₀₋₂₈) show a slightly reduced QoL in areas compared to a normal school population, but overall a better QoL compared to outpatient norms (Jozefiak, 2012); similar results were found on the ILC problem scale (PR₀₋₇). Although there are no available Norwegian norm-data for the SDQ, according to the UK scoring instructions (Goodman, 2016), the scores are categorized as “slightly raised.” However, no appropriate norms are available for the MHLC scale. Last, the adolescents’ reports of perceived user involvement are skewed toward the high end of the scale, indicating a high degree of perceived user involvement.

Table 1 presents the changes in scores from pre-to post-test in both groups for all outcome measures. To determine whether these changes could be attributed to the intervention, one-way ANCOVAs were conducted on all outcome measures, with the post-test score as the dependent variable and the score at pre-test as the covariate. A difference in scores on the MHLC chance sub-scale was observed between the two groups after controlling for the score at T1 $F(1, 63) = [4.88], p = .031$. The effect size for the change was $d_{RM} = -0.253$, 95% CI $[-0.804, 0.268]$. Comparison of the estimated marginal means showed that the score on MHLC chance was significantly lower in the Assert group ($M = 16.95$, 95% CI $[15.34, 18.56]$) than in the control group ($M = 19.27$, 95% CI $[17.93, 20.61]$). The ANCOVA conducted on the external subscale of the MHLC detected no significant differences between the groups; however, as one outlier (std. res. > 2.85) was identified, the analysis was repeated with the outlier removed because of the size of the dataset ($n = 66$). This yielded a significant difference in scores on the MHLC external dimension between the two groups after controlling for T1, $F(1, 62) = [5.35], p = .024$. The effect size for the change was $d_{RM} = -0.812$, 95% CI $[-1.504, -0.379]$. Comparison of the estimated marginal means showed that the score [on the outcome measure] was significantly lower in the Assert group ($M = 39.77$, 95% CI $[37.72, 41.81]$) than in the control group ($M = 42.88$, 95% CI $[41.16, 44.60]$).

Significant group differences were not found on the MHLC Internal subscale, SDQ, or ILC. Additionally, no significant differences in user involvement were found between the groups. Furthermore, no significant results were found when controlling for the participants’ age. Effect sizes were calculated to see the magnitude of the changes in the intervention group; the effect size on the MHLC chance is considered ‘small’, while that on the MHLC external subscale is considered large (Cohen, 1988).

To examine whether a relationship existed between the MHLC subscales and dimensions and the SDQ total, SDQ impact scale, LQ₀₋₂₈, or PR₀₋₇ at pre-test, we used Pearson correlation which indicated significant positive associations between the scores on PR₀₋₇ and MHLC chance, $(r(148) = 0.192, p = .019)$, SDQ total and MHLC chance, $(r(150) = 0.380, p < .000)$, and SDQ total and MHLC external, $(r(150) = 0.266, p = .001)$, as well as a significant negative association between LQ₀₋₂₈ and MHLC chance, $(r(148) = -0.138, p = .026)$. Furthermore, simultaneous linear regressions were conducted on each of the significant associations by using the score on the MHLC subscales as a predictor variable.

Table 2
Regression Analysis Summary for MHLC Chance Predicting Score PR₀₋₇ at Pre-Test (Method: Enter).

| Variable | B | 95% CI | t | p |
|-------------|-------|----------------|-------|------|
| (Constant) | 2.546 | [1.339, 3.753] | 4.170 | .000 |
| MHLC Chance | .074 | [.012, .136] | 2.363 | .019 |

Note. R2 adjusted = 0.030. CI = confidence interval for B.

Table 3

Regression Analysis Summary for MHLC Chance Predicting Score on SDQ total at Pre-Test (Method: Enter).

| Variable | B | 95% CI | t | p |
|-------------|-------|-----------------|-------|------|
| (Constant) | 8.915 | [5.969, 11.862] | 5.980 | .000 |
| MHLC Chance | .384 | [-.232, .536] | 5.005 | .000 |

Note. R2 adjusted = 0.139. CI = confidence interval for B.

These analyses were done on the whole dataset, with both groups combined. The results consistently showed that increases in the MHLC Chance/External were associated with reduced QoL and more self-reported mental health problems (Tables 2–5).

5. Discussion

Adolescents who received Assert showed beneficial changes to their LoC scores compared to the control group. Among the instruments used in this study, only the Multidimensional Health Locus of Control Questionnaire (MHLC) showed a significant improvement in the intervention group, i.e., less attribution to external causes. Furthermore, adolescents in the intervention group showed lower scores on the dimension of “Chance” of the external subscale, ascribing causes of health circumstances to chance, luck, or fate to a lesser degree than the adolescents in the control group. These changes showed small to large effect sizes.

To attribute less of one's mental health improvement to chance signifies a shift from external to internal LoC; from believing health improvement was due to random factors or luck to a belief of having greater control over one's life circumstances. To reduce attribution to chance, using an easily implemented idiographic assessment could have implications in clinical practice. It is easy to dismiss help as ineffective if you expect fate to be an important factor for your well-being. Notably, the decreased score on the chance dimension was not explained by an increase in the other external dimensions. However, a decrease in the total external score was observed following the intervention, indicating a real change in attribution style at a time when LoC is considered to be a fairly stable personality trait in adolescence (Frenkel, Kugelmass, Nathan, & Ingraham, 1995) and therefore challenging to modify (Chubb & Fertman, 1997).

The application of Assert likely had a positive effect on the adolescents' external LoC because the intervention is a simple way for troubled adolescents to present what really matters to them. They write down the topics or goals and repeatedly revisit them, which makes them feel more in control of the issues they discuss with their counsellors. The adolescent monitors the change and possible progress on the topics, thus making it clearer that change is no longer merely dependent on chance. The process that this intervention starts could touch upon developing autonomy, thus giving the adolescent experience with specifying options, defining goals, and developing a feeling of confidence in one's choices (Noom et al., 2001).

Even though external LoC was lowered, no significant change was found on internal LoC, meaning that the adolescents did not attribute change to their efforts. It might be that the mean score at pre-test on internal LoC is nearer to the higher end of the scale ($M = 22.75$ of 30 points max., $SD = 4.5$), which could suggest a ceiling effect. Additionally, although having an internal LoC is generally considered to be advantageous, April et al. (2012) found that students with an *extremely high* degree of internal LoC reported lower well-being than students with a more moderate internal LoC. These students experienced stress-inducing high levels of responsibility, were more self-critical, had a greater need for control, and lacked trust in others. The lack of change in internal attribution in this study could possibly be considered beneficial because an extreme internal attribution could make adolescents feel responsible for events that are outside their control, and thus make room for disappointments (April et al., 2012). Sometimes one needs the help of others, and some things are beyond one's control. Especially for the younger part of this sample, needing help would be considered age-appropriate.

No significant differences were found between the intervention and the control group for user involvement. However, the scores on user involvement scale were high in both groups, indicating a high degree of perceived user involvement. As the study was initially presented to the municipalities as a study of user involvement in primary mental healthcare, the counsellors consenting to participate could have been especially interested in the exact issue of adolescents' user involvement, and thus been more proficient in involving the adolescents in their treatment, regardless of the intervention. In addition, the scale used in this study to measure user involvement was developed by the research team and has not been tested or validated in previous research. Thus, the instrument may not reliably detect aspects of adolescents' involvement.

We also examined whether adolescents in the Assert group showed improved scores on mental health and QoL compared to the control group. However, the results showed no significant effect of the intervention on either the Strengths and Difficulties Questionnaire (SDQ) or Inventory of Life Quality in Children and Adolescents (ILC). The SDQ at pre-test showed low levels of mental

Table 4

Regression Analysis Summary for MHLC External Predicting Score on SDQ total at Pre-Test (Method: Enter).

| Variable | B | 95% CI | t | p |
|---------------|-------|-----------------|-------|------|
| (Constant) | 7.182 | [1.855, 12.509] | 2.664 | .009 |
| MHLC External | .206 | [-.085, .327] | 3.355 | .001 |

Note. R2 adjusted = 0.64. CI = confidence interval for B.

Table 5Regression analysis summary for MHLC chance predicting score on LQ₀₋₂₈ at pre-test (method: Enter).

| Variable | B | 95% CI | t | p |
|-------------|--------|------------------|--------|------|
| (Constant) | 19.806 | [17.091, 22.521] | 14.417 | .000 |
| MHLC Chance | -.159 | [-.299, -.020] | -2.252 | .026 |

Note. R² adjusted = 0.27. CI = confidence interval for B.

health symptoms, and the ILC at pre-test does not reflect a significantly reduced QoL. The services included in this study are non-referral preventive services, without any intake screening, meaning that almost no one is denied help. These factors contribute to a sub-clinical population, and it is possible that some of the participants were not in need of counselling for mental health problems, but merely needed to discuss normal adolescent issues. When the scores at pre-test are close to or within what can be considered “normal,” it leaves less potential for change.

In addition, each counsellor had adolescents in the intervention and control groups. Hence, a spillover from the intervention procedures to the control procedure is possible, which could minimize group differences. Last, the type of counselling the adolescents received regardless of condition was dependent on the service and the counsellor; however, this study did not investigate the types of counselling used. Combined with other factors such as a wide age range (12–23) among the adolescents, the large differences in counsellor education and experience, and the number of counselling sessions emphasize the heterogeneity of help-seeking adolescents and service types in primary healthcare and make controlled effectiveness trials more challenging. However, it is worth noting that age was not found to influence changes in external LoC.

To determine whether external LoC was associated with a higher degree of mental health problems and lower QoL the intervention and control groups were analyzed together. The adolescents who attributed changes in mental health to external (especially chance) factors had more mental health symptoms and lower QoL than those who did not turn to external explanations. This is in line with previous research (e.g. Kurtović et al., 2018).

5.1. Implications and future directions

Despite the limitations of this study, an increased focus on what matters to adolescents was found to have a positive effect on reducing adolescents' attributions to external factors, especially those related to chance, which may increase their beliefs in the possibility of improving their mental health. These results were evident, although the Assert intervention can be considered a relatively small change to the services' existing routines. Therefore, this unobtrusive systematic idiographic assessment can be easily implemented in primary healthcare and could be used to empower adolescents when they seek help, making them more active participants in their own lives and encouraging them to be more receptive to the help they receive. For future research, using a design with a more distinct separation of intervention and control e.g. cluster randomization would be beneficial. Assert enables a more client-centered treatment, regardless of counselors' therapeutic orientation, attitudes, and the service setting. Examination of how treatment preferences, or service settings could influence the effect of Assert should be a focus of future research. Implementing idiographic assessment in mental health services can facilitate treatment personalization, making it easier to tailor the treatment to the individual needs of each adolescent. An explicit and systematic follow-up of these needs could make it easier to administer client-centered quality care that is adapted to the dynamic and changing nature of mental health concerns among adolescents.

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Ethical approval

The study was approved by the Norwegian Regional Ethics Committee (2016/172, REK Nord) and registered at [ClinicalTrials.gov](https://clinicaltrials.gov) (Identifier: NCT03014596).

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