

# Impact of Life Skills Building on Depression and Quality of Life in HIV infected Patients

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## Abstract

**Background:** Depression has consistently been shown to adversely affect antiretroviral therapy adherence in HIV infection. While antiretroviral treatment can extend life expectancy, it may adversely affect quality of life (QoL) and in turn contribute to depression. Interventions to combat depression and help maintain QoL are urgently needed.

**Methods:** This prospective randomised controlled trial evaluates a cohort of 72 patients (11 female, 61 male) who were randomised to undergo a life skills building intervention (Discovery Training, a single-session three day course) which commenced immediately after baseline assessment (Group A) or was delayed by 24 weeks (Group B). Subjects were assessed at baseline (prior to intervention), at week 24 (24 weeks after intervention for A, but prior to intervention for B) and at week 48 using the Beck Depression Inventory (BDI) and the Medical Outcomes Study Health Scales (MOS-HIV). Data are mean  $\pm$  SD.

**Results:** At screening BDI scores ( $19.1 \pm 9.7$  vs.  $16.2 \pm 9.7$ ,  $p = 0.21$ ) and MOS scores ( $117 \pm 14$  vs.  $116 \pm 12$ ,  $p = 0.58$ ) were well matched between arms. Outcome was analysed based on 53/72 returned questionnaires (73% return). Improvement in the BDI depended on baseline scores ( $r = 0.41 - 0.68$ ,  $p < 0.01$ ). Analysis of covariance (ANCOVA) correcting for baseline BDI scores revealed that group A (immediate training) but not group B (delayed training) exhibited significantly lower depression scores at week 24 ( $-7.1 \pm 8.6$  vs.  $0.2 \pm 9.7$ ,  $p < 0.001$ ). This improvement remained stable at week 48 in group A ( $-7.7 \pm 7.9$ ), however group B gained a similar improvement ( $-5.9 \pm 10.2$ ,  $p < 0.01$ ) by week 48. The MOS proved less sensitive although there was a trend towards improvement at week 48,  $116 \pm 14$  to  $119 \pm 13$  ( $p = 0.14$ ).

**Conclusions:** Life skills building had a significant impact on levels of depression as quantified by the BDI (Beck Depression Inventory). Improvement of depression was correlated to the therapeutic intervention and exhibited stability at long-term follow-up. Overall health status as reflected by the MOS-HIV was a less sensitive instrument to document intervention outcome.

## Methods

Subjects were assigned to immediate (group A) or delayed (by 24 weeks, group B) life skills building encounters ("Discovery" a 3-day, single session, fully scripted, group training led by and experienced facilitator using a cognitive, highly interactive and experiential approach). The impact of the training on quality of life was evaluated by the Beck Depression Inventory (BDI) and the Medical Outcomes Study HIV Questionnaire (MOS-HIV).

## Experimental Design

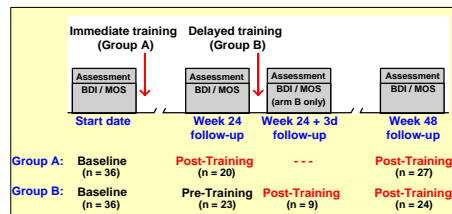


Fig.1: Time-line of clinical experiment

Data were collected at baseline, and week 24 within 2 weeks prior to the intervention and immediately thereafter as well as at week 48. The intervention was completed by 20 (56%) and 13 (36%) patients in groups A and B respectively.

## Similar BDI and MOS-HIV scores at baseline in both groups A and B

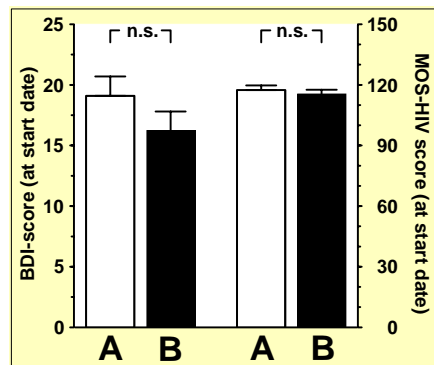


Fig.2: BDI and MOS-HIV scores at start date

Group A and B were well matched at baseline with BDI and MOS-HIV scores indicating clinically significant levels of depression (BDI) as well as impaired quality of life related to HIV-infection (MOS-HIV).

## Anti-depressive impact of life skill building was training-related and persists at 1 yr-follow-up

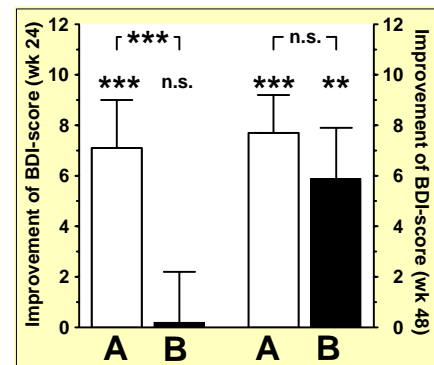


Fig.3: Impact of life skills building on BDI scores

Depression was statistically and clinically significantly favorably impacted by the intervention ("Discovery") and the effect was stable over 48 weeks in group A

## Results

### Immediate anti-depressive impact of life skills building was stable at follow-up

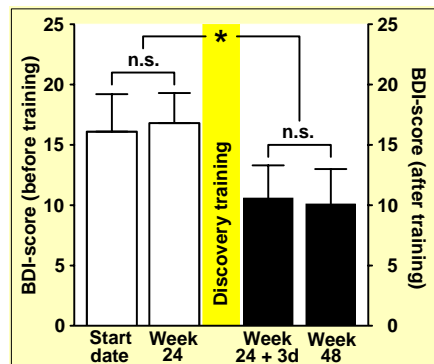


Fig.4: Effect was immediate and stable

The full set of BDI evaluations was available in a subgroup of 9 individuals in group B. Subgroup analysis demonstrates the beneficial effect on depression commences immediately following the intervention and is stable over the following 24 weeks.

### Training outcome was superior in training completers vs. non-completers

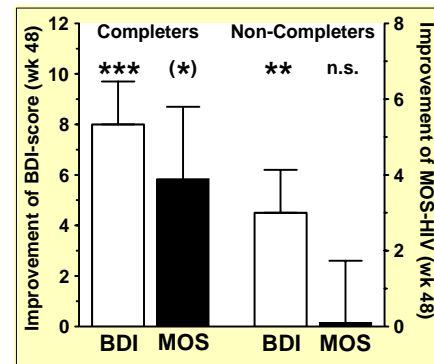


Fig.5: Superior outcome in training completers

Completion of the intervention ( $n = 33$ ) was associated with greater benefit on BDI and MOS-HIV scales at week 48 compared to partial- or non-completion ( $n=23$ ).

## Discussion

Innovative, low-cost, non-pharmacologic yet effective interventions to combat depression and the associated morbidity are badly needed for HIV patients. The results of this randomized controlled study suggest a surprisingly robust effect of a short-term life skills building intervention on depression. There was limited impact on quality of life, as measured by the MOS-HIV questionnaire. This scenario raises several questions:

- 1) What are the operating factors determining this outcome?
- 2) Will the effect outlast the period of 48 weeks?
- 3) Can the effect be boosted with multiple interventions?
- 4) Is there an impact on e.g. medication adherence and thereby virologic and immunologic parameters?

Limitations of the study include the relatively low completion rate for the intervention, particularly in group B and limited return rates for questionnaires at week 24. Life skills building programs such as "Discovery" can significantly enhance the well-being of HIV infected patients and deserve further evaluation as potentially potent non-pharmacologic interventions to combat depression and improve outcomes in HIV care.

## Conclusions

- Life skills building had a significant impact on levels of depression as quantified by the Beck Depression Inventory (BDI)
- Improvement of depression was immediate, stable at long-term follow-up, and correlated to the therapeutic intervention
- Training completers experienced a superior outcome in both, BDI and MOS-HIV compared to non-completers
- MOS-HIV was a less sensitive instrument to document intervention outcome

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The "Discovery" seminar as used in this study and its script are the property of ACCD, Santa Rosa, California.