Effects of Rational-Emotive Health Education Program on HIV risk perceptions among in-school adolescents in Nigeria

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Abstract
Exploring beliefs about personal risk for human immunodeficiency virus (HIV) infection is essential to understanding what motivates people to engage in behaviors that reduce or increase their risk of HIV infection. Therefore, the current study’s objective was to examine the effects of a Rational-Emotive Health Education Program (REHEP) on HIV risk perceptions among in-school adolescents in Anambra State, Nigeria.

Forty-four participants were identified as having high-risk perceptions about HIV infection through a self-report questionnaire and met the inclusion criteria. The treatment process was guided by a REHEP manual and consisted of 8 weeks of full intervention and 2 weeks of follow-up meetings that marked the end of intervention. The study used repeated measures analysis of variance to assess improvements in individual participants and across control and treatment group risk perceptions after the intervention.

HIV risk perceptions of in-school adolescents did not differ across the treatment and control groups at baseline. Through REHEP, HIV risk perceptions significantly reduced in the treatment group compared to those in the control group. REHEP had significant effect on HIV risk perceptions of in-school adolescents exposed to treatment group, despite their sex. Religious background did not determine the significant effect of REHEP on HIV risk perceptions of in-school adolescents in the treatment group.

Follow-up studies that would use a REHEP to assist client population from other parts of the country to promote HIV risk reduction, especially among those with high-risk behavior, are needed in Nigeria.

Abbreviations: AIDS = acquired immune deficiency syndrome, ANOVA = analysis of variance, HIV = human immunodeficiency virus, REBT = Rational-Emotive Behavior Therapy, REBT-HRPO = Rational-Emotive Behavior Therapy’s Human Immunodeficiency Virus Risk Perceptions Questionnaire, REE = Rational-Emotive Education, REHEP = Rational-Emotive Health Education Program.

Keywords: HIV risk perceptions, HIV/AIDS, in-school adolescents, Nigeria, Rational-Emotive Health Education Program

1. Introduction
The human immunodeficiency virus (HIV) epidemic is one of the most urgent public health concerns facing all nations of the world. Although it affects all the social sectors of the world’s population, the HIV epidemic among adolescents is said to be growing rapidly and youth aged 15 to 24 years are highly represented among the people living with the virus.[1] Evidently, the HIV epidemic is seen as the prime cause of death among adolescents in different parts of the world including low- and middle-income countries.[2] Thus, it seems that focusing on the adolescents is likely to be the most effective approach to confronting the HIV epidemic in different parts of the world including Nigeria. But most sexually active adolescents do not feel they are at risk of contracting HIV and have never been tested.[3] Additionally, many adolescents take risks as they try to fit with peers, emulate role models, and develop more autonomy, making them vulnerable to HIV infection.[4] As a result, the adolescents’ perception of HIV risk could be influenced by social and cultural barriers, attitudes and practices,[5,6] and their vulnerability to sexual activity and low use of preventive services.[7]

In spite of these, adolescents are also seen as a “window of hope” for a HIV-free generation because they have great potential for positive change of attitude and behavior.[4] Despite the potential for behavioral and attitudinal change by adolescents, there is paucity of literature on cognitive–behavioral change interventions that specifically aimed at HIV risk reduction of the in-school adolescents (i.e., school-attending adolescents) in developing countries, such as Nigeria. Yet, available literature shows that a huge HIV knowledge gap exists between the males and the females in some parts of Nigeria.[8] However, other researchers demonstrated that male and female students’ perceptions of risk behaviors associated with the HIV/acquired immune deficiency syndrome (AIDS) are quite similar and disheartening in Anambra State, Nigeria.[9] In this regard, Anyamene et al revealed that although the in-school adolescents’
knowledge about HIV/AIDS is high, their behavior changes remain considerably discouraging in Nigeria. Yet, no cognitive–behavioral change intervention, to our knowledge, has been carried out to address the HIV risk perceptions of these in-school adolescents and/or document the impact on those perceptions in Nigeria. Moreover, a great majority of the HIV prevention programs are only delivered to individuals in the context of one-to-one individualized services and these contacts, as they have typically occurred, have had limited effects on HIV risk-reducing behaviors and such individual-level interventions have rarely included theoretical principles of behavior change, and are not systematically tested in rigorous studies, and may thus have effects that remain undocumented in Nigeria.

Sadly, Nigeria has one of the highest global HIV/AIDS epidemic burdens worldwide. Thus, given the percentage of the population currently HIV negative, prevention remains the most viable option for controlling the epidemic as clearly articulated in the country’s current National Strategic Framework, which has a promising priority to reposition evidence-based promotion of behavior change and prevention of new HIV infections as the major focus of the national HIV/AIDS response. In this regard, there is urgent need to design a cognitive–behavioral intervention program that would focus on reducing HIV risk perceptions at the group level in Nigeria. One plausible cognitive–behavioral intervention strategy for HIV risk reduction among in-school adolescents could be that which emphasizes on a change in thinking and perceptions about HIV, and promotes protective and adaptive thoughts and behaviors about the epidemic. Unarguably, the Rational-Emotive Behavior Therapy (REBT) theory has the potential to achieve such goals based on its principles and techniques that enable therapists to explore beliefs about personal risk for HIV infections that are essential to understanding what motivates people to engage in behaviors that reduce or increase their risk of HIV infection.

The Rational-Emotive Health Education Program (REHEP) is a group-oriented counseling program that the researchers derived from the Rational-Emotive Education (REE) approach developed by Knaus, which is considered an extension of Ellis’ REBT. Therefore, a REHEP for modifying perceptions of HIV risk among in-school adolescents followed the REE approach. In this context, the rational-emotive health education prevention program explored the health belief system that impedes HIV prevention efforts, disputes such forms of problematic beliefs, and creates cognitive–behavioral effects and feelings that promote HIV risk reduction among the in-school adolescents through a series of mental health lessons relating to HIV/AIDS control and prevention. The need for the implementation of a REHEP to combat the HIV epidemic is further strengthened by the fact that even though perceived high HIV risk is associated with many of the established risk factors for transmission of HIV, high-risk perceptions are also positively correlated with HIV infections among individuals.

Because Nigeria is a multireligious nation, it is essential that therapists implementing a REBT approach to psychotherapy also understand the religious diversity of the Nigerian clients. Apart from Christianity and Islam, which are the most widely practiced, there are numerous local faiths grouped as traditional religions. There is also a category of religious groups that do not fall into any of these 3 main identities. In Nigeria, religion and religious beliefs may hold a prominent place in the lives of many of her citizenry, although there are mixed results on the proportion of people belonging to different religions. More so, because religious involvement is associated with HIV/AIDS protective behavior in the African region, of which Nigeria is a part, a REBT approach could be a helpful intervention approach for those individuals who are undoubtedly religious. Although the in-school adolescents’ religious background may not be a major determinant while attempting to increase their perceptions of HIV risk in a REBT intervention, therapists may need to recognize the place of adolescents’ religion in risk perceptions and reductions given that some homes where they are bred are religiously heterogamous, whereas others remain religiously homogamous in Nigeria.

Despite the potentiality of a REBT approach, it is still unknown within the Nigerian context whether a REHEP could be used to increase the perceptions of HIV risk among the in-school adolescents. Again, the efficacy of a REBT approach toward changing perceptions of HIV risk has been rarely examined in the international context. Meanwhile, it is possible that the in-school adolescents’ HIV risk perceptions might exacerbate, if nothing is done to assist them. In fact, there is the presence of fear among the residence in Anambra State, Nigeria, over the rise in the rate of HIV/AIDS epidemic as prevalence rate hit 8% in the state, ranking it fourth in the country. To this day, the current study examined the effects of a REHEP on HIV risk perceptions of in-school adolescents in Awka Education Zone of Anambra State, Nigeria. To achieve the purpose of the present study, the researchers hypothesized the following: HIV risk perceptions of in-school adolescents will not differ significantly across the treatment and control groups at baseline; through the REHEP, HIV risk will be significantly reduced in the treatment group compared to that in the control group; there will be significant effects of REHEP on HIV risk perceptions of in-school adolescents exposed to treatment group, despite their sex; participants’ religious background will determine the significant effects of REHEP on HIV risk perceptions of in-school adolescents in the treatment group.

2. Methods

2.1. Ethical approval

The Research Ethics/Grants Committee of the Faculty of Education, University of Nigeria, Nsukka, approved this study. Approval of the study was also obtained from the Post-Primary Schools’ Services Commission, Awka, and the schools’ principals where the current study took place. Thereafter, the researchers sought the informed consent of parents of the in-school adolescents, and that of the in-school adolescents who were randomly assigned to the control and treatment groups.

2.2. Participants

The study’s participants were senior secondary school adolescents from Awka Education Zone in Anambra State, Nigeria. The zone is located at the center of the densely populated Igbo-speaking state in the south-eastern part of the country. However, the available record shows a total number of 61 secondary schools with a population of 12,148 senior secondary in-school adolescents (5388 males and 6760 females) in the zone. Based on this population, the researchers were able to identify 330 senior secondary in-school adolescents (high school adolescents) whose HIV risk perceptions were considered high, through a self-report questionnaire. Only 44 out of the 330 in-school adolescents finally participated in the study due to the inclusion criteria. The participants consisted of 22 (50%) male and 22 (50%) female in-school adolescents in senior secondary school.
classes 2 and 3. More so, 29 (65.91%) of the participants were into boy–girl intimate relationships, whereas 15 (34.09%) were considering entering into such a relationship. Approximately 35 (79.55%) of the participants were from religiously homogamous homes, whereas 9 (20.45%) were from religiously heterogamous homes. The mean age of the participants was 17.38 ± 3.20. The participants (n = 44) who met all the inclusion criteria were randomly assigned to 2 groups, namely, control group and treatment group. Participants’ sociodemographic information is broken down by treatment versus control group as shown in Table 1.

2.3. Procedure

The researchers used multistage sampling involving stratified, simple random, and convenience sampling techniques to successively choose the local governments under the zone, schools, and, finally, the participants used for the study. The convenience sampling exercise produced a total of 44 participants out of those (n = 330) who were identified as having high HIV risk perceptions as they fully met the inclusion criteria. In the current study, the researchers visited the selected secondary schools in the study area to administer the HIV Risk Perceptions Questionnaire having obtained the schools’ approval and the informed consent of the individual participant.

Thus, parental consent, participant informed consent, and participant readiness to make self available for the period of the study were among the study’s inclusion criteria. With the help of 3 research assistants, the researchers prescreened the participants through self-report questionnaire on perceptions of HIV risk. As a result, the inclusion criteria also involved scoring within the cutoff mean value on the HIV Risk Perceptions Questionnaire. Those who scored mean value between 1.50 and 2.49 on the Rational-Emotive Behavior Therapy’s Human Immunodeficiency Virus Risk Perceptions Questionnaire (REBT-HRPQ) statements were considered as not having high-risk HIV perceptions and were therefore excluded from the study, whereas those who scored mean value of 2.50 and 4.00 on the REBT-HRPQ

| Groups | Sex, N = 44 | Relationship status | Religion |
|--------|-------------|---------------------|----------|
|        | Male, n (%) | Female, n (%)       | Into boy–girl relationship, n (%) | Considering relationship, n (%) | Religiously heterogamous, n (%) | Religiously homogamous, n (%) |
| Treatment | 11 (25) | 11 (25) | 15 (34.09) | 7 (15.91) | 18 (40.91) | 4 (9.09) |
| Control | 11 (25) | 11 (25) | 14 (31.82) | 8 (18.18) | 17 (38.64) | 5 (11.36) |
| Total | 22 (50%) | 22 (50%) | 29 (65.91) | 15 (34.09) | 35 (79.55) | 9 (20.45) |

% = percentage of participants, n = number of participants, SD = standard deviation.
* Mean age (SD) of participants.
statements were considered as having high-risk perceptions and therefore included. Those participants who met these inclusion criteria for the study were randomly assigned to control and treatment groups (see Fig. 1).

In the current study, after pretesting both groups on the dependent measure, the intervention package was delivered to the treatment group but withheld from the control group. At the end of the intervention, a posttest was administered to both groups. The treatment process was guided by a “HIV Risk Perceptions Package for a Rational-Emotive Health Education Prevention Program” developed by the researchers. The package for modifying HIV risk perceptions in a rational-emotive health education prevention program demonstrates how counselors could explore the problem or high-risk health beliefs that impede HIV prevention efforts, dispute such forms of health beliefs, and create behavioral effects and feelings that promote HIV risk reduction among the in-school adolescents. The group session lasted for 16 sessions for 8 weeks (2 sessions per week at 45 minutes per session) with 2-week follow-up meetings. Through self-administration of the REBT-HRPQ to the 44 in-school adolescents, the researchers obtained data for the study. The data were collected on the spot from the in-school adolescents at pretest (baseline) and then after posttest, which was done 8 weeks after the intervention. The participating in-school adolescents completed the self-report questionnaire at 2 time points (Time 1 and Time 2). At Time 1, the participants in both groups were pretested before the administration of the intervention package to the treatment group. Two-month interval after Time 1, the researchers conducted several follow-up meetings with both groups that enabled them to partake in a second assessment (i.e., Time 2), which involved completing the self-report questionnaire (REBT-HRPQ). The follow-up sessions provided individual participants in the treatment group the opportunity of sharing with the researchers and their group members how they effectively use the rational-emotive and cognitive–behavioral and mental health skills of REHEP they learned in their initial participation. More so, the study considered the different dimensions of HIV risk to investigate and test empirically the effects of REHEP on in-school adolescents’ risk perceptions. In the present study, the researchers took adequate steps to control for self-report biases on the participants’ intervention program.

2.5. Intervention

2.5.1. HIV risk perceptions package for a rational-emotive health education prevention program manual. This manual partly adapted the Centers for Disease Control and Prevention revised guidelines for HIV counseling, testing, and referral, which require that clients be helped to identify the specific behaviors putting them at risk of acquiring or transmitting HIV, and to commit themselves to behavior change steps that could reduce this risk,[36] but the manual also describes the intervention program in accordance with the principles, practices, and techniques of REBT and REE.[18,19] Group problem identification and problem-solving approach and cognitive restructuring techniques were embedded into the manual.[31] The manual used in this current study is a 20-page booklet that contains the role of the participants and that of the rational-emotive behavior therapist, in addition to rational-emotive ideas, techniques, and skills to be used in the intervention program. The manual emphasizes eclecticism without deviating from core principles of both traditional and contemporary REBT intervention programs to facilitate HIV risk reduction. Because Nigeria is a multicultural society where people cherish group efforts, the researchers ensured that the manual’s content was rooted in sociocultural context targeted at the current study’s population and was delivered through the group process. Because it was also designed for the Nigerian in-school adolescents who are typically exposed to general education, the manual consisted of 4 basic content areas, namely, basic health education about HIV/AIDS, consciousness-raising to one’s personal risk for HIV/AIDS infections, instruction in personal actions and/or efforts that can reduce one’s HIV risk, and exploration of viable options and ways to rationally assert and communicate with one’s own peers and significant others regarding high-risk behaviors.

2.6. Design

The researchers used repeated measures (within-subject) design that allows researchers to measure at Time 1 (before intervention) and at Time 2 (after intervention) the participants’ level of HIV risk perceptions in an REBT intervention program.[39] Particularly, the researchers used the repeated measures analysis of variance (ANOVA) to see the improvement or change in the variance (ANOVA) to see the improvement or change in the participant and across control and treatment groups’ perceptions of HIV risk after the intervention program. The researchers further reported partial η² squared (ηp²) for this design as it is recommended.[40] In addition, the researchers also used univariate ANOVA to test for sex and religious differences in...
HIV risk perceptions among the in-school adolescents. Before analyses, the researchers ensured there were no missing values and screened for assumption violation with Statistical Package for the Social Sciences 16 software (SPSS Inc, Chicago, IL).

2.7. Power analysis

The researchers conducted power analysis to determine how much larger and appropriate the study sample should be for this study.\(^\text{401-445}\) This procedure is necessary given that if the power of a statistical test is sufficient (\(\geq 0.80\)), the sample size is then considered sufficient for the research, otherwise it is not (\(<0.79\)), and this provided us an opportunity to select appropriate sample for our present study. The a priori statistical power value for the present study was 0.90, whereas the post hoc power value was 1.00.

3. Results

To test whether HIV risk perceptions of in-school adolescents will not differ significantly across the treatment and control groups at baseline, a repeated measures ANOVA test was conducted. Table 2 reveals that the HIV risk perceptions of in-school adolescents across the treatment (80.33 ± 5.32) and control (80.37 ± 5.34) groups at baseline are quite similar. In other words, the results indicated that the HIV risk perceptions of in-school adolescents did not differ significantly across the treatment and control groups at baseline, \(F(1, 42)=1.56, P=0.27, \eta^2_p=0.23\). Also, the value of \(\eta^2_p\) is indication that both groups did not differ in their HIV risk perceptions at baseline (see Table 2).

As shown in Table 2, the repeated measures ANOVA conducted shows that HIV risk perceptions remained considerably high at the end of the intervention for the control group (89.36 ± 3.62) but has been reduced for participants in the treatment group (35.87 ± 5.22). Thus, the within-subject test indicates that there was a significant time effect, \(F(1, 42)=120.45, P=0.00, \eta^2_p=0.91\). The results from Table 2 further demonstrate how an individual participant in each groups’ HIV risk perceptions changed over time. Whereas the control group’s HIV risk perceptions remained substantially high over time, the treatment group’s HIV risks are seen reducing due to exposure to REHEP. Also, the value of \(\eta^2_p\) and statistical power value of the test is indication that through REHEP, HIV risk was significantly reduced in the treatment group compared to that in control group (see Table 2).

The results of data analysis in Table 3 show that the REHEP had significant effects on HIV risk perceptions of in-school adolescents exposed to treatment group despite their sex, \(F(1, 20)=17.06, P=0.81, \eta^2_p=0.00\). Table 3 also shows the scores obtained from the REBT-HRPQ by male (40.25 ± 2.50) and female (40.50 ± 2.52) participants in the treatment group. Also, the value of \(\eta^2_p\) is an indication that both participants in the treatment group, despite their sex, were positively affected toward a more adaptive rationally focused HIV risk perceptions (see Table 3).

The results of data analysis in Table 4 show that participants’ religious background did not determine the significant effects of

| Table 2 |
| --- |
| **Summary statistics for repeated measures ANOVA of outcome variable by treatment condition and time.** |
| | Control group, \(n=22\) | Treatment group, \(n=22\) |
| Outcome | Time 1, M (SD) | Time 2, M (SD) | Time 1, M (SD) | Time 2, M (SD) | df | \(F\) | Sig | \(\eta^2_p\) | Observed power |
| REBT-HRPQ | 80.37 (5.34) | 80.33 (5.32) | (1, 42) | 1.56 | 0.27 | 0.23 |
| REBT-HRPQ | — | 89.36 (3.62) | — | 35.87 (5.22) | (1, 42) | 120.45 | 0.000 | 0.91 | 1.00 |

\(\eta^2_p\) = partial \(\eta^2\) squared (effect size), ANOVA = analysis of variance, df = degree of freedom, \(F\) = \(F\)-ratio, \(M\) = mean, REBT-HRPQ = Rational-Emotive Behavior Therapy’s Human Immunodeficiency Virus Risk Perceptions Questionnaire, SD = standard deviation, Sig = significant value.

| Table 3 |
| --- |
| **Summary statistics for univariate ANOVA of effects of Rational-Emotive Health Education Program on HIV risk perceptions by participants’ sex.** |
| Outcome | Male, \(n=11\), M (SD) | Female, \(n=11\), M (SD) | df | \(F\) | Sig | \(\eta^2_p\) |
| REBT-HRPQ | 40.25 (2.50) | 40.50 (2.52) | (1, 20) | 17.06 | 0.81 | 0.00 |

\(\eta^2_p\) = partial \(\eta^2\) squared (effect size), ANOVA = analysis of variance, df = degree of freedom, \(F\) = \(F\)-ratio, HIV = human immunodeficiency virus, \(M\) = mean, REBT-HRPQ = Rational-Emotive Behavior Therapy’s Human Immunodeficiency Virus Risk Perceptions Questionnaire, SD = standard deviation, Sig = significant value.

| Table 4 |
| --- |
| **Summary statistics for univariate ANOVA of effects of Rational-Emotive Health Education Program on HIV risk perceptions by treatment group’s religion.** |
| Outcome | Religiously homogamous, M (SD) | Religiously heterogamous, M (SD) | df | \(F\) | Sig | \(\eta^2_p\) |
| REBT-HRPQ | 37.33 (3.62) | 37.42 (1.40) | (1, 20) | 0.10 | 0.77 | 0.03 |

\(\eta^2_p\) = partial \(\eta^2\) squared (effect size), ANOVA = analysis of variance, df = degree of freedom, \(F\) = \(F\)-ratio, HIV = human immunodeficiency virus, \(M\) = mean, REBT-HRPQ = Rational-Emotive Behavior Therapy’s Human Immunodeficiency Virus Risk Perceptions Questionnaires, SD = standard deviation, Sig = significant value.
REHEP on HIV risk perceptions of in-school adolescents in the treatment group, \( F(1, 20) = 0.10, p = 0.77, \eta^2_p = 0.03 \). Also, the value of \( \eta^2_p \) is an indication that an individual participant despite his or her religious background was positively affected toward a more adaptive HIV risk perception (see Table 4).

Figs. 2 and 3 are graphical illustrations of the significant effects of REHEP on HIV risk perceptions of in-school adolescents in the treatment group compared to those in the control group over time. The covariates appearing in the model are evaluated at the estimated marginal mean value of 80.35 (see Figs. 2 and 3).

4. Discussion

The main goal of the study is to examine the effects of REHEP on HIV risk perceptions of in-school adolescents in Awka Education Zone of Anambra State, Nigeria. First, the researchers sought to find out whether risk perceptions of in-school adolescents across the treatment and control groups will not differ significantly at baseline. Results revealed that HIV risk perceptions of in-school adolescents across the treatment and control groups at baseline did not differ. This finding provided the basis for a valid and nonbias comparison on probable changes that will occur between the control and treatment groups’ HIV risk perceptions after the intervention. The finding lends credence to Eseadi and Egbudom who had demonstrated that male and female students’ perceptions of risk behaviors associated with HIV/AIDS control and prevention are quite similar and worrisome in Anambra State, Nigeria. This finding in part supports previous studies that stated that majority of sexually active adolescents do not feel they are at risk of contracting HIV and thus they take risks as they try to fit in with peers. The finding contradicts Lammers et al who state that a huge HIV knowledge gap exists between males and females in Nigeria. Possibly, the differences in the research outcomes are due to the fact that the in-school adolescents’ HIV risk perceptions are determined by social and cultural barriers, attitudes and practices, and their vulnerability to sexual activity and low use of preventive services. To that end, effective intervention strategies such as REHEP that would be targeted at overcoming such barriers become necessary to address HIV risk among schooling adolescents in Nigeria.

Second, the researchers explored the effects REHEP could have on HIV risk perceptions of in-school adolescents exposed to treatment group and control despite their sex. The REHEP had significant effects on HIV risk perceptions of in-school adolescents at the end of the intervention compared to the beginning for the treatment group despite their sex. The current data demonstrate a change in HIV risk perceptions from preintervention to postintervention via a REHEP. This finding supports World Health Organization’s assertion that adolescents are also seen as a “window of hope” in that they have great potential for positive change of attitude and behavior. The finding also supports the fact that REE skills can be used by adolescents throughout their lives to cope effectively with the inevitable changes and challenges they will meet. Clearly, in support of the current argument for the use of a REHEP to modify perceptions of HIV risk, the REHEP can explore the contemporary health beliefs that impede HIV prevention efforts, alter problematic beliefs associated with HIV transmission, and create cognitive–behavioral effects and feelings that promote HIV risk reduction among the in-school adolescents through a series of mental health lessons relating to HIV/AIDS control and prevention in the Nigerian setting.

Third, the researchers sought to find out whether participants’ religious background would determine the significant effect of REHEP on HIV risk perceptions of in-school adolescents in the treatment group. It was found that participants’ religious background did not determine the significant effect of REHEP on HIV risk perceptions of in-school adolescents in the treatment group. This finding may explain why REBT is considered a feasible treatment approach for explicitly religious clients.
The study has some limitations that should be taken into consideration. First, some might argue that in-school adolescents’ perception bias might influence their responses to a given statement on the REBT-HRPQ measure. However, it should be noted that we took appropriate steps to validate the measure and it was derived with respect to different definitions of problematic beliefs in the REBT theory. The REBT-HRPQ can therefore be relevant to future researchers focusing on exploring and mitigating problematic behaviors and maladaptive behaviors influencing HIV/AIDS control and prevention efforts in Nigeria. In addition, the power values of 0.90 (a priori) and 1.000 (post) obtained in the study give the researchers strength to argue that the study had sufficient statistical power to accept its outcomes as valid and reliable.

Another limitation of the current study is that researchers may have to be cautious in generalizing the findings to the whole student population given that social and cultural barriers, attitudes, and practices might differ across individual communities, even those within the study area, and could influence how HIV risk perceptions of the in-school adolescents would be explored. To that end, REBT counselors and researchers must take cognizance of such barriers while designing and implementing cognitive-behavioral intervention programs aimed at restructuring in-school adolescents’ HIV risk perceptions. Whenever feasible, future researchers should develop a REHEP for changing perceptions of HIV risk among in-school adolescents based on the principles and techniques of REBT and/or the REE approach bearing in mind that such psychological education program is cost-effective.

Furthermore, some practitioners might argue that the particular technique(s) used in the current study were not pinpointed given that most HIV risk reduction programs typically use specific techniques or models. However, the strength of the present study lies in the fact that the researchers adopted an eclectic approach that involved client-centered counseling approach as recommended by Centers for Disease Control and Prevention with some evidence-based REBT techniques. For instance, the researchers used a risk continuum technique. The risk continuum is a form of pick a card, a card group process technique for problem identification and problem solving that allows individual participants in the treatment group to place risk behaviors on a continuum where they think they should be on the spectrum of HIV risk, and thereafter group members are asked to discuss the placement of each behavior by emphasizing how high-risk behaviors could be made safer with the rational-emotive behavior therapist during the group process. As contained in the manual, the researchers were also able to use HIV risk sensitization videotapes, goal setting technique, risk identification and management strategy, and a range of cognitive restructuring techniques including rational self-talk and behavioral contract, imagery technique, and some rational-emotive ideas and skills contained in the manual to bring about HIV risk reduction among the in-school adolescents who partook in the intervention’s treatment program. More so, the current research also demonstrates the advantages of a REBT approach from a cost perspective of using a group format.

Given that the follow-up assessment was done so close to the end of the intervention, some practitioners might argue that it is important to know whether the reduced risk perception persists over time. In that regard, the researchers feels that it would be helpful for future studies to consider conducting a third assessment of 6 to 12 months later when implementing a REHEP. However, a REBT approach can help individuals to significantly improve in a short period of time by effecting a significant philosophical, emotional, and behavioral change. If this is so, then despite the time interval prior to the follow-up session in the current study, there is no gainsaying that the REHEP helped to lower the problematic health beliefs, high-risk behaviors, and the health-related anxiety associated with HIV/AIDS risk perceptions among the in-school adolescents.

Additionally, the researchers do not know how successful this intervention can be using an individual versus a group approach. More so, for readers who are not familiar with REBT approach, it would be beneficial for prospective researchers to explain the REBT model in detail in future research reports. It would also give readers a better understanding of the intervention if therapists can delineate the components of the REHEP in future interventions. Additionally, explaining how this REBT-based intervention is culturally adaptable to a study population will illuminate readers on cultural adaptation methods. Thus, the researchers feel that future studies would have to investigate the efficacy of applying REBT principles to a preventative health education setting with school-attending adolescents diagnosed with HIV/AIDS.

5. Conclusions

The current study has shown that REHEP is effective for modifying HIV risk perceptions of the in-school adolescents in Nigeria. The HIV risk perception, after attendance of a REHEP program, of the treatment group significantly lowered than that of the control group. HIV risk perception, after attendance of a REHEP, of the treatment group did not differ significantly based on sex. HIV risk perception, after attendance of a REHEP, of the treatment group did not differ significantly based on religious background. Thus, the REHEP approach helped the in-school adolescents to increase resilience, acquire rational thinking resources, develop coping competencies, advance general reasoning skills, tolerate frustration, and maintain a realistic perspective about HIV/AIDS epidemic. To that end, the researchers recommend follow-up studies in Nigeria that would use REHEP to assist client population from other parts of the country to promote HIV risk reduction especially among those with high-risk behavior. More so, the REBT counselors could play a vital role in preventing and controlling HIV infection and transmission, promoting HIV risk reduction counseling, and offering HIV pretest and posttest counseling to in-school adolescents to address HIV risk concerns by using a REHEP approach. Finally, the various governments and policy makers need to acknowledge that the Nigerian in-school adolescents are the windows of hope for an HIV-free nation cum generation, and their knowledge, awareness, and perceptions of HIV transmis-
sion and accurate assessment of their own risk are one of the key determinants in adoption of better lifestyles, practices, and healthy behaviors while designing policies for combating the HIV/AIDS epidemic.

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