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# Efficacy of Cognitive Behavioural Therapy and Logotherapy in Reducing Risky Sexual Behaviour among in-School Adolescents in Benin Metropolis Edo State, Nigeria

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***Authors' contributions***

*This work was carried out in collaboration between both authors. Author AFT designed the study, performed the statistical analysis, wrote the first draft of the manuscript and managed the literature searches under the supervision of author EOE. Author EOE supervised the work and participated in the data analysis. Both authors read and approved the final manuscript.*

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## ABSTRACT

The study investigated the efficacy of Cognitive Behaviour Therapy and Logotherapy in reducing risky sexual behaviours among in-school adolescents in Benin Metropolis, Edo State. Four research questions were raised and formulated to hypotheses to guide the study. A Quasi-experimental design, using pre-test-post-test, and non-equivalent control group was adopted. The population of the study consisted of twenty thousand, four hundred and twenty SS 2 students. The sample consisted of one hundred and thirty five participants, which was selected through multi-stage sampling technique. Three schools were randomly selected from thirty one mixed public Senior Secondary Schools. One school was selected from each Local Government Area that made up the Metropolis. School A served as the experimental group for Cognitive Behaviour Therapy, comprising fifty five participants. School B served as the experimental group for Logotherapy,

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comprising thirty six participants. School C served as the control group, comprising forty four participants. The Adolescent Sexual Behaviour Inventory was used for both the pre-test and post-test. The reliability coefficient of 0.926 was obtained on the instruments. The data collected were analysed, using t-test, ANOVA and did a post-hoc analysis, using the Least Significant Difference. The findings showed that Cognitive Behaviour Therapy and Logotherapy were both slightly efficacious in reducing risky sexual behaviours among in-school adolescents in Benin Metropolis. The study recommended that counselling psychologists and school counsellors should be well trained in the use of CBT and LT in addressing risky behaviours, especially among adolescents.

*Keywords: Cognitive; logotherapy; sexual risks; adolescence; behaviour.*

## 1. INTRODUCTION

Adolescence, is a period when the growing children experience considerable acceleration in their growth sequence. This stage is associated with physical, mental, social and psychological development in which adolescents usually notice both external and internal changes in their bodies such as secretion of hormones and physical maturity [1]. In-school adolescents are the secondary school students between the ages of 11-18 years who are students in the senior secondary schools in Nigeria; they too like others out of school, may make poor decision. It therefore, becomes a problem, especially when poor decisions lead these adolescents to engage in risky and negative behaviours, such as sex, use of drugs and drinking of alcohol, examination malpractice, smoking among others. Adolescents' sexual urges and interests sometimes predispose them to participate in sex risky behaviours, such as, having multiple sex partners, premarital sex, rape, early sex, among other activities. During this period, adolescents are adventurous. They desire exploration and experimentation, always seek to do new things and find out why things happen. They may like to practice, and do what the adults are doing. This process of discovery may lead adolescents to engage in risky behaviours, self-destruction and compromise, which can affect their lives forever.

Risk-taking is a way of involving oneself in behaviours that are potentially harmful or dangerous but could provide the opportunity for some kind of outcomes with temporary pleasure and the momentary positive feelings [2]. Risk taking behaviours are the activities or behaviours that can have adverse effects on the overall development and wellbeing of a person. Such risky behaviours might prevent the individual(s) from reasonable and objective thinking, thus disrupting them from realizing the meaning and purpose of their life existence [3].

Adolescents may respond to impulse rather than deep thinking and consider the temporary benefits they may enjoy rather than the unintended consequences of their decisions. The forms of risky behaviours perpetrated by adolescents are numerous. They include risky sexual behaviours, which is the focus of this study.

In Nigeria, especially Edo State, it is common knowledge that many adolescents engage in unprotected sex and kissing, without thinking about the consequences of their action. They may only weigh the rewards of their actions such as getting money or gift in return. This is common among female adolescents, as a result of the lingering poverty due to economic downturn in the country. The adolescent children may suffer gloom of an ugly consequences of their early sexual escapades. Many adolescents may not be readily aware of the consequences of their early sexual adventures. They may not be aware that their unguarded risky sexual behaviours could result in unwanted pregnancies, abortion, and other sexually transmitted diseases (STDs) and sexually transmitted infections (STIs); which can preclude them from enjoying typical adolescent events. Such events include attending and graduating from schools and developing close friendship with peers. All these consequences are likely to affect the lives of adolescents and hinder them from achieving the purpose and meaning of their lives. More so, the adolescents' physical, social, psychological wellbeing may be affected, while their education could be temporarily or permanently jeopardized. These could trouble their mind. They may sometimes be stricken with stress, depression, and other psychological troubles that may need the assistance of psychotherapists [4].

Adolescents could be assisted by psychotherapist to change their maladaptive behaviours in order to meet the challenges of life

and remove their distorted thought. Psychotherapists are to assist the adolescents to achieve their purpose and meaning of existence and to live fulfilled life.

The nature and severity of an abnormal behaviour exhibited by students/clients determine the types of psychosocial counselling to be used. For this study, however, Cognitive Behaviour Therapy (CBT) and Logotherapy (LT) were employed to investigate their efficacy in treating risky behaviours, which is about sex. Cognitive behaviour therapy is a blend of two types of therapy: cognitive therapy and behaviour therapy. Cognitive therapy is to focus on a person's thoughts and beliefs, and how they influence a person's mood and actions. The goal is to bring awareness to a person's particular type of thinking and guide it to be more adaptive and healthy [5]. Alternatively, behavioural therapy focuses on behaviour, by bringing awareness to a person's unhealthy behaviours, actions or habits. Behaviuoral therapy can help to change behaviour patterns. Cognitive behaviour therapy is based on the belief that the only access to our needs and emotions are the cognitive and behavioural routes [6]. It is a form of psychotherapy that emphasizes the important role of thinking on how we feel and what we do [7]. Furthermore, Cognitive Behaviour Therapy is generally short-term focused on helping adolescents deal with a very specific problem. During the course of treatment, people learn how to identify and change destructive or disturbing thought patterns that could have a negative influence on behaviour and emotions. Cognitive Behaviour Therapy also focuses on actual behaviours that could contribute to the problem. The client begins to learn and practise new skills that can be put in real-world situations. In most cases, Cognitive Behaviour Therapy could be a gradual process that help a person takes incremental steps towards a behavioural change. According to Hofmann and Smith [8], cognitive restructuring is about changing a perception to a neutral or positive one and make it less vulnerable to negative behaviours. The process, according to them is also called reappraisal, relabelling, reframing and attitude adjustment .They further explained that the therapy can be used to improve discourse of mind and it is often describe in four stage processes, which are awareness, reappraisal of the situation ,approval and substitution and evaluation. Cognitive restructuring could help the adolescents to think differently and objectively because it may assist the adolescents to consider the benefits and consequences of their actions, which could promote positive cognitive changes.

Cognitive Behaviour Therapy is a talking therapy that combines cognitive therapy and behaviour therapy. Aaron Beck was one of those who, in the 1960s expounded the Cognitive Therapy. Beck & Clark [9] opined that the client's cognition had an enormous impact on his feelings and behaviour. The goal of CBT therapy is to teach the clients (adolescents) that even though they may not have control over every aspect of the world around them, they can take control over the way they interpret their thoughts and deal with things in their environment.

On the other hand, Logotherapy could be considered an active treatment, which provides guidance to assist students, especially in the stage of life crisis; and this type of treatment is based on the premise that the meaning of life is unconditional, and that anyone, and at any time can find and discover this meaning [10]. Logotherapy tried to broaden the scope of the vision of students to see the meaning and values that are hidden in tragedy or negative behaviour, and then, boldly admit it or to fight it. Logotherapy analyses in a directive manner, the meaning and purpose of life. It can be indicated when the students are experiencing loss of direction, confused values, a shaken identity, personal alimentation, boredom, meaninglessness, direction change and relationships change. Frankl's logotherapy [11] relied on the characteristics of man as meaning-seeking and meaning-making creatures. Logotherapy is future oriented, focused on personal strengths and places responsibility for change on the clients. According to Frankl [12], meaning can be found in three different dimensions of participating in life: firstly through deeds (for example working, being creative, making constructive contributions); secondly through experiences (for example of love, the world's beauty); and thirdly by the attitude we face, unavoidable suffering with. Pur, Mburza and Audu [13] opined that person who discovers and lives to his or her meaning in life experiences self-transience and is characterized by two major human qualities; which are: a large degree of inner freedom and the awareness of responsibility for how one lives one's life. "Paradox intention", "deflection" and "attitude modulation" are the methods Frankl [12] developed and integrated into his therapeutic dialogue with his clients. Logotherapy helps patients to search for meaning in life in all

circumstances even in despair. Therefore, according to logotherapy approach, life is meaningful under any circumstances; the will to meaning is the primary motivation of each individual; and people have free will [14]. Meaning, hope, and purpose in life promote mental health and conforming behaviours. Therefore, all events, how demanding and tough will be easily coped with if it is meaningful and purposeful.

Logotherapist helps client discover or recover the meaning of his/her life. Review of empirical evidence indicates that Logotherapy is an internationally acknowledged and empirically based meaning-control approach to psychotherapy [15]. Schnell and Becker [16] stated that many researchers in their study concluded that the existence of meaning in life is the most important factor in mental and emotional health. Koohi [17] revealed that Logotherapy was effective in reducing general aggression, aggressive thought, aggressive feeling and aggressive behaviour. Moreover, Haditabar, Far and Amani [18] revealed that Logotherapy concepts training are effective in enhancing the students' quality of life.

Logotherapy is a meaning-centred approach to psychotherapy, and it is to some extent compatible with Cognitive Behaviour Therapy [19]. Logotherapy is one of the psychotherapies grouped under existential psychotherapy. Frankl [11] pointed out that logotherapy is a therapy through meaning. [20,21] described it as treatment through finding meaning and purpose in life. LT involves integrated psychological techniques, employed in the process of helping people to find meaning to their lives. Frankl [12] had revealed that meaning can be found in three different dimensions of participating in life by being creative, making constructive contributions and through experience.

Thoughts and beliefs of an individual could be adaptive or maladaptive, and it may emanate from certain life experiences. The adaptive or maladaptive thoughts are likely to be detrimental to the social and psychological wellness of individual. Cognitive Behavioural Therapy and Logotherapy as interventions may be effective in reducing or eliminating risk-taking behaviours, in particular the risky sexual behaviours among adolescents. However, the efficaciousness of these interventions requires an in-depth investigation. This justifies the essence of this study, which intends to investigate whether Cognitive Behaviour Therapy and Logotherapeutic techniques would be effective in reducing risky sexual behaviours among the in-school adolescents.

## 1.1 Statement of the Problem

Risk taking behaviours among adolescents in Nigeria in general, Edo state in particular, involves unprecedented intercourse, unprotected sex, early sexual activities, multiple sex partners, high risk partners, rape, and prostitution. These seem to be prevalent among the adolescents of school going age in Benin Metropolis, which serve as the headquarters of the State. A study by the National Population Commission (NPC) [22] in some parts of Nigeria has revealed that sexual interactions of various dimensions among the youths and adolescents have increased. Moreover, the Nigeria Centre for Disease Control and Prevention [23,24] had raised alarm over the increase in sexually transmitted infections (STIs), due to prevalence of sexual activities and risky behaviours among young people, especially the adolescents. Furthermore, a study conducted by Omagie and Omagie [25] on 24 focused discussion groups, in Oredo Local Government of Edo State showed that despite continuous education and awareness programmes, there have been continuous increase in youths' and adolescents' involvement in unsafe sex and other related practices that could expose them to infections and other sexually related danger.

The consequences of risky sexual behaviour are worrisome, they include unwanted pregnancies among adolescent female; untimely drop out from school among adolescent students; abortion, which could lead to death or permanent deformity; sexually transmitted diseases and infections; disturbance in school attendance; and subsequent withdrawal from school. These can truncate a child's life pursuit and derail the purpose of his/her life. In most cases, adolescents may not readily understand the consequences of their actions apart from the immediate pleasure they derive. The foregoing has made it imperative to explore the efficacy of CBT and LT in reducing this psychosocial problem of sex risky behaviours, among in-school adolescents. The problem therefore, is whether the two therapies could be efficacious in reducing sex risk-taking behaviour among the in-school adolescents. In other words, could the application of CBT and LT be efficacious in reducing sex risk-taking behaviour among adolescents?

## 1.2 Research Questions

To guide this study, the following research questions were raised

1. Is there a difference in risky sexual behaviour reduction at pre-test and post test for in-school adolescents treated with Cognitive Behaviour Therapy?
2. Is there a difference in risky sexual behaviour reduction at pre-test and post test for in-school adolescents treated with Logotherapy?
3. Is there a difference in risky sexual behaviour reduction at pre-test and post test for in-school adolescents in control group (treated with placebo)?
4. Is there a difference in risky sexual behaviour reduction for in-school adolescents treated with Cognitive Behaviour Therapy, Logotherapy and the control group at post-test?

## 1.3 Hypotheses

1. There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents, treated with Cognitive Behavioural Therapy.
2. There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents, treated with Logotherapy.
3. There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents in control group.
4. There is no significant difference in risky sexual behaviour of in-school adolescents, treated with Cognitive Behavioural Therapy, Logotherapy and the control group at post-test.'

## 1.4 Objective of the Study

The main objective of the study was to investigate the efficacy of Cognitive Behaviour Therapy and Logotherapy in reducing risky sexual behaviour among the in-school adolescents in Benin Metropolis, Edo State.

## 2. METHODOLOGY

The study adopted a quasi-experimental design, which requires a small sample. The design used a pretest-postest, non-equivalent control group. In this design, intact classes were used because the design does not permit random assignment of subjects on the experimental and control groups. The treatment levels were Logotherapy, Cognitive Behaviour Therapy for the experimental groups: and a non-attention treatment for the control group.

The population consisted of SS 2 students in the thirty-one mixed public Senior Secondary Schools in Benin metropolis. This group of students is considered appropriate for this study, because it is believed that students of this class are mainly adolescents who could be more vulnerable to sex risk-taking. The sample consisted of one hundred and thirty five students drawn from the three intact classes, selected from the three sampled schools.

The multi-stage sampling technique was adopted as samples were drawn across four stages. At Stage one, three local government areas that make up Benin metropolis were all selected for adequate coverage. At Stage two, a school each was selected from the mixed public senior secondary schools in each Local government area, making three schools out of thirty-one mixed public senior secondary schools in the metropolis. School A served as the experimental group for CBT, School B served as the experimental group for LT, and school C served as the Control group. At Stage three, an intact class of SS 2 was purposefully selected in each school for the study. At Stage four, the participants for the experimental and the control groups were selected through pretesting, using rating scores from their responses to the 'Adolescents Sex Behaviour Inventory (ASBI)'', to enable the researchers identify the students, which were vulnerable to risky sexual behaviour. Those that scored above 105 out of the maximum score of 168 were considered prone to risky sexual behaviour, and therefore served as the participants for the study; they were 135 in number. This was obtained from the product of the total number of items on the total responses on the instrument. The number of participants in the three groups were as follow: Cognitive Behaviour Therapy (CBT) had 55 respondents (40.7%); Logotherapy group had 36 respondents (26.7%), while the control group had 44 respondents (32.6%).

The study adapted the "Adolescent Sex Behaviour Inventory'' developed by Friedrich [26]. The questionnaire consisted of forty two items, self-report standardized instrument, developed to measure sex related behaviours, which could require therapeutic intervention. It measured risky sexual behaviours, non-

conforming sexual behaviours, sexual interest and sexual discomfort in adolescents. The instrument was validated by experts. It was also subjected to test-retest reliability method, using the Pearson's r coefficient statistics that gave an r coefficient value of 0.926.

The instrument was administered to collect data at the pre-test, before treatment to find out the initial equivalence of the groups. The same instrument was also used at the post-test to determine the difference between the pre-test risky sexual behaviour and post-test risky sexual behaviours after treatment.

The treatment packages were applied on the students in the intact classes in the two experimental groups, while a non-attention treatment was given to the control group over a period of 8 weeks. Both the vulnerable and non-vulnerable students were not separated during treatment to avoid distraction and stigmatization. However, the participants were identified through coding. At the end of the treatment, the same instrument (ASBI) used at the pre-test was used to post-test the participants. The researcher was assisted by trained research assistants to concurrently treat the three groups in their separate schools, to avoid participants' interaction. The completed copies of the instrument were instantly retrieved. Inferential statistics, such as t-test and Analysis of Variance (ANOVA) were used to test the hypotheses. A post-hoc analysis was done to identify which of the therapies was more efficient.

## 3. RESULTS

**Hypothesis 1:** There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents, treated with Cognitive Behaviour Therapy.

Data analysis for testing this hypothesis is presented in Table 1.

Table 1 shows the mean and standard deviation of risky sexual behaviour at pre-test for Cognitive Behaviour Therapy (Mean= 67.87, Standard deviation = 16.81); post-test (mean = 64.09, Standard deviation = 16.64). The t-value and p-value are 1.11and .27 respectively. At alpha level (0.05), the null hypothesis is retained, because p-value of .27 is greater than the alpha level. Therefore, the hypothesis of no significant difference in the risky sexual behaviour at pre-test and post-test for in-school adolescents treated with cognitive Behaviour Therapy is accepted. This implied that Cognitive Behaviour Therapy has not shown a significant efficaciousness on risky sexual behaviour. However, the mean value at the post-test is lower, an indication of traces of slight effectiveness of the therapy.

**Hypothesis 2:** There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents treated with Logotherapy.

The data testing this hypothesis are presented in Table 2.

Table 2 shows the mean and standard deviation of risky sexual behaviour at pre-test for Logotherapy (Mean= 67.14, Standard deviation = 16.61); post-test (mean = 62.00, Standard deviation = 16.34). The t-value is 1.55, while the p-value is .13. At alpha level (0.05), the null hypothesis is retained, because the p-value of .13 is greater than the alpha level. Therefore, the hypothesis of no significant differences in risky sexual behaviour at pre-test and post-test for in-school adolescents treated with Logotherapy is accepted. By implication Logotherapy has not shown a significant efficaciousness on risky sexual behaviour. However, the mean value at post-test is lower, an indication of traces of slight efficaciousness of the therapy.

**Hypothesis 3:** There is no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents in Control Group.

Table 3 shows the mean and standard deviation of risky sexual behaviour at pre-test for control group (N= 55, mean= 68.00, Standard deviation= 11.39); post-test (mean = 75.05, Standard deviation = 19.72). The t-value and p-value are -2.399 and .021 respectively. At alpha level (0.05), the null hypothesis is rejected, because the p-value of .021, is less than the alpha level. Therefore, the hypothesis of no significant difference in risky sexual behaviour at pre-test and post-test for in-school adolescents in control group is rejected.

**Hypothesis 4:** There is no significant difference in risky sexual behaviour among in-school adolescents treated with Cognitive Behaviour Therapy, Logotherapy and the Control Group at post-test.

Table 4 shows the mean and standard deviation of the pre-test for the three groups. For the Cognitive Behaviour Therapy group (N= 55, mean= 67.8727, Standard deviation= 16.81386); the logotherapy (N= 36, mean = 67.1389, Standard deviation = 16.61351) and the Control Group (N= 44, mean= 68.0000, Standard deviation =11.38951). To test if there is a significant difference in the pre-test among the three groups, the one-way ANOVA statistic was used.

Table 5 shows F-value of 0.37 and p-value of 0.96 testing at the alpha level of 0.05. The p-value of 0.964 is greater than the alpha level 0.05, thus no significant difference exists among the groups at the pre-test. Therefore, the result at pre-test showed no significant difference in the three groups risky sexual behaviours.

Table 6 shows the mean and standard deviation at the post-test for the three groups. For the Cognitive Behaviour Therapy group (N= 55, mean= 64.09, Standard Deviation= 16.64); the logotherapy (N= 36, Mean = 62.00, Standard Deviation = 16.33) and the Control group (N= 44, Mean= 75.04, Standard Deviation =19.72).

To test if there is a significant difference in the pre-test among the three groups, the one-way ANOVA statistic was used.

Table 7 shows an F-value of 6.777 and p-value of 0.002. Testing at the alpha level of 0.05, the p-value (0.002) is less than the alpha level 0.05. Therefore the null hypothesis which states that 'There is no significant difference in risky sexual behaviour for in-school adolescents treated with Cognitive Behaviour Therapy, Logotherapy and the Control Group at post-test'' is rejected. Therefore, there is a significant difference in risky sexual behaviour of the treated groups (cognitive behaviour therapy and logotherapy) and the control group at post-test.

In order to know which of the therapies was more effective, a Post Hoc analysis was done, using the Fisher's Least Significant Difference (LSD) test. Table 8 reveals that there was no significant difference in the mean scores between CBT and Logotherapy since the p-value (0.58) was greater than the alpha value. There was a significant difference between the mean scores of the CBT and Control Group; and also, there was a significant difference between Logotherapy and Control Group as their p-value (0.001) is less than 0.05. Therefore, it can be concluded that there is no significant difference between CBT and Logotherapy effectiveness in reducing sex risk taking behaviour among the in-school adolescents.

Table 8 has revealed that CBT and Logotherapy are both slightly effective in reducing sex risk taking behaviours. However, CBT treated group is more effective than the Control Group; and the Logotherapy treated group is also more effective than the Control Group. Regarding which group is most effective, Table 6 has shown that Logotherapy treated group with post-test mean value of 62.00 is most effective, while the control group with post-test mean value of 75.04 is least effective.

**Table 1. T-test of risky sexual behaviour at pre-test post-test for CBT group**

| Group | Risky sexual behaviour | Mean | Standard deviation | T | Sig. |
|---|---|---|---|---|---|
| Cognitive | Pre-test | 67.87 | 16.81 | 1.11 | .27 |
| behaviour therapy | Post-test | 64.09 | 16.64 | | |

**Table 2. T-test of risky sexual behaviour at pre-test post-test for logotherapy group**

| Group | Risky sexual behavior | Mean | Standard deviation | T | Sig. |
|---|---|---|---|---|---|
| Logotherapy | Pre-test | 67.14 | 16.61 | 1.55 | .13 |
| | Post-test | 62.00 | 16.34 | | |

**Table 3. T-test of risky sexual behaviour at pre-test post-test for control group**

| Group | Risky sexual behavior | Mean | Standard deviation | T | Sig. |
|---|---|---|---|---|---|
| Control | Pre-test | 68.00 | 11.39 | - | .021 |
| | Post-test | 75.05 | 19.72 | 2.399 | |

**Table 4. Descriptive statistics of CBT, LT and control group on reduction of risky sexual behaviour at pre-test**

| Group | N | Pre-test mean | Std. deviation |
|---|---|---|---|
| Cognitive behavioural therapy | 55 | 67.87 | 16.81 |
| Logotherapy | 36 | 67.13 | 16.61 |
| Control | 44 | 68.00 | 11.38 |
| **Total** | **135** | **67.71** | **15.09** |

**Table 5. One-way ANOVA of reduction of risky sexual behaviour for pre-test**

| Group | Sum of squares | Df | MS | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 16.889 | 2 | 8.45 | .037 | .96 |
| Within groups | 30504.415 | 132 | 231.09 | | |
| **Total** | **30521.304** | **134** | | | |

**Table 6. Descriptive statistics of CBT, LT and control groups on reduction of risky sexual behaviour at post-test**

| Group | N | Post-test mean | Std. deviation |
|---|---|---|---|
| Cognitive behaviour therapy | 55 | 64.09 | 16.64 |
| Logotherapy | 36 | 62.00 | 16.33 |
| Control | 44 | 75.04 | 19.72 |
| **Total** | **135** | **67.10** | **18.37** |

**Table 7. One-way ANOVA of reduction on risky sexual behaviour at post-test**

| Group | Sum of Squares | Df | MS | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4212.09 | 2 | 2106.05 | 6.777 | .002 |
| Within Groups | 41020.46 | 132 | 310.76 | | |
| **Total** | **45232.55** | **134** | | | |

**Table 8. Post hoc, fishers' (LSD) tests on reduction of sex risk taking behaviour**

| (I) group | (J) group | Mean Difference (I-J) | Std. Error | Sig. |
|---|---|---|---|---|
| Cognitive behavioural therapy | Control | -10.95455* | 3.57 | .003 |
| Logotherapy | Cognitive Behaviour Therapy | -2.09091 | 3.78 | .58 |
| Control | Logotherapy | 13.04545* | 3.96 | .001 |

**There is significant difference*

## 4. DISCUSSION

The mean scores of the pre-test and post-test for the two treatment groups, which are CBT and LT showed that the post-test scores were lower than the pre-test scores. This could imply that the therapies were slightly efficacious. The short period of experimentation could have limited the level of efficacy, thereby leading to a non-significant difference value. This is deduced from the post-test mean scores of the control group which were also higher than the pre-test scores, which could indicate that the significant difference obtained between the pre and post tests for the control group was negative. However, the participants' risky sexual behaviour increased from the mean scores, probably due to lack of any treatment intervention. This may imply that the situation could have been worse for the experimental groups if there was no intervention. Conclusively, it can be inferred that to an extent, LT and CBT were slightly effective in the treatment of risky sexual behaviours of the in-school adolescents.

The participating adolescents could have been able to imbibe an attitude of self-detachment from taking risky sexual behaviour; likely directing their awareness towards positive aspects of life by attending to a life full of potential meaning and value during treatments. The in-school adolescents could have substituted the right attitude of actualizing personal potentials for wrong activity and change their unrealistic beliefs towards sexual practices that could help them to achieve the meaning and purpose of their life. This outcome contradicts the findings of Schnell and Becker [16] in respect to alleviation of symptoms of negative behaviour; Wijayanti [27] who found that LT reduces anxiety; and Koohi [17] also established the effectiveness of logotherapy in reduction of aggression. Hofmann and Smiths [8] in their study affirmed the use of CBT in the reduction of behaviour disorders. The finding of this study contradicts the finding of Oshamehin [28], that logotherapy and cognitive restructuring training were effective behaviour modification such as assisting students to develop unfavourable attitudes towards examination malpractice.

Moreover, the study contradicts the findings of Ugwu and Olatunbosun [29], which equally established that CBT had significant efficacy on reducing bullying. However, at the post-test, the F-value of 6.78 and P-value of 0.002 and testing at alpha level of 0.05 as contained in Table 7 showed that there is a significant difference between the treatment groups and the control group in risky sexual behaviours. By implication, the impact of the treatment therapies on the treatment groups could have brought about the difference between treatment and the control groups. No wonder the mean scores of the treatment groups slightly reduced at the post-test, while that of the control group increased as contained in Table 4. It can therefore be suggested that the therapies were slightly effective. Therefore, if a disorder is not attended to, it may worsen. This corroborates the findings of Hamideh, Samaliand and Zakieh [30], where they concluded that when an unhealthy behaviour in an individual is left unattended to in due course, such could lead to a serious lifetime disorder, which could impede the sufferers achieving his or her life purpose.

Furthermore, a post-hoc analysis showed that LT was more effective than the CBT. This implies that though both CBT and LT showed slight effectiveness, LT is more effective in the treatment of sex risk taking behaviours among the in-school adolescents.

## 5. CONCLUSION

Based on the findings of this study, it is hereby concluded that Cognitive Behaviour Therapy and Logotherapy were slightly efficacious in reducing sex risky behaviours, though they may have more impact, if used over a long period of time. The two therapies on sex risky behaviours among the vulnerable in school adolescents may yield desirable attitude against sex risky behaviours.

## 6. RECOMMENDATIONS

Based on the findings and conclusion, the study recommended the following:

- Since there is a slight positive attitudinal change in the findings, counsellors should use these therapies over a longer period on client to achieve the desired goals.
- Counselling psychologists should familiarize themselves with CBT and LT treatment packages in treating maladjustment behaviours among in-school adolescents.

## CONSENT

As per international standard, students' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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