

**Keeping Girls in School through Better Menstrual Hygiene Management:
An Outcome Evaluation of the Always Keeping Girls in School Programme**

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APPTRA002

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award of the Degree of Master of Philosophy (Programme Evaluation)**

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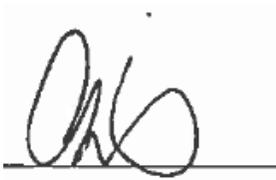
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Executive Summary

This dissertation is an outcome evaluation of the Always Keeping Girls in School Programme. The nationally run programme is a series of workshops and educational talks designed to reduce the absenteeism rates of pubescent girls who live and attend schools in underprivileged areas. The programme regularly supplies participants with sanitary products that they would otherwise not have access due to financial constraints and thus prefer to remain at home when menstruating where they can better manage their personal hygiene needs. During this period of absenteeism girls miss valuable teaching time which has a negative impact on their ability to achieve academically leading to grade repetition and ultimately dropping out of school permanently. Without a basic education girls are at a disadvantage in finding meaningful employment.

The literature supports the various facets of the programme but also reveals that other influential factors such as access to adequate sanitation facilities (including water), distance and time spent travelling to and from school, and access to pain medication. The evaluations of similar interventions have produced mixed results, but it is clear that the provision of any one of the tools, such as those provided by the Always Keeping Girls in School programme, does make a positive difference in the life of the participants.

One school was selected by the programme manager to provide the necessary secondary data to conduct a time-series quasi-experimental design for the evaluation. A cohort of learners was selected and their absenteeism and school performance data was tracked over a three year period from grade 9 in 2012 until grade 11 in 2014 (their current grade). The data from 2012 formed the baseline data as the programme was implemented in 2013. All of the girls in the cohort are programme participants and fell into the experimental group and as a result all of the boys in the cohort formed a non-equivalent comparison group.

There are seven outcomes belonging to the programme, but only two outcomes were evaluated: reduction in absenteeism and improved school performance and the existence of a relationship between absenteeism and school performance. A total of 32 observations of

absenteeism and 3 observations of school performance were used. The absenteeism observations were made on a monthly basis, while school performance data was taken at the end of December 2012, December 2013, and June 2014. To conduct the analysis a combination of descriptive statistics (measures of central tendency and dispersion) and inferential statistics (Pearson's Correlation and logistic regression analysis) were used.

The statistical analysis revealed the programme was successful during the first year when it was implemented (with both the educational workshops and the provision of sanitary products) as the experimental group showed a large decline in absenteeism. However during the second year (only sanitary products were provided) the participants showed an increase in attendance and even surpassed their baseline scores. In terms of school performance both groups showed a small increase during 2013 but in 2014 many learners performed poorly in their June examinations. The logistic regression revealed that there was a very low probability that relationship between absenteeism and school performance existed.

The finding that the programme is successful when all of its facets are available to the participants is in line with literature that rates the importance of education around puberty and sanitation very highly. The provision of sanitary products alone is important to the well-being and dignity of the participants but it is insufficient to bring about the sustained desired behavioural change.

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Introduction

The aim of this dissertation is to evaluate two of the seven outcomes of the Always Keeping Girls in School programme. The programme provides sanitary products as well as health education and guidance to South Africa school girls attending no fees schools. This evaluation will assess if the programme does cause a decrease in the number of days the participants spend absent from school, and if, in turn, that change in behaviour has a positive influence on their academic performance. The programme is a result of the work of Procter and Gamble's Corporate Social Investment division and its subsidiary company Always; the creators of a range of sanitary products and solutions for women (Always Keeping Girls in School, 2013).

The programme has been designed to be implemented at quintile 1 (no fees) schools nationally across South Africa in collaboration with the Department of Basic Education. The annually run programme is targeted at underprivileged pubertal school girls who lack access to modern sanitary products which has a negative effect on their school performance because they are likely to remain absent from school during menstruation (Always Keeping Girls in School, 2011).

1.1 Programme Description

The Always Keeping Girls in School programme is a series of workshops and educational talks designed to reduce the absenteeism rates of menstruating girls who live and attend schools in underprivileged areas in South Africa. The broad objectives of the programme are to:

1. Reduce absenteeism in menstruating girls by supplying them with sanitary products
2. Increase overall school performance
3. Motivate participants to understand the importance of completing their education
4. Improve their self-confidence

To date, the programme has assisted more than 40,000 female learners at 75 schools across

the country (Mlambo, 2014).

The programme aims to assist vulnerable female learners who cannot afford sanitary products and are likely to stay away from school, during this period, for easier menstrual management (which is the ability to manage their period and maintain their personal hygiene). Regular absenteeism places these girls at a disadvantage in comparison to their classmates and without assistance they may fail to catch up on the missed school work. This situation increases the possibility of repeating grades and ultimately dropping out of school (South African Human Rights Commission, 2014).

Girls who cannot afford sanitary products improvise with old rags/pieces of cloth, disposable diapers and paper (Montgomery, Ryus, Dolan, Dopson & Scott, 2012). These substitutions provide inadequate support, increasing the likelihood of leaks, clothing stains, and unpleasant smells which could compromise the health of the girl, particularly if the substitution is unclean. In addition, this situation could lead to stigmatisation from the other learners (Netherlands Development Organisation & IRC International Water and Sanitation Centre, 2013).

The programme was launched in 2011 in Mamelodi (Gauteng) by Procter and Gamble and the Department of Basic Education. Always Keeping Girls in School forms a part of the Girls Education Movement/Boys Education Movement programme. Both programmes are supported by UNICEF. The original agreement with the Department of Basic Education was that the programme would run for three years. An extension of the programme has been granted on the condition that each year the need for the programme is assessed and approved. The programme is sponsored entirely by Procter and Gamble (Always Keeping Girls in School, 2013).

The programme has evolved over the course of its three year history. Initially the programme worked through the Department of Basic Education, who identified the schools and the programme beneficiaries. The only activity was the provision of puberty and

menstruation related education. Procter and Gamble delivered the sanitary products to the schools at the government's request (Mlambo, 2014). The expanded programme is run on an annual basis and consists of three core activities (puberty education session, vision board, and storytelling), as well as the regular distribution of sanitary products. The activities are facilitated by a teacher at the school who has been trained by the programme staff (Always Keeping Girls in School, 2011).

1.1.1 Sanitary Products.

The sanitary products provided to the beneficiaries are courtesy of Always. The provision of pads is to improve menstrual hygiene management and thereby reduce absenteeism in the beneficiaries. Modern sanitary products are designed to keep menstruation hidden so that women may continue with their regular activities unimpeded by the constant fear of unpleasant odours, leaks, and stains. Women who have insufficient access to such products (particularly girls at school) may fall victim to stigmatisation and mocking by their peers should their status become public, hence the preference to remain at home during this time (Sommer, 2006). The Always sanitary products are distributed at regular intervals (through Procter and Gamble) using a courier service to the participating schools. Each girl is provided with an extended supply of sanitary products which she must sign an acknowledgement of receipt form to claim. Participants are provided with enough sanitary pads to last them approximately six cycles (Mlambo, 2014).

1.2 Target Population.

The programme targets quintile 1 (no fees) schools located in socially and economically disadvantaged communities nationally. In order to participate, schools must openly support the programme and be willing to fully commit to being active participants. These schools have a database of all the orphaned, vulnerable and needy students in attendance, and it is from this database that the programme beneficiaries are selected by the school management team (Mlambo, 2014).

The programme was initially designed to target high school girls in grade 10. However, due

to the need for the service and the low age of first menstruation, the population was expanded to include any primary or high school girls who matched the eligibility criteria (Always Keeping Girls in School, 2011). Once the list of potential programme beneficiaries has been identified and confirmed by the school, the girls are required to complete application forms and obtain parental permission. The application form requires demographic details of the girls, their home environment, and parental education levels and employment status. This information is used to verify the suitability of the both the girls and the schools against the selection criteria outlined by the programme. Attached to the application form is a pledge for the girls to sign. The girls commit to reducing the number of days absent from school, and to improving their scholastic performance to ensure they matriculate (Mlambo, 2014).

1.3 Programme Activities

During the first year of the programme the participants are required to attend three core activity sessions; a puberty education session run by a nurse, the vision board activity run by the trained teacher and the storytelling session also run by the teacher with a special guest speaker. A member of the programme staff may also be present during the third activity. The sessions last a minimum of one hour.

1.3.1 Puberty Education Session.

The puberty education session is run by a qualified nurse and accompanied by a staff member from the programme. The value of a trained medical professional present cannot be understated. Her presence is intended to create a safe environment; the girls can trust that this is reliable information being provided and they can feel comfortable enough to ask questions. The session is run at the school, but if the number of participants is low and the location permits, the session will be held at a central venue so that the girls from various schools in the area can come together.

The session covers three main topics:

1. Puberty and the changes that the body undergoes;

2. Menstruation personal hygiene; and
3. The proper use and disposal of sanitary products.

Participants are given a pack containing the sanitary pads, a pen, diary and an informational booklet. The booklet (produced by *Always*) contains all of the information discussed during the session as listed above. By providing the girls with these booklets they can ensure that the facts they learn during the session are accurate, and they can return to the information at a later stage if necessary. The girls are encouraged to share this information with their female friends and family members (Mlambo, 2014).

The combination of the puberty knowledge and the sanitary pads should provide girls with the confidence to attend school during their menstruation period. They will no longer fear stigmatisation as a result of their status being revealed; rather they will be able to concentrate and participate fully in the classroom (Always Keeping Girls in School, 2011).

The intended outcomes for this activity are improved knowledge of menstruation, puberty and personal hygiene; reduction in days absent from school; improved self-confidence; and improved school results.

1.3.2 Vision Board Activity.

The second activity requires the girls to create a vision board that identifies their dreams and goals. The vision board is basically a collage of images and key words that represent what they aim to achieve in their lives including careers, social and familial roles, and other more personal dreams or goals. Through the use of visual aids the girls are able to create a plan for their future. By having attainable goals and a sense of purpose, the beneficiaries understand the value of finishing school with good results. The girls are provided with career guidance and information on subject selection at school. This forms the core of visualisation by creating a model that outlines their path to realising their goals (Always Keeping Girls in School, 2011). This activity is supervised by the coordinating teacher from the school.

The outcomes for this activity are an improved attitude towards school and education,

setting goals for the future, and improved school results.

1.3.3 Storytelling Activity.

The third activity is storytelling where the girls share the experiences and challenges that have shaped their lives thus far. They are encouraged to help each other find positive solutions to their challenges. In attendance is also an appropriate female role model who is a leader in her field (radio DJ, television personality, successful businesswoman etc.). She will share her own story of the challenges she faced on her path to success. This is intended to inspire them to with the confidence and belief in their own ability to reach their visualised goals.

There are three aims to this activity:

1. The first is to learn about the power of positivity and perseverance in the face of difficult situations.
2. The second aim is to build a support structure. Through sharing the girls realise that they are not alone and that their problems are not insurmountable. Often girls have similar problems, thus they are encouraged to learn from and help each other.
3. The final aim is to increase the girls' confidence levels. Participating in this exercise encourages the girls to step outside of the comfort zones and trust each other, and the first two aims create the desired environment for this. The girls are allowed to practice their communication and public speaking skills in a safe and comfortable space which prepares them for future experiences. The girls who master these skills are invited on the Girls and Boys Educational Movement (GEM/BEM) road show where they will engage with other school girls, teachers, government officials and even the media about the Always Keeping Girls in School programme (Mlambo, 2014).

The intended outcomes for this activity are improved self-confidence, and an improved attitude towards school and education. The intended outcomes are related to more than one

specific activity, therefore attending all three activities should increase the effect that these outcomes has for the beneficiaries.

There are two impacts for the programme. The first impact is an increased number of girls matriculating from high school (or a decrease in the number of girls who have dropped out of school). This is as a result of reduction in absenteeism, improved school performance and a better attitude towards school and education.

The second impact is an increase in girls enrolled in tertiary education and is measured by viewing the quality of the matric pass rates (National Senior Certificate: Higher Certificate, Diploma and Bachelor's pass). The Higher Certificate is a basic pass, while the Diploma qualifies the learner for entrance at a Technical University or Further Education and Training institute. With a bachelor's pass, the learner is eligible to study at a university (Grussendorff, Booyse, & Burroughs, 2010).

The Always Keeping Girls in School programme is designed to decrease absenteeism rates and improve matriculation rates of underprivileged girls in South Africa using the combination of activities and free sanitary products. The activities aim to educate, motivate and enlighten the beneficiaries about the vast array of opportunities available to them if they work hard and complete school. The programme shows them that menstruation should not be an obstacle stopping them from finishing school and reaching their goals.

1.4 Programme Theory

The aim of developing a programme theory is to assess the logic and strength of the assumptions the programme staff and stakeholders hold about the problem targeted and the methods proposed to solve that problem. The programme theory looks at the cause and effect sequence of each component of the programme. If the theory is weak then it is unlikely that the programme will be successful. Thus establishing the theory is crucial or the evaluation will yield ambiguous results because the design was faulty causing a knock-on effect to all the other factors related to the programme (Rossi, Lipsey, & Freeman, 2004).

An impact model diagram has been utilised (see Figure 1) to illustrate the cause and effect sequences of the activities to their related outcomes. It is clear from the diagram that outcomes are interlinked reflecting the description of the individual activities expressed earlier. The outcomes are dependent on the previous step successfully taking place. The outcomes refer to the changes in the participants as a result of their interaction with the programme's activities (Rossi, Lipsey, & Freeman, 2004). The programme theory was designed using the implicit theory provided by the programme manager. Therefore this model is an illustration of programme manager's understanding of the way that the programme works. Despite there being other programme documents, they were not as in-depth in their explanations of the functionality of the programme, and therefore it was necessary to rely on the programme manager's perspective.

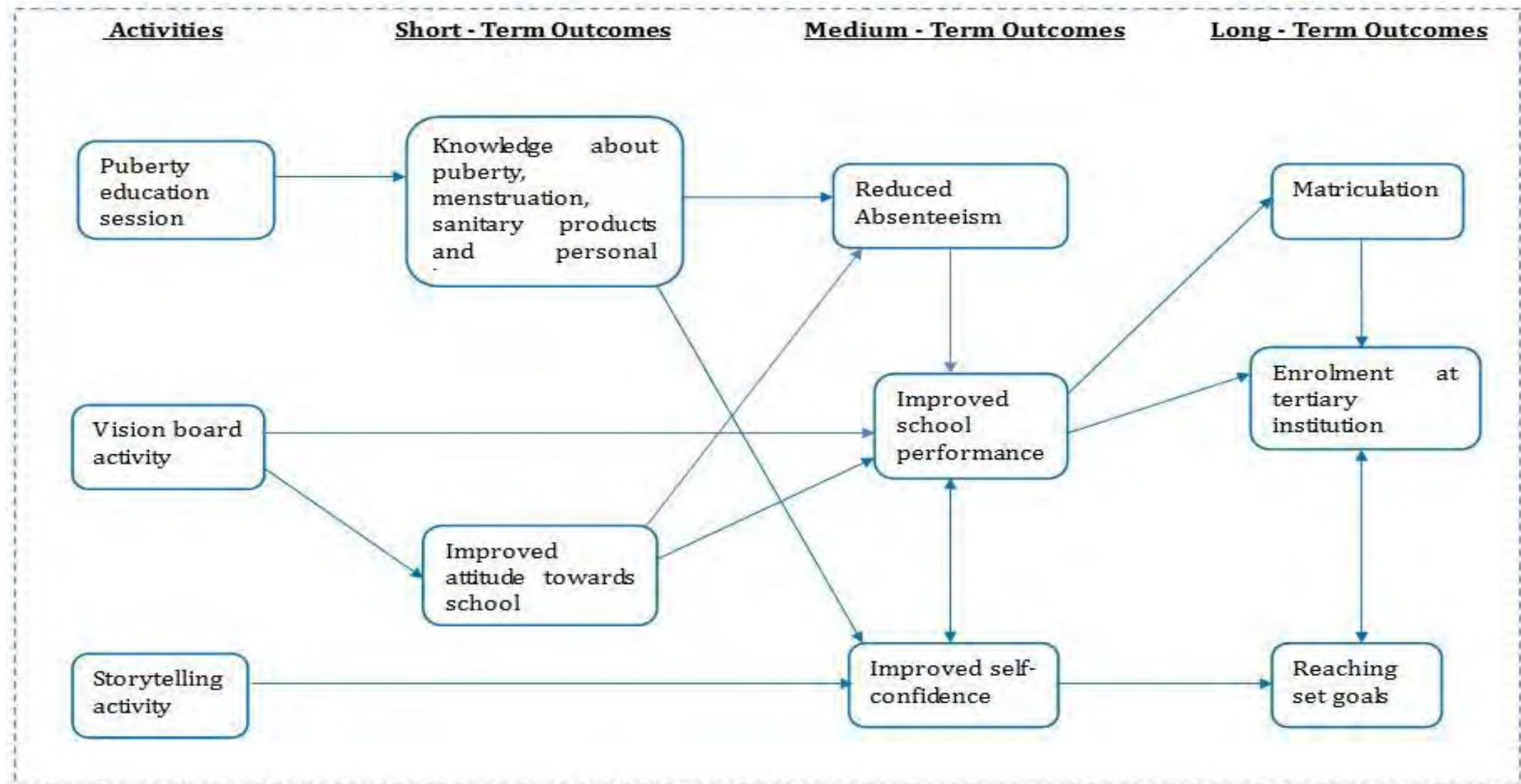


Figure 1: Always Keeping Girls in School Impact Model

The diagram highlights the interconnected nature of the intended outcomes from each activity. The sequence of the impact model should be read from left to right, beginning with the activities which lead to the short-term outcomes which in turn lead to the medium-term outcomes and finally there are the long-term outcomes. Within this overarching sequence, there are smaller pathways between the various outcomes that allow for new skills and information learnt to be reinforced. The sequencing and pathways will be explained in greater detail below.

There are three activities or causes: the puberty education session, the vision board activity, and the storytelling activity which lead to the various outcomes.

There are two short-term outcomes; the first is knowledge about puberty, menstruation, personal hygiene and the use and disposal of sanitary products. The outcome is achieved as a result of the participants attending the first activity which is the puberty education session presented by the nurse. During this session the participants also receive their first supply of sanitary products. The second short-term outcome is an improved attitude towards school which is a result of the vision board activity. This outcome can be achieved because they have learnt about the value of a good education as a foundation for reaching their goals.

The three medium-term outcomes are a reduction in absenteeism, improved school performance, and increased self-confidence. A reduction in absenteeism should be immediately realised once the girls have received their first supply of sanitary products as a lack of access to these products is the main reason behind them missing school. This outcome is also as a result of their positive attitude towards schooling because the participants have realised that staying absent from school is detrimental to their education

and future. The second outcome is improved school performance. The main factor leading to this is the reduction in absenteeism. Being present and able to concentrate during teaching time should lead to them achieving better results (Stanca, 2006). This improvement can also be caused by their positive attitude and understanding of the value of education. The third outcome is improved self-confidence which is caused by the provision of sanitary products and the knowledge of menstruation and how to care for oneself during this period. Participants are able to attend school normally each day without the anxiety and shame of being improperly protected and feeling unclean (Montgomery et al., 2012). Self-confidence is also as a result of the storytelling activity where they are tasked with public speaking, they are also taught various skills to coping with obstacles they may face. Participants are taught to believe in themselves and their ability to achieve in school and in life (Always Keeping Girls in School, 2011). Thus self-confidence and improved school performance have feed into each other.

The long-term outcomes are matriculation, enrolment at a tertiary institution and reaching set goals. The ability to matriculate from high school is as a result of good school performance which could lead to entering a tertiary institution. The final long-term outcome is achieving the goals they set which is related to their self-belief and confidence in their abilities. Their goals may be to complete school and study further or it may be something else.

The service utilisation plan (figure 2) outlines the two paths that the participants can follow. The left section outlines the path if they successfully complete the programme which will lead to the intended outcomes. The path on the right outlines the course if they do not

complete the programme which would result in their behaviour remaining the same (Rossi, Lipsey, & Freeman, 2004).

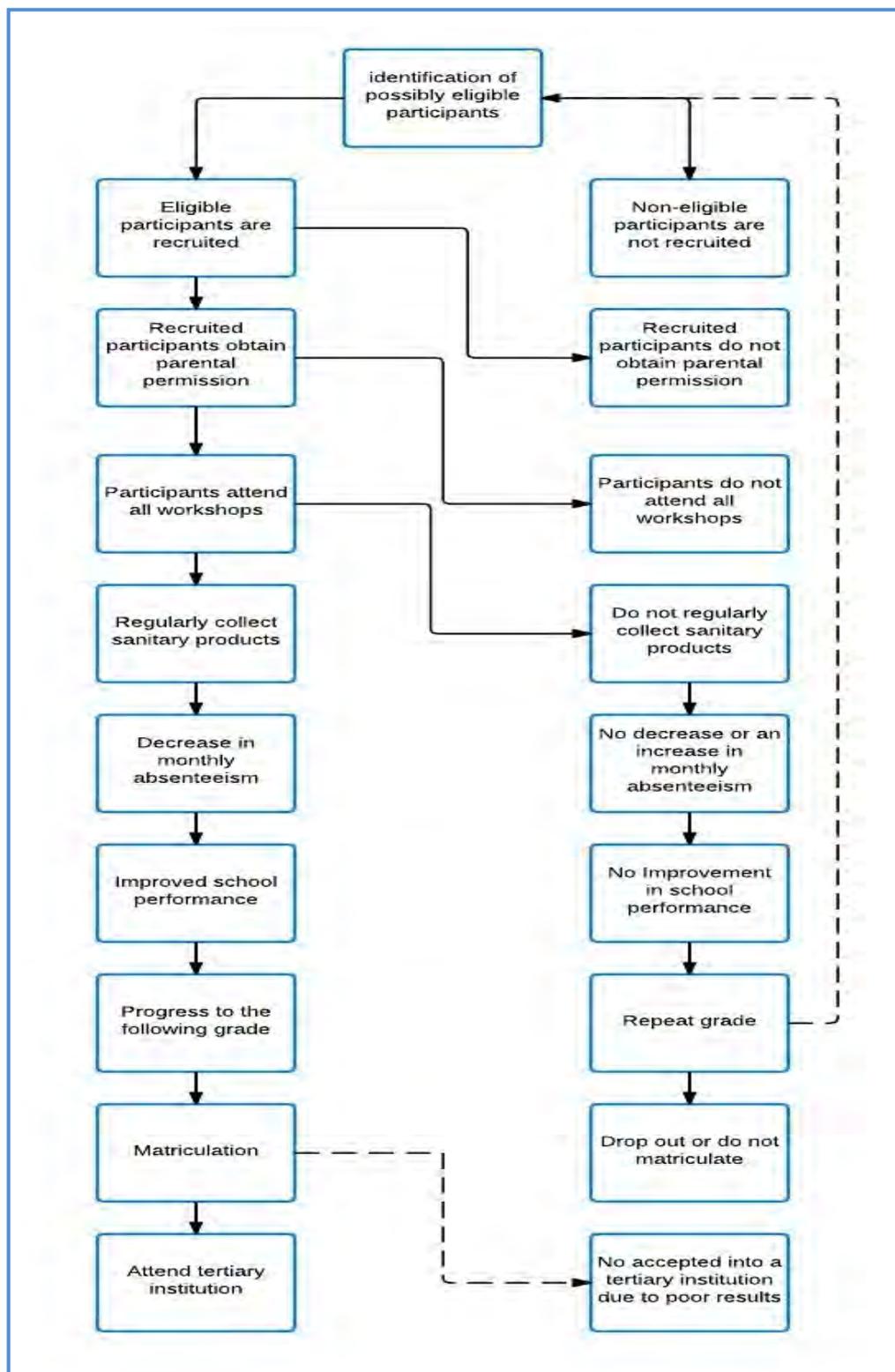


Figure 2: Service Utilisation Diagram for the Always Keeping Girls in School programme

The first stage is the identification of possible participants. They are assessed according to the eligibility criteria of set by the programme, those who meet the criteria are recruited follow the path on the left side of the diagram while those who are not eligible are not recruited and follow the path on the right. There are no arrows leading from the box on the right side meaning that they are no longer associated with the programme. Recruited participants must obtain permission from their parents to participate, those who do not receive permission move to the block on the right and they are no longer associated with the programme (Mlambo, 2014).

The solid blue boxes denote the programme activities that the participants must complete. If the participants do not complete the activities properly they move to the respective boxes on the right side and continue on that path.

The seventh box in the diagram identifies the participant either progressing to the next grade (left path) or repeating the same grade (right path). There is a feedback loop here that represents an opportunity for girls, who have repeated the grade, to be considered as potential participants and recruited into the programme if it is felt that they could benefit from the skills and lessons available.

The girls who successfully complete the programme should reach the intended long-term outcomes which are matriculating from high school and attending a tertiary institution to further their education and help them reach their goals (Always Keeping Girls in School, 2013).

1.5 Programme Theory Plausibility

The plausibility of the programme theory was compared against existing literature about the topics of menstruation and school attendance in disadvantaged environments and how school attendance affects overall performance.

1.5.1 Literature Review.

An online literature search was conducted to locate existing studies that support the causal mechanisms of the Always Keeping Girls in School programme. Literature about similar programmes was reviewed to assess the activities of the Always Keeping Girls in School programme. The literature review focused on two main assumptions of the programme. The first assumption is that providing impoverished girls with sanitary products and education about puberty education would increase their school attendance rates. The second assumption is that increased school attendance would improve overall school performance levels.

1.5.2 Method.

The data for this literature review was obtained by searching both general and specialised databases for online journals. The initial search was conducted using Google Scholar, the other databases consulted were Academic Premier Search (EbscoHost), Jstor, and PsychInfo. If the full article was not available, the UCT library website (<http://www.lib.uct.ac.za>) was utilised to locate the article via a search for the journal in which it was published.

The keywords used to complete the search included menstruation, school, school attendance, absenteeism, menstruation, and school performance.

Titles, abstracts and keywords were scanned to judge appropriateness. In the event of an abstract review being unavailable online, the paper was downloaded and scanned for matching keywords and themes. If uncertainty persisted the introductions and conclusions were also scanned. Finally, if the general topic was suitable but the main

objective of the paper was not, the bibliography was still scanned in an attempt to widen to the pool of material available for this review.

The inclusionary criteria incorporated experimental and observational study reports that were published in peer review papers, as well as independent organisational reports that were published and publicly available. While systematic reviews and meta-analytic studies were not included, their reference lists were consulted.

Papers were excluded if their main focus included data from developed countries (due to relatively easy access to decent sanitation and affordable sanitary products); physical but not social effects of menstruation; menarche only; truancy; and the social effects of menstruation in girls in tertiary education. Papers that were published later than 2000 were preferred due to the fact that this topic of study is relatively unexplored, particularly with reference to linkages between the need for sanitation and privacy for proper menstrual health management in schools, and the importance of girls' education in developing nations.

1.5.3 Results.

Devnarain and Matthais (2011) observed the effects that the lack of water and poor sanitation has on the students attending a rural primary school in KwaZulu-Natal, South Africa. While the school has three water tanks to collect rain water, droughts render them useless. Without constant access to water the toilets (pit latrines) remain filthy, with some not having been cleaned since 2007. Most students avoid using them but menstruating girls require the privacy they provide to attend to their needs. The lack of water also means that when girls experience leaks, resulting in soiled clothing, they must fetch water from the dam and ultimately miss teaching time. Collecting water is considered the task for girls despite it being a dangerous and tiring activity due to distance and load.

Girls face pressure from their teachers to attend school while menstruating in spite of the poor sanitary conditions. But it seems that some of the teachers are sensitive to the challenges that menstruating girls face under these conditions by providing them with sanitary pads and use of the staff toilets for privacy. In an attempt to curb absenteeism the

school does provide the girls with sanitary products when they are menstruating (Devnarain & Matthias, 2011). As pointed out by Sommer (2006), teaching, in many countries, is a male dominated environment therefore the presence of female teachers is needed to provide support and understanding for girls (Kirk & Sommer, 2006; Sommer, 2006).

A study in Uganda, conducted by the Netherlands Development Organisation & IRC International Water and Sanitation Centre (2013), found that 60% of female students and 40% of female teachers are absent during menstruation, with both groups citing inadequate sanitation as the main cause. The majority of the girls who participated in this study lacked access to modern sanitary products, relying rather on pieces of cloth, paper or nappies. The schools were not able to provide the girls with sanitary products or decent sanitation facilities, thus the teachers felt that poor menstrual management abilities of the school were enough to influence girls' decisions to drop out of school completely (Netherlands Development Organisation & IRC International Water and Sanitation Centre, 2013). Unlike Devnarain and Matthais's (2011) study, here the girls have access to neither sanitary products nor proper sanitation which is a much larger burden on them during menstruation.

Montgomery, Ryus, Dolan, Dopson, & Scott, (2012); studied the impact of the provision of sanitary pads and menstrual education on attendance rates of school girls in Ghana. The three armed intervention provided either both sanitary pads and education; just puberty education, or nothing in the control group. Evidence suggested that attendance levels increased in both intervention groups (five months post-intervention for the education only group) and demonstrated that education alone was sufficient to reduce absenteeism amongst menstruating girls. The authors postulate that by educating and allowing girls to openly discuss menstruation created a supportive environment. It is likely that they found solutions to, and shared tips and advice on effective menstrual health management (Montgomery et al., 2012). The study highlights the importance of quality puberty education. This study shows the strongest support for the theory behind the Always Keeping Girls in School programme.

The study conducted in Nepal by Oster and Thornton (2011) investigated the link between the provision of a reusable sanitary product and reduced school absenteeism. The programme designers chose to include the participants' mothers into both the baseline and post-intervention assessment. The study found null result when examining the effect of the product, despite its high adoption rate. The authors found that absenteeism due to menstruation alone was quite low therefore the impact of the sanitary product was low. More widely reported reasons for menstrual related absenteeism were cramps and cleaning of menstrual rags (Oster & Thornton, 2011).

Grant, Lloyd, and Mensch's 2013 study has similar findings to those of Oster and Thornton's (2011). Grant et al., (2013) studied the impact of menstrual related absenteeism on gendered disadvantages at school by comparing the absenteeism rates between girls and boys. The study found that menstruation alone did not cause girls to be absent more often than other students; however girls did list menstrual related issues (cramps and heavy bleeding) as reasons for being absent. It also failed to find a correlation between poor sanitation at school and menstrual absenteeism; however levels of privacy played a positive role in determining absenteeism amongst menstruating girls. Other positive correlations included residing with a grandmother (as older women are identified the customary source of information) and parents who are supportive of their daughter's education (Grant et al. 2013). While these results do not support the calls for better sanitation and access to modern sanitary products, they do highlight a link between puberty education and reduced absenteeism.

Marni Sommer studied two regions in Tanzania (one urban and one rural) to understand the issues facing menstruating girls at school and how they may be addressed (Sommer, 2006). The participants focused on two main issues: education and sanitation. Without knowledge about the changes that puberty initiates girls are left to struggle alone, in silence and shame. Young girls, particularly, are more likely to fall victim to stigmatisation and sexual abuse without the correct tools to deal with their periods. Related to that is how well

the topic is covered. Many schools are dominated by male teachers who may be uncomfortable or are insensitive when discussing such topics, while female teachers are often too shy. A recommendation was that external trained professionals travel around the country to the various schools and inform the girls (Sommer, 2006).

Because attendance is compulsory at primary and high school level, studies that look to understand the positive link between attendance and performance are predominantly performed at the tertiary level institutes (where class attendance is not always compulsory). It is also important to note that at tertiary institutions lectures often follow closely with the assigned textbook, and that the lecture notes and passed exams papers are available to students (Stanca, 2006). The same cannot be said for high school education.

Nevertheless, the results of such a study can still be applicable to other learning situations because the premise is the same; the better your attendance record, the better your performance, and numerous studies have confirmed this relationship (Daniel, 2006; Stanca, 2006). Stanca (2006) also found that the returns from self-study are substantially lower than the returns one would obtain from attending a lecture (Stanca, 2006).

Roby's 2003 study considered the number of teaching hours that were lost due to absenteeism and the result shows substantial losses per annum with even a low absentee rate (Roby, 2003).

1.5.4 Conclusion.

The literature review has revealed that access to adequate sanitation, sanitary products and puberty related education can make a real difference in the lives of underprivileged girls. Another important factor is the presence of a trusted adult female (either at school or at home) who can provide support for the girls. By training a teacher at the school, the Always Keeping Girls in School programme attempts to create a more supportive school environment. And while this will definitely benefit the participants of the programme, it could also benefit the other female learners of the school who are not in the programme.

The provision of sanitary products not only simplifies menstrual management for the girls, but it also reduces shame and possible health concerns. In numerous situations, girls lack access to sanitation, sanitary products, and good knowledge about puberty. The studies have shown that the provision of any one of the tools listed can ease the struggles of the girls.

The Always Keeping Girls in School programme attempts to increase access to sanitary products and puberty related knowledge and these actions are supported by the literature.

1.6 Evaluation Questions

An outcomes evaluation will be performed on the Always Keeping Girls in School programme. The programme has a total of seven intended outcomes; however only two of these outcomes will be evaluated. The outcomes are:

1. Knowledge of sanitary products, menstruation, puberty and personal hygiene.
2. Reduction in school absenteeism.
3. Improved test results.
4. Improved attitude towards school.
5. Improved self-confidence.
6. Matriculation
7. Tertiary institution enrolment.

The evaluation will investigate two medium term outcomes of the cohort who participated in the programme in 2013. The first outcome is the monthly absenteeism rate which is measured using attendance records from January 2012 until August 2014. The second outcome variable is school performance which is measured using the participants' end of term results for June and December in 2012 and 2013.

The evaluation questions were selected based on the fact that the data already existed and no new data needed to be collected (Daniel, 2006; Roby, 2003; and Stanca, 2006).

None of the schools participating in the Always Keeping Girls in School programme are located in the Western Cape. Due to time and financial constraints no site visits could be made which would have allowed for new data to be collected.

These questions are based on the assumption that the intervention (including the delivery of sanitary products) was rolled out with fidelity and strength. Fidelity refers to the strictness of implementation according to the programme theory, while strength refers to the dosage of the programme (Cordray and Pion, 2006).

1.6.1 Absenteeism

The aim of these questions is to identify if the programme does cause participants to reduce the number of days absent from school per month when menstruating.

1. Is there a decrease in absenteeism amongst the participants of the AKGIS programme?
2. How big was the effect of the intervention during the year of implementation?
3. How long did the effects of the intervention last?

1.6.2 School performance

As identified in the literature review, previous studies have confirmed a relationship between school attendance and school performance. The aim is to see if this relationship is present in the effects of the programme. The alternative hypothesis states that there is a relationship between the variables whereas the null hypothesis states that no relationship exists. If a relationship is found, the null hypothesis will be rejected.

4. Is there a relationship between school attendance and school performance?
5. Was there an increase in school performance during the year in which the intervention was implemented?

Method

2.1 Research Design

A time series design (utilising a non-equivalent experimental and comparison group) has been selected for this evaluation. This type of quasi-experimental design was selected to establish the pattern of absenteeism before the intervention, and then to track the expected change in that pattern after the intervention. The evaluation will also look for changes in the overall mark average for each term, of each year being evaluated. The post-intervention observations will identify any changes to the trends in absenteeism and averages as well as highlight the strength of the effects of the intervention in the long term (Reichardt & Mark, 2004).

The experimental and comparison groups are not equivalent because a baseline assessment cannot be carried out due to the fact that the intervention has already taken place. A baseline assessment would have allowed for a matching technique to be employed which would ensure equivalence between the two groups before the intervention took place. Despite not being equivalent, the groups can be said to be similar because they attend the same school, are in the same grade and fall into the same age range.

In order to conduct the evaluation, two main variables were considered: monthly absenteeism and school performance. There are a total of 32 observations made for absenteeism and 3 observations made for school performance between January 2012 and August 2014. The same number of observations is made for both groups.

Monthly absenteeism data was collected from January 2012 until August 2014 for a total of 32 observations. Figure 3 illustrates the design used for this evaluation. The first 12 observations before the X represent the 2012, the year before the intervention was implemented and forms the baseline data. The X after observation 12 indicates the beginning of the intervention. The intervention here specifically refers to activities (three workshops) that participants are expected to attend and this takes place during the second

year (2013). Thus the intervention extends from observation 13 until observation 24 (twelve months). This distinction is made because the participants continue to receive sanitary products until they matriculate or drop out of school. Sanitary products according to the programme theory are defined as an input and not an activity. The period from observation 25 onwards represents the post-intervention phase (2014).

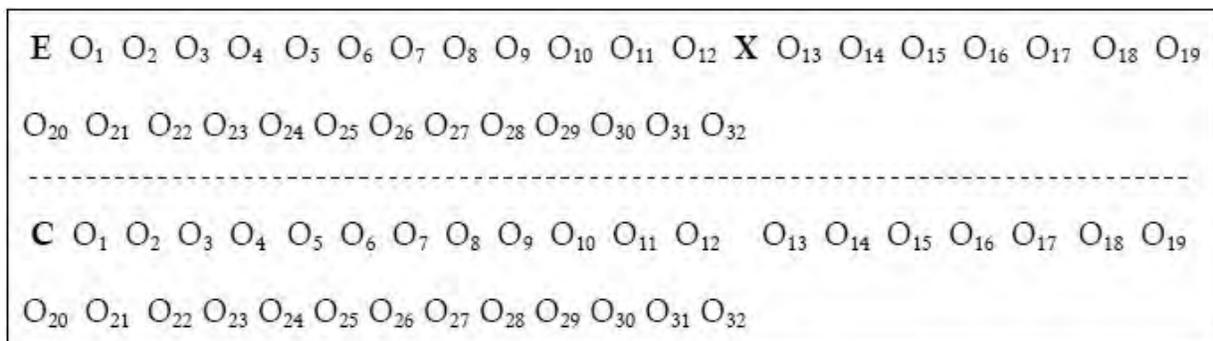


Figure 3: Time series design for the absenteeism aspect of the outcome evaluation for the Always Keeping Girls in School programme (Reichardt & Mark, 2004).

School performance data was collected from the same learners (in the experimental and non-equivalent comparison groups) for the period under review. End of term results for December 2012 (grade 9), December 2013 (grade 10), and June 2014 (grade 11) were obtained from the school. Figure 4 represents the design for this aspect of the evaluation.

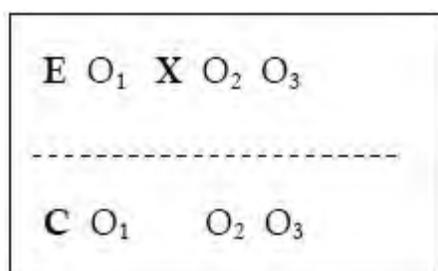


Figure 4: Time series design for the school performance aspect of the outcome evaluation for the Always Keeping Girls in School programme

Multiple observations prior to, and following the intervention strengthen the certainty with which conclusions can be drawn and reduce the threats to internal validity such as maturation and regression to the mean. The inclusion of the non-equivalent comparison group controls for the effects of history as all participants are selected from the same

population (Reichardt & Mark, 2004).

2.2 Participants

The participants for the evaluation are a full cohort of learners (girls and boys) from a high school in KwaZulu-Natal, South Africa. The learners are currently in grade 11 and the female learners (the experimental group) began the programme in grade 10 (2013) will be selected. Only the absenteeism records and school performance data of the learners will be utilised for the study. The data was provided by the school that was selected for the evaluation.

One high school was purposefully selected from the list of participating schools by the programme manager. The school was selected based on the quality of their attendance records and on the number of intervention participants in 2013. The school is located in KwaZulu-Natal and is categorised as quintile 3.

The number of learners would change each year due to learners repeating grades, dropping out of school or transferring to different schools. There were 147 learners in grade 9 (2012), 213 learners in grade 10 (2013), and 142 learners in grade 11 (2014).

All of the girls in the selected cohort are programme participants and are therefore all in the experimental group. As a result there are no girls to form an equivalent control group. The boys in the cohort were selected to form a non-equivalent comparison group. Previous studies looking to understanding gendered trends into absenteeism found no significant difference between boys and girls thus the inclusion of their absenteeism data contributes to a fuller understanding of the prevalence of absenteeism in general at the school (Grant et al. 2003). The inclusion of their school results serves the same purpose.

2.3 Data Providers

The data used for the evaluation consists only of secondary data obtained from the schools.

This data relates to attendance records and overall averages achieved at the end of each term for each participant in both groups. The attendance register must be completed everyday by a teacher. The attendance register tracks the daily attendance of every learner (Department of Basic Education, 2010).

The overall average achieved is calculated by dividing the final percentage result for each subject and dividing it by the total number of subjects studied by the learner. This information is provided by the school from their quarterly schedule reports which contain details about each learner's subject, code and percentage to indicate their overall performance. The schedules can also be obtained from the district office in the event that the school is missing it (Department of Basic Education, 2011).

The data was emailed by the principal of the school, downloaded and stored safely.

2.4 Measures

There are two main measures (outcome variables) to be evaluated are the number of days absent per term and overall average examination percentage calculated from the examination results. These two measures will be examined individually, but they are also inversely related, therefore this relationship will be analysed.

The other remaining measures such as motivation and attitude towards school were not measured because there is not pre-test data to compare it to. This is due to the fact that no pre-test could be conducted because the intervention had been completed before the evaluation began. The long-term outcome variables were not tested because insufficient time has passed since the programme began to perform a rigorous assessment.

2.5 Statistical Analysis

The main statistical methods to be utilised for this evaluation include Pearson's correlation and a linear regression analysis in addition to descriptive statistics.

Descriptive statistics (such as the overall mean and the median) will be used for the analysis of the baseline data for both variables and the first three evaluation questions.

Following that, inferential statistics will be used to identify the relationship between school attendance and school performance. Pearson's correlation analysis will indicate whether or not there is a linear relationship between the two variables. If the relationship is linear (irrespective of whether it is positive or negative) the linear regression will be conducted. The linear regression analysis will attempt to predict school performance using the school attendance data. However, should the correlation analysis achieve a result that indicates that there is no linear correlation between the two variables; a logistic regression will be performed instead. The logistic regression analysis will find the probability that absenteeism has a significant influence in predicting school performance. The linear regression was selected in the event that the data does not fit the requirements to perform a linear regression. The logistic regression requires that the data be transformed and hopefully this will provide a better fit (Field, 2013).

2.6 Ethical Concerns

To conduct this evaluation, special measures had to be taken to protect the privacy and dignity of the learners involved given the sensitivity of the subject. Therefore consent was obtained from the programme manager and the school principal to conduct the evaluation using the student records. Ethical clearance was granted from the Commerce Department Ethics in Research Committee at the University of Cape Town.

The names of the learners were erased from the data once it had been organized correctly to protect their anonymity. Neither the names of the learners, the principal, nor the name of the school was used in the report.

Results

The statistical analysis was conducted using data from a high school in rural KwaZulu-Natal, South Africa. The programme manager could not provide adequate records for the evaluation and therefore a participating school provided the necessary data. The data is basic and able to answer the evaluation questions but extra information required to provide the necessary context (school infrastructure, travelling distance, seasonal factors etc.) does not exist. This information would either have to be collected by the programme staff during the recruitment process or during a more intensive evaluation that involved a site visit and pre-intervention surveys with the participants. The school was recommended for the evaluation by the programme manager as it met the requirement for good record keeping.

The programme records do indicate that the inputs and activities were implemented correctly and with strength. Sanitary products were delivered to the school on schedule and were collected by the participants. While all of the activities took place at the school there were no attendance records to indicate a level of adherence to this aspect of intervention. For the purposes of the evaluation it will be assumed that the majority of the participants did in fact attend and participate in all of the activities.

3.1 Absenteeism

This section will focus on the analysis of the learner's monthly absenteeism and the first four evaluation questions.

Evaluation question 1: Is there a decrease in absenteeism amongst the participants of the AKGIS programme?

3.1.1 Time-Plot of Absenteeism.

The graph in figure 5 depicts a full overview of the absenteeism trends for the experimental group (blue) and the non-equivalent comparison group (green) per month over the three

year period. There are 32 plot points.

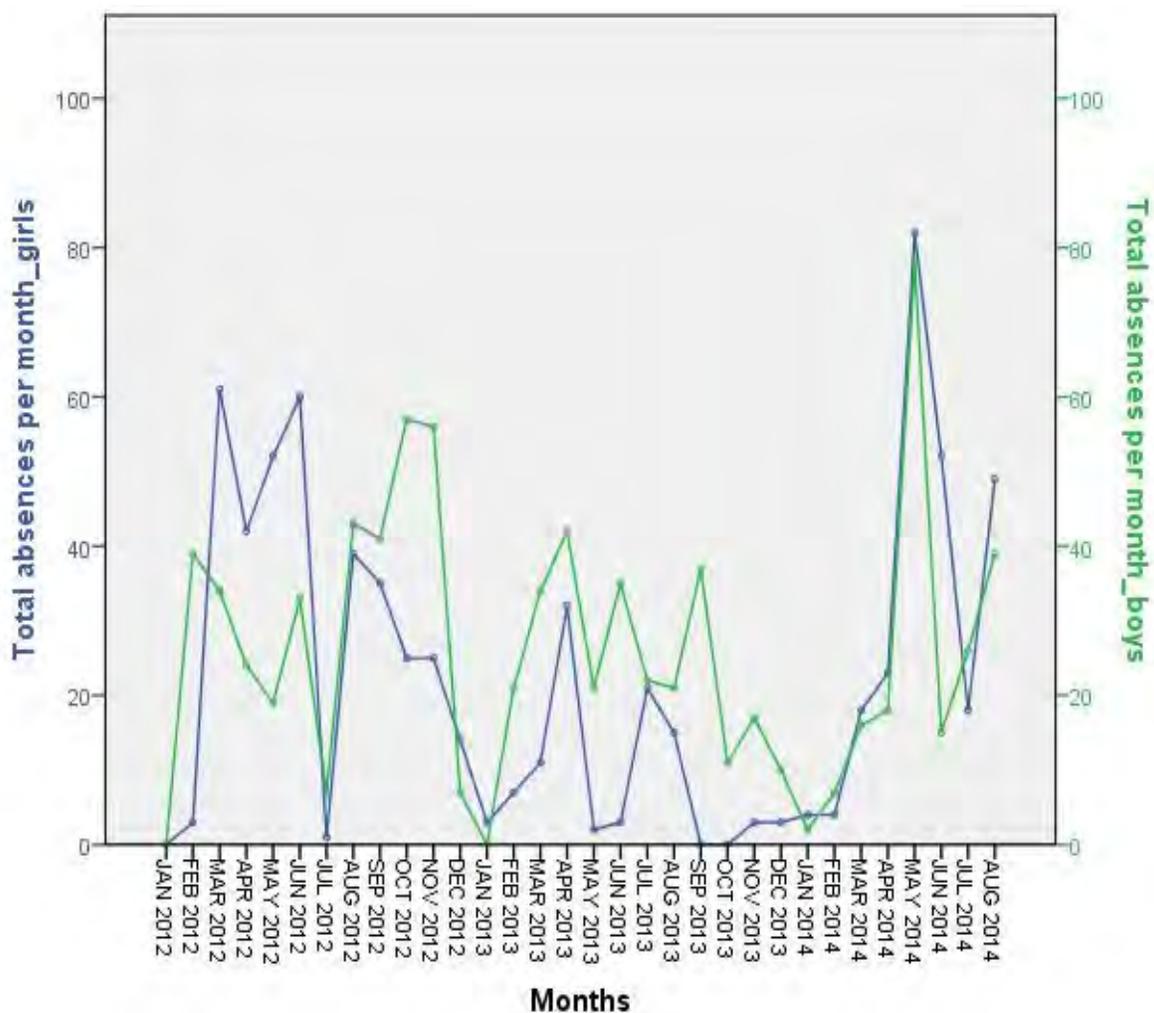


Figure 5: Time plot graph of total absenteeism per month for boys and girls 2012 – 2014.

Both the experimental and non-equivalent comparison groups experienced a decline in the average number of days absent during 2013, with the experimental group’s mean slightly lower than the control group. This decline for the experimental group would indicate that the programme was successful during the year in which the programme was implemented, but the success did not translate into a long term effect as absenteeism increases in 2014.

3.1.2 Baseline data.

The baseline data for the monthly absenteeism rates of the learners consists of 12 data points one for each month of 2012 when the learners were in grade 9. The data was collected in the year prior to the implementation of the intervention for this cohort. The data is representative of all of the learners in the grade (70 girls and 77 boys). The

absenteeism registered is completed by the teachers on a daily basis for all of the children in the class.

Table 1 below highlights a comparison between the total number of days absent per month for all of the girls and the boys in the cohort. The table includes the overall average (mean) number of days absent per month, the median value, the standard deviation (SD), the level of variance, and the minimum (Min.) and maximum (Max.) number of days absent over the 12 month period.

Table 1

Baseline Data for Monthly Absenteeism Data

	Mean	Median	SD	Variance	Min.	Max.
Girls						
DP = 12	29.7	30	22.1	488.2	0	61
Boys						
DP = 12	30.0	33.5	18.8	356	0	57

DP = data points

The results in the table indicate that there was a negligible difference between how often boys and girls were absent. However, in total, the girls did miss more days of school than their male counterparts. The maximum number of days missed for girls over the 12 month period was 61, while the boys missed a total of 57 days. The large variances for both the boys ($v = 356$) and the girls ($v = 488.2$) suggests that the data is spread widely, in other words it is not a small amount of learners who are absent frequently, but rather that the majority of learners are missing school on a regular basis.

The scores for the median and the mean are similar which suggests that the learners in both groups are regularly absent from school each month.

3.1.3 Intervention data.

This absenteeism data was collected during the intervention 2013 (grade 10) and after the intervention in 2014 (grade 11). The data points reflect the number of months for which data was collected. Absenteeism data was available every month in 2013 and for the first eight months of 2014 which was the most current data available from the school.

Table 2 below depicts the descriptive statistical values for the absenteeism data of the cohort for 2013 and 2014. The data is grouped firstly according to boys and girls, and then according to year. Table 2 provides both a within and between group comparison of the absenteeism trends for grades 10 and 11.

The table includes the overall average (mean) number of days absent per month, the median value, the standard deviation (SD), the level of variance, and the minimum (Min.) and maximum (Max.) number of days absent over the 12 and 8 month periods respectively.

Table 2

Grade 10 and 11 Monthly Absenteeism Data

		Mean	Median	SD	Variance	Min.	Max.
Girls							
Grade 10 (2013)	DP = 12	8.3	3	9.8	96.6	0	42
Grade 11 (2014)	DP = 8	31.2	20.5	27.3	746.5	4	82
Boys							
Grade 10 (2013)	DP = 12	22.5	21	12.4	155.5	0	42
Grade 11 (2014)	DP = 8	25.1	17	24.1	584.1	2	78

DP = number of data points

The results for the girls indicate a strong decrease in the average number of days absent per month during the year the intervention took place when compared to the average number of days spent absent in 2012 (baseline data from table 1). The mean in 2013 is 8.3, while $m = 29.7$ in 2012. However in 2014 the average increases and surpasses the baseline average, $m = 31.2$. The results indicate that the intervention was successful

during the year of implementation (2013) but the effects were not long lasting as the absenteeism scores reverted to similar levels as seen in the baseline data.

The average number of days spent absent per month has declined for the boys from 30 in 2012 to 22.5 in 2013 but increased in 2014 to 25.1. This is lower than the average for the girls in 2014. It is clear that for both groups absenteeism did increase during 2014 as noted by the maximum which represents the total number of days absent over the 8 month period, 82 for girls and 78 for boys and is supported by the large standard deviation (27.3 and 24.1 respectively). It is unclear what lead to the increase in 2014.

Figure 6 is a time-plot graph of the absenteeism data for the intervention period (2013 – 2014). It depicts the average number of days absent for both the experimental group (girls – the blue line) and the non-equivalent comparison group (boys – the green line).

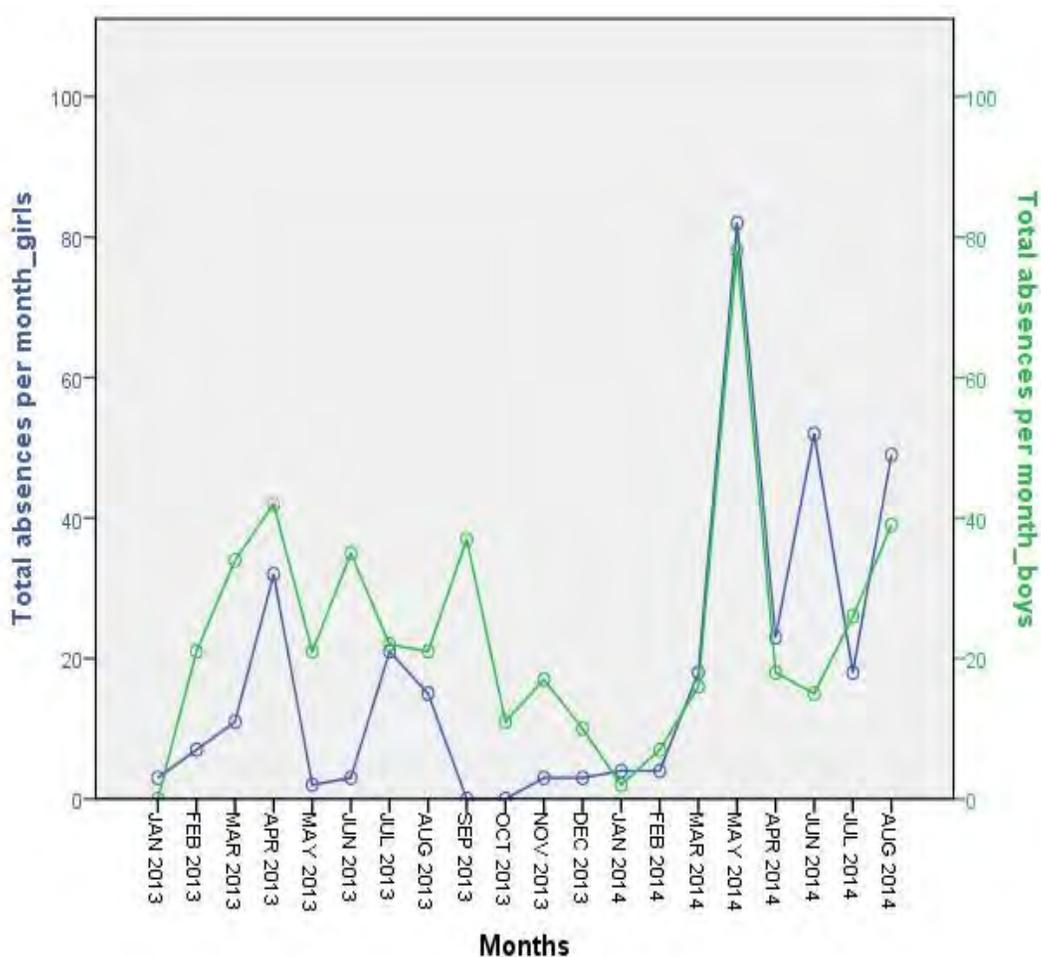


Figure 6: Time plot of intervention absenteeism data 2013 - 2014

The graph supports the findings as displayed in table 2. The experimental group’s average

number of days absent (blue line) is lower than the non-equivalent comparison group's average (green line) for 2013, with the exception of January. Thus the programme's success in 2013 is clear as there was a large drop in absenteeism amongst the experimental group. In 2014, however, we see that the experimental group's average is higher than the non-equivalent comparison group's for all the months except February. Both groups experience a spike in May of 2014. The other results do not form any recognisable pattern or conform to preconceived ideas of when larger absenteeism figures would be logical, such as periods after examinations or seasonal changes. For example, examinations take place in June, and in 2013 the experimental group has a low absenteeism average but the non-equivalent comparison group has an increase in the average number of days absent for that month. A similar trend is found for the groups in November and December when the final examinations take place. The inverse is true in 2014 where the experimental group has a higher absenteeism average in June than the non-equivalent comparison group. The data does not form a discernible pattern when graphically depicted.

Evaluation question 2: How big was the effect of the intervention during the year of implementation?

This question looks specifically at the size of the effect that the programme caused in the participants in 2013 when they were in grade 10. The mean number of days absent according to the baseline data was 29.7. The experimental group decreased their average to 8.3 days per month during the year the intervention was implemented (2013). This is a difference of 21.4 days per month.

Evaluation question 3: How long did the effects of the intervention last?

The average number of absences amongst the experimental group does decrease during 2013, the first year of the intervention ($M = 8.3$) but it increases in the second year of the intervention ($M = 31.2$). Therefore the effects of the intervention lasted for one year, the year during which the intervention was implemented.

Evaluation question 4: Is there a relationship between school attendance and school performance?

To accurately answer this question Pearson's correlation analysis was conducted to ascertain if there is a linear correlation between the two variables. If the result of this analysis reveals a score close to 1, whether it is negative or positive then a simple regression analysis will be conducted. The aim is to establish if the number of days a girl spent absent from school each month can accurately predict the experimental group's performance on their June and December examination results for the corresponding years. If the result of the correlation analysis shows a poor correlation, a logistic regression will be selected instead to calculate the probability of a relationship existing between the two variables (Field, 2013). The desired result from the regression analysis is that there is an inverse relationship between absenteeism and school performance. In other words, the fewer days spent absent would result in better school performance.

While the data from the non-equivalent comparison group is used to create a broad understanding of the overall scholastic performance of the cohort over the three year period, their data is not included in the regression analysis. In other words, Pearson's correlation and the regression analysis (simple or logistic) only examines the experimental group's performance.

Firstly the descriptive statistics of the learners' performance data is displayed below beginning with their baseline data which is their grade 9 December results from 2012. The post-intervention data consists of their grade 10 December results in 2013 and their most current results for grade 11 (June results) in 2014.

3.2 School Performance

This section will focus on the analysis of the school performance of the learners and the final evaluation question.

3.2.1 Time plot of school performance.

Figure 7 is a time plot graph depicting a comparison between the mean overall school performance achieved in December 2012, December 2013, and June 2014 by all of the learners in the cohort. The treatment group's scores (Girls_Average) are visible along the Y axis on the left hand side in blue, while the non-equivalent comparison group's scores (Boys_Average) are visible on the Y axis on the right of the graph in green.

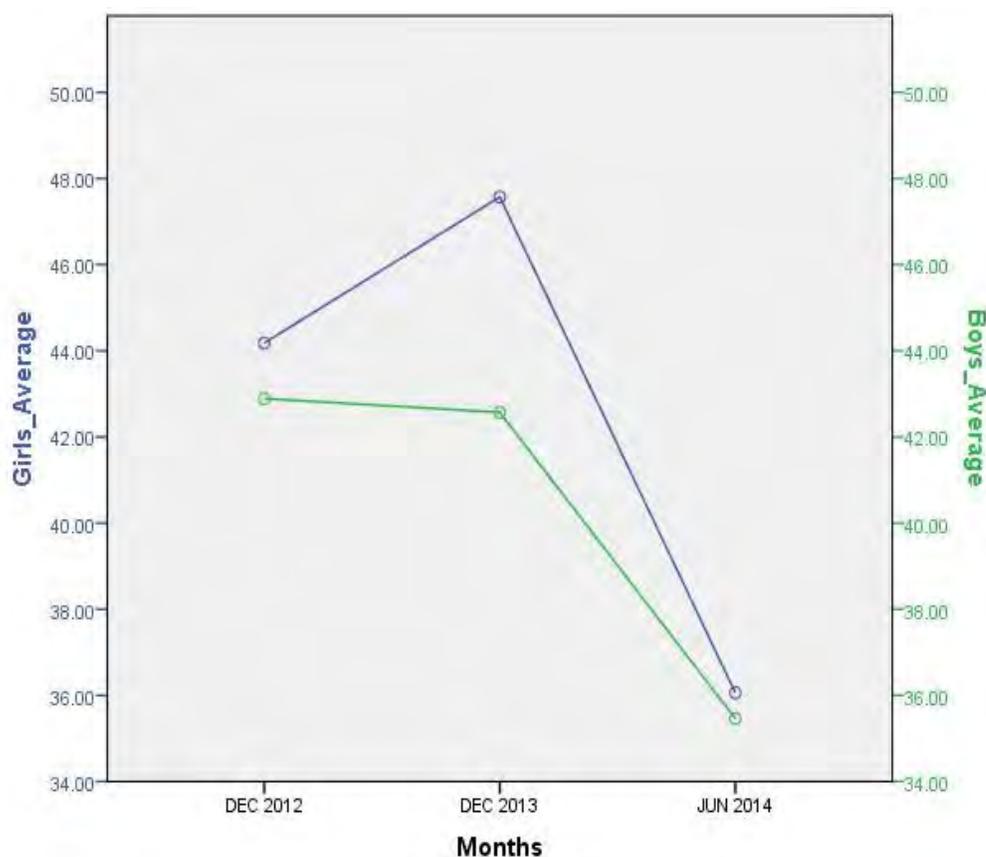


Figure 7: Time Plot of School Performance

The plot points on the graph above refer to the overall scholastic performance average score for each group (experimental and non-equivalent comparison). The scores were calculated by adding all of the average scores for each student and dividing it by the number of students in the group. These are the results that appear on the end of term report in December 2012 (grade 9), December 2013 (grade 10), and June 2014 (grade 11). The graph shows a clear increase in performance for both groups at the end of grade 10 and then a decline in school performance in June of grade 11. The experimental group outperformed the non-equivalent comparison group at all three points.

3.2.2 Baseline Data.

The table below highlights the mean school performance of the groups in December 2012. The table includes the overall average (mean) score for all of the participants according to their group (girls and boys), the median score, the standard deviation (SD), the level of variance, and the minimum (Min.) and maximum (Max.) results at the end of grade 9 (2012).

Table 3

Baseline Data for School Performance (2012 – Grade 9)

		Mean	Median	SD	Variance	Min.	Max.
Girls	N = 70	44.2	44	5.6	32.1	27	64
Boys	N = 77	42.8	42	6.2	38.6	24	63

The results in table 3 above indicate that the girls (experimental group) performed 1.4% better than the boys (non-equivalent comparison group) at the end of grade 9. Of the total combined sample size (N = 147) 5 learners did not progress to the following grade.

3.2.3 Intervention data.

The first set of intervention data that was provided was collected a year after the baseline results during the year of implementation (December 2013) and the second set of data collected was six months after that (June 2014). The sample size is different at each data point due to learners being held back, transferring to other schools or dropping out completely. From the data available it is only possible to comment on those who were held back and those who returned to repeat the grade. At the end of 2012, 5 learners were held back. The learners who progressed to grade 10 in 2013 were joined by 77 students who were repeating the year, and at the end of the year 94 learners failed to progress. In 2014 the new

grade 11 class was joined by 7 students who had returned to repeat the grade. Over the 2 years 26 learners transferred in from other schools.

Table 4 illustrates a comparison of the mean school performance results for both groups in December 2013 (grade 10) and June 2014 (grade 11). The table includes the overall average (mean) score for all of the participants according to their group (girls and boys), the median score, the standard deviation (SD), the level of variance, and the minimum (Min.) and maximum (Max.) results. The table is sorted according to group (girls and boys) and then by the date of the examination results – December 2013 (grade 10) and June 2014 (grade 11).

Table 4

Grade 10 and 11 Data for School Performance

		Mean	Median	SD	Variance	Min.	Max.
Girls							
Grade 10 (December)	N = 97	47.5	47.4	10.3	106.8	23.5	86.5
Grade 11 (June)	N = 77	36	34.8	9.2	84.7	0	63.5
Boys							
Grade 10 (December)	N = 116	45.5	40.8	13.2	176.2	14.7	84.6
Grade 11 (June)	N = 65	35.4	35	8.6	74.1	22.2	61.1

The data reveals that the girls (experimental group) performed better, on average, in comparison to the boys (non-equivalent comparison group) by 2%. The results for both the experimental and the non-equivalent comparison groups increased from December 2012 to December 2013. The overall average increased by 5.3% for the experimental group and 2.7% for the non-equivalent comparison group. The upward trend displayed from the first two scores changes in grade 11 (June 2014) where the overall average for school performance declines by 11.5% for the treatment group and 10.1% for the control group. The maximum scores in both groups drop by 23% and 23.5% respectively. The small standard deviations for both groups indicate a larger concentration of scores closer

to the median score of 35%. This means that there are fewer extreme scores and the majority of students achieved scores in this range.

3.3 Correlation between Absenteeism and School Performance.

In order to apply Pearson’s correlation analysis the data must be in an interval or ratio format, the data should be normally distributed and the data should form a relatively straight line. The correlation analysis will examine the strength and direction of the relationship between the two variables. A strong correlation will result in the score for r being close to 1, whereas a weak score would result in r being close to 0. Table 5 below depicts the results of the correlation analysis.

Table 5

Pearson’s Correlation Analysis between school performance and total absenteeism per month

		Pearson Correlation (r)	Significance (1 – tailed)
School performance and Total Absenteeism per month	N = 192	.14	.426

The analysis was performed in order to ascertain whether or not it would be possible to perform a regression analysis which is a stronger method of statistical analysis. The result of the analysis is that $r = 0.14$ indicating that there is no correlation between the total number of absences per month and school performance. The score indicates that there is no linear relationship between the two variables and as a result a linear regression analysis cannot be performed. Therefore a logistic regression will be performed

3.3.1 Logistic Regression.

The requirements for a logistic regression include a normal distribution of the data, independent observations, and the outcome variable must be in the form of categorical data (Field, 2013). The first two requirements were met, but the outcome variable data needed to

be transformed in order to meet the third requirement. Thus the school performance data of the experimental group had to be transformed into categorical data. The data was re-coded 1 if the participant scored lower than 35% and 2 if the participant scored higher than 36%. The cut-off score (35%) was selected as it was the lowest common overall average scored for both groups. Despite being the lowest overall average, it was also the median score and therefore not an outlying score.

The null hypothesis states that the probability of a relationship existing between the two variables is unlikely. The alternative hypothesis states that the probability of a relationship existing between attendance and school performance is likely.

Below is a table of the summary of the logistic regression results. Table 6 contains the beta value, the odds ratio (probability score) and the upper and lower confidence levels in which the score is found. The table also includes the Wald statistic and the alpha level (p). R^2 is the calculated effect size.

Table 6

Logistic Regression Predicting the Probability that a Relationship Exists Between Absenteeism and School Performance

Variables	95% CI for Odds Ratio			Wald	p	
	B	Lower	Odds			Upper
Constant	1.51		4.557	47.4	.00	
Absenteeism and Performance	.03	.94	1.040	1.14	.618	.43
R^2	.004					

Table 6 contains the results from the logistic regression analysis that aimed at predicting the probability of an inverse relationship existing between absenteeism and school performance. The analysis was calculated using a confidence interval of 95%. Thus within the 5% margin, the probability of alternate hypothesis being true and a relationship existing is 1.04. The

Wald statistic is used to ascertain whether or not beta (b) is significantly different from zero. The analysis shows that beta is not significantly different from zero ($b = .03$) and this is not a significant result because alpha is greater than .05 ($p = .43$). The Wald statistic is less than 1 and therefore not significantly different from zero and as a result it must be accepted that the predictor variable is not making a significant contribution to the prediction of the outcome variable.

Finally the effect size (R^2) is 0.004 and was calculated using the model chi-square. Given that the score for R^2 is so close to 0, the predictors of the model do not predict the outcome variable and there is no relationship between attendance and school performance.

Due to the fact that all of the relevant results produced by this analysis are not significantly different from zero, that the alpha level is greater than .05, it must be concluded that probability of absenteeism predicting school performance in the experimental group is unlikely. Therefore the null hypothesis (unlikely probability of a relationship existing) must be accepted.

Question 5: Was there an increase in school performance during the year in which the intervention was implemented?

The data reveals that both groups performed better in 2013 (the year of implementation) but the experimental group outperformed the non-equivalent comparison group. The experimental group increased their overall average score by 3.3% within a 12 month period.

Discussion

The main objective of the Always Keeping Girls in School programme is to ensure that menstruation (by providing access to sanitary products) is not a barrier that stops girls from attending school regularly. The work conducted by Oster and Thornton (2011); Grant, Lloyd, and Mensch (2013); and Montgomery et al. (2012), amongst others, have clearly identified menstruation and a lack of access to sanitary products and sanitation as problematic for school girls in underprivileged areas globally. Devnarain and Matthias (2011) completed a study regarding these issues at a school in rural KwaZulu-Natal, South Africa. Given the close proximity of the school in their study and the school that participated in this evaluation (both located in KwaZulu-Natal), the issues that are raised in Devnarain and Matthias's study provides a useful contextual understanding for this evaluation.

The focus of this outcome evaluation centered firstly on the ability of the intervention (outputs and provision of sanitary products) to decrease absenteeism in the programme's participants. The second aspect of the evaluation is to identify if participating in the Always Keeping Girls in School programme had a positive influence on the scholastic performance of the learners in the experimental group.

The second aspect discussed above is one of the assumptions found in the programme theory of the Always Keeping Girls in School programme. Studies such as those by Roby (2003), and Marburger (2006) have been conducted to identify a relationship between attendance and scholastic performance, particularly at a tertiary education level where class attendance is often not compulsory as it is in high school (Stanca, 2006).

This discussion chapter will firstly consider the role of the programme's theory in the design and implementation of the programme and how it contributed to the results that the data produced. Following that, the results of each evaluation question will be discussed individually.

4.1 Programme theory

The programme theory was developed using information from the programme manager and the existing programme documents. However this is insufficient, particularly if extraneous variables are largely influential on the ability of the intervention to achieve its desired outcomes as is the case with this intervention. It is essential to include the view points of the implementers, programme facilitators and, if possible, the participants (Funnell & Rogers, 2011). Their insights into the lived reality of the programme and those who engage with it is invaluable to the way that the programme will be evaluated, even if the implementation of the programme is done with fidelity and strength. These stakeholders are able to shed light onto supporting and conflicting external factors that have influence and are able to provide context to anomalies found in the data. Without a clear grasp of the external factors that influence the behaviour of the participants (in both the experimental and the non-equivalent comparison group) it is difficult to fully explore the implications of the results found in the analysis.

The programme theory outlines the recruitment process for the schools and the learners attending the selected schools. The targeted schools are quintile 1 schools (these are 'no fees' schools and are located in, and serve underprivileged areas). Once a school meeting this criteria has been recruited, the school staff will identify potential candidates who they feel could benefit from the programme based on a criteria that includes home situation, vulnerability, absenteeism trends, and the need for scholastic motivation.

The participating school that was recommended for this evaluation was not a quintile 1 school, but rather a quintile 3 school. This is an implementation failure because the incorrect population has been targeted and served. This population may not experience the problem that the intervention is trying to solve and therefore it will be difficult for the intervention to be successful, particularly in the long term because it is not dealing with the real problem that this population faces. Their real problem may not be access to sanitary products but rather access to adequate sanitary facilities as evidenced in the case study in KwaZulu-Natal (Devnarain & Matthias, 2011). Their study found that a lack of water and

adequate (clean) sanitation resulted in girls being unable to maintain their personal hygiene despite having sanitary pads (Devnarain & Matthias, 2011). Solving issues of inadequate sanitary facilities is not a part of the mandate of the Always Keeping Girls in School programme, but it could undermine its ability to achieve its outcomes.

The second recruitment requirement was that the potential participants be identified by staff members according to a list of criteria that would determine eligibility. At the participating school all of the girls in the cohort were participants in the intervention. Because this is a quintile 3 school, the surrounding community is not as deprived as the community who lives near and attends a quintile 1 school. Therefore, while there are girls who fit the eligibility criteria, it is unlikely that all of the girls fit the criteria and are in need of the programme. If participants do not need the programme it is unlikely that it will have an influence on their behaviour. This selection of girls who fall outside of the intended target population could lead to a distortion in the results. All of the female learners in the cohort are participants and were placed in the experimental group, and a non-equivalent comparison group was created using the male learners who are in the same grade at the same school. The inclusion of the boys as a non-equivalent comparison group creates a broader contextual understanding of the size of the problem of absenteeism at the school. The non-equivalent comparison group performed the same function with regards to school performance.

4.2 Absenteeism

Evaluation Question 1.

The first question posed for this outcome evaluation is 'Is there a decrease in absenteeism amongst the participants of the AKGIS programme?' In order to answer the question the monthly absenteeism data of the participants and the learners in the non-equivalent comparison group was tracked over a 32 month period. This question dealt with the core objective that the Always Keeping Girls in School programme aims to achieve.

The baseline data showed that both groups displayed relatively similar behaviour with regards to absenteeism. In 2012 the monthly average for the experimental group was $m = 29.7$ and the monthly average for the non-equivalent comparison group was $m = 33.5$. During 2013, which was the year in which the intervention was implemented, both groups experienced a decrease in the average number of days spent absent but it was the experimental group that displayed a real decrease. Their mean decreased to an average of 8.3 over the 12 month period. Despite the dramatic decrease, this score is an average for the 12 months. Looking at the time plot graphs (figures 6 and 7), they depict the decrease for the experimental group for the period of 2013 but it is not a gradual or steady decrease, rather there are peaks and drops throughout the period.

In 2014, the year after the intervention was implemented; both the experimental and the non-equivalent comparison groups experienced an increase in absenteeism. The experimental group's average increased to 31.2 over a period of 8 months, whereas the non-equivalent comparison group's average increased to 25.1. During the third year the experimental group managed to display higher absenteeism level (in comparison to the non-equivalent comparison group) despite continuing to receive sanitary products from the programme.

Evaluation question 2.

The second evaluation question with regards to absenteeism is 'how big was the effect of the intervention during the year of implementation?' Even though the research design selected for this evaluation is a time-series which focuses on the medium to long term outcomes of the Always Keeping Girls in School programme, this question is relevant because it focuses on the year during which the full intervention took place as opposed to the following year in which only the sanitary pads are distributed but the other elements such as the workshops and activities are not repeated for the cohort. Thus this question is aimed at finding an effect during the time period when the full intervention took place.

An additional factor that could possibly have contributed to the success the programme experienced during the first year of implementation is the pledge that the participants signed

at the onset of the programme. The psychological effect of being chosen for and associated with the programme may have had an effect on the behavior of the girls. However that effect could have waned in the second year when there are no activities present.

The mean number of days absent according to the baseline data was 29.7. The experimental group decreased their average to 8.3 days per month during the year the intervention was implemented (2013). This is a difference of 21.4 days per month. Thus the intervention had a positive effect on the behaviour of the participants in the experimental group during the year of implementation.

Evaluation question 3.

The third evaluation question is ‘how long did the effects of the intervention last?’. The aim here is to ascertain if the effects of the intervention have longevity. Due to the structure of this intervention, this question sheds light onto the value of the various aspects that take place. The results of the analysis indicate that the provision of sanitary products alone to the participants in the experimental group is not enough to influence how often they are absent from school. The combination of the workshops, activities and sanitary products did have an effect on their behaviour.

The average number of absences amongst the experimental group does decrease during 2013, the first year of the intervention ($M = 8.3$) but it increases in the second year of the intervention ($M = 31.2$). Therefore the effects of the intervention lasted for one year only, the year during which the intervention was implemented.

The results found from this analysis are in line with the results found by Oster and Thornton (2011) in their study in Nepal, and with Grant, Lloyd, and Mensch’s 2013 study. Despite having a large number of girls sign up for and use their sanitary product, Oster and Thornton’s analysis found that the intervention had no effect on the behavior of the participants. They concluded that menstruation itself was not the main reason why girls exhibited high levels of absenteeism and therefore their intervention was ill-equipped to

solve the problem of absenteeism amongst school girl (Oster & Thornton, 2011).

The research conducted by Grant, Lloyd, and Mensch (2013) is the most similar to the outcome evaluation being conducted as they also compared girls and boys to gain better insight into gendered trends of absenteeism. The results found during the statistical analysis for the evaluation came to the same conclusion, that girls are not significantly more absent from school than boys according to the baseline data in 2012. The other similar finding between the evaluation and the research by Grant et al (2013) is that education about puberty and personal hygiene can positively influence attendance levels (when considering the decrease in the average absenteeism for the experimental group during 2013). The importance of education about puberty and personal hygiene, such as is delivered by the Always Keeping Girls in School programme through the activities and workshops, is supported by the findings of Montgomery et al (2012), and Sommer (2006).

The results indicate that the intervention has the ability to decrease the number of days girls spend absent from school on a monthly basis only when the participants are receiving both sanitary products and puberty related knowledge. The data revealed that regular access to sanitary products alone (which is the format of the intervention during the second year - 2014) is not enough to influence the behaviour of the participants.

Due to the fact that the absenteeism rate increased so dramatically in 2014, the role of external factors influencing absenteeism must be accepted. Devnarain and Matthias (2011) identified access to water, adequate sanitation and distance travelled to school as external factors that act as barriers to education for girls. Distance travelled to school could be a real factor to consider when reading the results of this evaluation because even though the school is quintile 3 (which is not in line with the requirements listed in the programme theory); the programme staff felt that the girls were eligible for the intervention. Thus despite it being a school in a better area, there is the possibility that many of the students have to travel quite a distance each day as they are in search of a better education which they may not receive at the school located closer to their home.

4.3 Absenteeism and School Performance

Evaluation Question 4.

The fourth evaluation question looks to find a relationship between absenteeism (predictor variable) and school performance (outcome variable). In other words, does being present in class directly influence how well one performs during examinations and assessments?

The results of the Pearson's Correlation analysis indicate that there is a weak but positive relationship between the two outcome variables ($r = .14$). The result also established that there is no linear relationship between the variables which meant that the data was not suitable for a linear regression analysis to be conducted. Therefore the data for school performance was transformed into categorical format so that a logistic regression could be performed. The result of this analysis was that there was a very small probability (1.04) that the variable absenteeism made a significant contribution in predicting the school performance of the participants.

Ultimately this means that being present in class has very little influence over the scholastic achievements and performance of the participants in the experimental group. This is supported by the fact that the boys overall school performance average was only 2% lower than the girls during 2013 even though they were absent from school significantly more than the female learners.

Evaluation question 5.

The fifth and final question of the outcome evaluation is 'was there an increase in school performance during the year in which the intervention was implemented?'. This question is specifically focused on the performance of the learners during 2013 when they were in grade 10. The overall mean performance score for December 2013 was compared to the overall mean performance score for December 2012.

The data reveals that both groups performed better in 2013 (the year of implementation) but the experimental group outperformed the non-equivalent comparison group. The experimental group increased their overall average score by 3.3% within a 12 month period. The performance score for 2013 was only a marginal improvement on the previous score in

comparison to the size of the decrease in absenteeism over the same period of time. The non-equivalent comparison group experienced an increase of 2.7% between December 2012 and 2013 despite only decreasing their absenteeism by 11 days per month on average.

The findings to questions 4 and 5 do not correspond with the existing literature available regarding the relationship between attendance and school performance. The studies completed by Stanca (2006), Daniel (2006), and Roby (2003) all find that a decrease in absenteeism will ultimately lead to an increase in scholastic performance and results. But this evaluation found that there was only a small probability (1.04) that attendance influenced school performance.

The results from the evaluation's analysis indicate that despite the large decrease in the average number of days spent absent per month, as was the case with the experimental group in 2013, the size of the increase in performance was not proportional. This is explained by the fact that the decrease in absenteeism was not a steady trend; rather there were months where absenteeism was high and months where it was low. When considering this with the fact that the June results were not available for 2013, it is understandable why it would be difficult to find a relationship between the two variables. More data points for school performance would have created a fuller understanding of the scholastic situation in the experimental group.

The second reason why no relationship was found between absenteeism and school performance is found in the data for 2014. Both the experimental and the non-equivalent comparison groups experienced increases in absenteeism and both groups performed poorly on their June examinations. Thus the trends that were being developed in the previous year were undermined. When looking at the time plot graphs (figure 6 and figure 7) it is clear that there is no overall linear trend for either variable over the 32 month period that this evaluation is considering.

4.4 Limitations of this Evaluation

The research method used to conduct this evaluation was not a true experiment as participants were not randomly selected and assigned to either an experimental or non-equivalent comparison group. Rather the evaluation was conducted post-hoc using existing data. Being able to construct the entire experiment from the beginning (even if a random control trial was not the method selected) would have allowed for the best quality of data to be collected including pre-intervention and baseline data. The high school that participated in the evaluation was recommended, not randomly selected, and as a result the school did not meet the recruitment requirements as set out in the programme theory.

A second issue was that all of the girls in the selected cohort fell into the experimental group and as a result there was no true control group against whom the participants could be compared. A non-equivalent comparison group was created, consisting of all of the boys in the cohort. Even though their absenteeism data could be compared, the possible reasons for being absent from school are not likely to be similar. The comparison group would need to be selected from the same school so that both groups were exposed to the same conditions and influential factors.

The biggest threats to the internal validity of this study are selection bias and attrition. If enough of a similar type of participant from a certain group (e.g. girls who are the most frequently absent from school in the control group) drops out or transfers to a new school (attrition rate), this could skew the results and diminish the effect size of the intervention. Selection bias could also be caused by the fact that the school has recommended participants for the intervention according to a combination of their own criteria, and criteria set by the programme staff. The schools may show favouritism towards certain learners and pass over other learners who are more deserving or have a greater need for the intervention (Rossi, Lipsey, & Freeman, 2004).

These threats could undermine the ability of the study to deliver accurate and reliable results.

The data analysed for the evaluation of the programme was provided by a school that is classified as quintile 3 and not quintile 1 as is a requirement in the programme theory. Even

though schools who are classified as quintiles 1, 2 and 3 are all 'no fees' schools, they differ in the size of financial support provided by the government; with quintile 1 schools receiving the largest amount of financial support per child (Grant, 2013). This is problematic because some of the participants in the experimental group may not be as deprived of resources as participants who attend a quintile 1 school may be. They may not be as reliant on the free supply of sanitary products thus their reasons for being absent may not necessarily be linked to menstruation and access to sanitary products. Even though it is still a no fees school, this is not aligned with the eligibility requirements of the programme. One of the criteria for school quintiles is the economic context of the community in which the community is based (Grant, 2013). Thus while there are female learners at the school who are in need of the programme, this may not be true for all of the female learners. Including learners who do not fit the target population may skew the results because they do not exhibit the desired behavioural change because they do not experience the problem that the intervention is designed to solve. This calls into question the level of fidelity with which the intervention has been implemented. With the amount of information available at hand it is not possible to judge whether or not the programme is relevant to the needs of the female learners at the school in question. It is up to the programme staff and teachers to ensure that they are selecting girls who would benefit the most from the programme.

The final limitation to the evaluation is the use of June and December results only to assess the performance of the students. The comparison of June and December results across different years is not a true comparison. To truly understand the results it is important to consider any curriculum changes that may have occurred, access to textbooks, changes in teaching staff, and general trends reflecting the achievements of students at this level over the years or at other schools. Without engaging with the teaching staff and students there are many unanswered questions that have an impact on the results found.

Due to the location of the school and the timeframe given it was not feasible to travel to the school to be able to interview the principal, teachers, and learners. These interviews would have provided a substantive explanation for the behaviour of the two groups. This

information would have allowed for the triangulation of the results

4.5 Programme Recommendations

Based on the findings of the evaluation, the following recommendations are suggested to improve the ability of the programme to influence a behavioural change in its participants.

The first recommendation is to conduct a short baseline questionnaire at a potential school to ascertain that absenteeism amongst girls is in fact due to a lack of regular access to sanitary products. While providing products is important to ensuring better hygiene, self-esteem and dignity in girls, the provision of pads is not a targeted outcome for the programme to achieve. There are many other menstruation related problems that could be the cause of the absenteeism such as access to adequate sanitation and water, distance and time spent travelling between home and school, dysmenorrhoea and access to medication (South African Human Rights Commission, 2014). These are not problems that the programme is designed to solve, but could lead to the programme seeming ineffectual.

The second recommendation is to continue the workshops and activity that are available to participants during their first year being involved in the programme. The data shows that absenteeism increased during the second year. The only difference between the first and second years is the absence of the workshops (in the second year). Providing the participants with the space and opportunity to talk, ask questions and offer support was seen as valuable, thus continuing this practice could only be positive. These sessions do not need to be formal or compulsory but the potential benefits should not be overlooked.

The third recommendation is to conduct site visits. Site visits to a participating school would have been beneficial to understand what external factors may influence the results of this intervention such available sanitation infrastructure, and resources the school provides to the learners. Visiting the school would also have allowed for interviews and hold engagements with the teachers who implement the programme to gain insight into their

understandings and perceptions of the real problems that the learners face with regards to menstruation and absenteeism, and how they implement the programme. No site visits could be conducted because there are no participating schools in the Western Cape.

Being able to visit the school may have allowed for the better collection of data as the examination results for June 2012 and 2013 were not provided. Collecting the data in person would have saved time and effort, particularly of the school's principal and staff members who assisted in the process, and would have resulted in all the data being available for analysis.

The final recommendation is to create specific short-term performance targets for each school. In order to successfully implement this there must be a strong communication system between the programme staff and the teacher coordinator, especially during periods of heightened absenteeism. Highlighting these periods and the reasons behind them will isolate whether or not it is something that the programme can assist with. This information along with the attendance records and performance results would make it easier to test for real successes and failures. The choice of short-term performance targets would allow for other influential problems, which are obstacles to success of the programme, to be contained and dealt with before they become overwhelming to handle.

Conclusion

This evaluation has brought about mixed results which are only applicable to the school that has been evaluated. The results are not a true reflection on the effectiveness of the programme as a whole because only one school was evaluated and the programme was not implemented with fidelity at the school. The programme is able to deliver the desired behavioural change in the participants but it is unable to bring about sustained change. The programme did not have a positive influence on school performance as was the assumption based on the findings in the literature (Stanca, 2006).

The intervention was successful during the first year of implementation when the full programme was on offer to the participants. Thus the intervention is able to bring about the desired change in participants. This is similar to the findings by Montgomery et al. (2012) whose study confirmed that education alone was sufficient to bring about a behavioural change in the participants (Montgomery et al., 2012)

During the second year (2014) both groups showed an increase in absenteeism despite the fact that the participants were still receiving sanitary products. As was the case in the Oster and Thornton (2011) study, the effect size of this intervention was almost negligible during this period and as a result the programme did not cause a long-term sustainable effect on its participants (Oster & Thornton, 2011). Oster and Thornton's intervention provided participants with only the sanitary products and is therefore comparable with the findings from the second year of the intervention.

Finally there was no direct relationship found between the average number of days spent absent and school performance for the experimental group. This finding contradicts what was found in the literature and is as a result of the increase in absenteeism and poor scholastic performance in 2014. This finding is further supported by the fact that the programme was unable to positively influence the participant's school performance. The experimental group did outperform the non-equivalent comparison group academically but

the difference was only 2% despite showing a much larger decline in absenteeism than the non-equivalent comparison group.

This evaluation was completed using the minimum amount of data required and as a result could not provide a contextual understanding and reasons as to why the programme could not deliver a sustainable behavioural change. Any failures identified can be related to issues with implementation as the programme theory has been tested and utilised by other similar interventions. Engagements with the staff and learners would have created a fuller understanding of the situation and why the desired results were not achieved. The insight and information that can be gathered from these stakeholders could have contributed to more useful recommendations for the programme moving forward.

Despite mixed results that were found, the programme is able to achieve its main aim which is to assist participants in reducing absenteeism. The work being done by the Always Keeping Girls in School programme is essential in providing unprivileged girls with access to better sanitation, knowledge and ultimately dignity. In doing so, these girls have been given the opportunity to receive an education and a pathway to a better future.

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