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RESPONSIVENESS TO CHANGE AND CONVERGENT VALIDITY OF THE ACTIVITY PARTICIPATION OUTCOME MEASURE (APOM) IN ADOLESCENT MENTAL HEALTH CARE USERS

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Dissertation submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Master of Science in Occupational Therapy

Johannesburg 2016

DECLARATION

I, Sayuri Pillay declare that this dissertation is my own work. It is being submitted for the degree of Master of Science in Occupational Therapy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

Signature: ……..

Date: ……..

DEDICATION

A thank you to my parents who have been supportive and motivating through the process of me pursuing this degree. Thank you for always encouraging me to study further and keep working to achieve my goals.

ABSTRACT

There are limited valid and reliable tools which track change in the activity participation of adolescent mental health care users (MHCUs) during inpatient programmes. The Activity Participation Outcomes Measure (APOM) was developed In South Africa to track change in mental health care users.

The aim of this study was to examine the APOM's responsiveness to change with an adolescent population of MHCUs as well as the convergent validity between the APOM and the Emotional Profile Index (EPI).

The research design was a single subject ABA design. The study was done at the adolescent unit at Tara hospital. Weekly APOM recordings were done on 24 adolescents with a follow-up within six weeks after discharge. The EPI was done at admission, discharge and follow up. Data were analysed with descriptive and correlation statistics.

The results of the study showed good responsiveness of the APOM to changes in this adolescent sample. Convergent validity was only found on certain dimensions of the EPI.

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NOMENCLATURE

APOM: Activity Participation Outcomes Measure

AusTOMs: Australian Therapy Outcomes Measure

COPM: Canadian Occupational Performance Measure

EPI: Emotions Profile Index

HoNOSCA: Health of the Nation Outcome Scales for Children and Adolescents

MDT: Multi-Disciplinary Team

MHCU: Mental Health Care User

UK: United Kingdom

Chapter 1: *Introduction*

1.1 Introduction

The adolescent group is a sensitive and often overlooked population. They do not fit into the child population group, with which they are regularly clustered together. Adolescence can be classified into various age categories, however according to most research the ages range from 10 until 19 years old. (Edberg 2009; Gentry & Campbell 2002; Stefan & van der Merwe 2008; WHO 2015) This is a developing group of individuals and as they transition into adulthood many factors influence their transition. (WHO 2015)

During the normal adolescent period there are specific influences that contribute towards their development and progression through this phase. These include environmental factors, such as the school and living situations, family and peer relations, which all play a role in providing either providing the risk or protective factors in their development. (Mulye, Park, Nelson *et al.* 2009) During the process of adolescence, an exposure to these environmental factors can support or impede their development, which can result in the presentation of reduced well being and put them at risk to developing psychiatric or physical impairments.

1.2 Occupational therapy for adolescents with psychiatric conditions

Adolescents with psychiatric conditions have impairments that influence their activity participation in everyday life. This necessitates inpatient treatment, which includes many disciplines, such as occupational therapy. Occupational therapy for these mental health care users (MHCUs) aims to establish a baseline level of functioning in each occupational performance area during assessment, in order to determine where to target therapy. These occupational performance areas

include work/education, leisure, social participation, basic activities of daily living and rest and sleep. (AOTA 2014) According to the Occupational Therapy Practice Framework, 3rd edition, education is defined as participating in activities for learning, within the environment that involves attending classes or completing various educational programs. (AOTA 2014) Leisure has been noted to be an activity that is internally motivated and self selected, which the individual find pleasurable. (Wegner 2011) Social participation has been described as organised patterns of behaviour, resulting in social interactions with different groups of individuals, including community members, family and peer relations. (AOTA 2014) Basic activities of daily living has been described as activities engaged in to take care of one's body, and sleep has been noted as being activities engaged in to obtain "restorative rest and sleep that supports healthy, active engagement in occupations." (AOTA 2014:20) All are vital components within the daily functioning of an individual, and MHCUs receiving occupational therapy need these areas to be addressed. Integration into everyday life would therefore be affected, should these not be addressed.

This rehabilitation process for adolescents with mental illnesses includes assessment of baseline functioning, the design of an appropriate intervention plan, tracking their progress within the inpatient programme and assessment of final functioning before discharge. The follow up at the point of discharge is compared against the baseline assessment. This determines the progress and provides evidence of change in activity participation after receiving occupational therapy and other intervention while in hospital. Ideally, intervention should continue to a point where adolescents can manage appropriate tasks in all areas of occupational performance independently. When the MHCU is discharged, follow-up visits are done to determine if the occupational performance level has been maintained without the support and structure of the inpatient programme.

1.3 Assessment and outcome measures

There are numerous assessment tools and outcome measures available to determine level of functioning and track change during and after intervention. However few have been noted to be used within the adolescent population group that track change in occupational performance, specifically in mental health.

Assessment tools differ from outcome measures in the sense that it focuses on the individual person's abilities, strengths, problems and weaknesses. It is usually a detailed assessment in the beginning of the occupational therapy process. (Laver Fawcett 2007) Outcome measures are used to establish baseline functioning and to track change after intervention. Both are essential in the occupational therapy process, assessment providing the detail of the occupational performance while an outcome measure captures a summary of the problems. Outcome measures usually have a specific rating to establish a baseline and the track change over time.

Casteleijn developed the Activity Performance Outcome Measure (APOM), in collaboration with mental healthcare occupational therapists. Focus groups were held to identify domains and items for this outcome measure. Mental healthcare users were interviewed to gain a sense of what their expectations would be from occupational therapy. The APOM developed into having eight domains, with items representing each domain.

There are many assessment tools used within the multi-disciplinary team for adolescent assessment. One of these is the Emotions Profile Index (EPI). This assessment is in the format of a questionnaire and is based on a theory of emotions, as developed by Plutchik and Kellerman. The emotional component of an individual contributes greatly towards understanding a client holistically, especially within the mental healthcare setting. This personality questionnaire is a popular tool that provides an understanding of an individual's emotional

constructs. It too comprises of eight components, with a graphical representation of an individual's emotional profile. (Bucik 1983)

During the adolescent period, there is often a presentation of an increased emotional response and instability, together with heightened stress level. This is distinctly related to the change in the physical, emotional and social relations coupled with their performance in everyday life. This high level of emotional response therefore signifies the importance of the use of the EPI within this population group. (Jones 2005) At the research setting psychologists often referred to this tool as a valuable instrument, but a lesser used tool, with unknown reasons for this.

1.4 Healthcare setting for adolescents with psychiatric conditions

There are various settings where occupational therapists work with adolescents, which include the school environment, clinics and inpatient units. These MHCUs are assessed, with intervention programmes tailored for each adolescent according to the specific problems noted during their assessment. The assessment and intervention procedures have distinguishable areas, referred to as occupational performance areas (OPAS), which include the area of leisure, work, education, social participation, rest/sleep. (AOTA 2014) When in an inpatient programme, these assessments are done within a multidisciplinary team, with feedback being shared amongst the team members.

There are limited public mental healthcare inpatient services available within Gauteng. The inpatient adolescent programme at Tara the H Moross Centre, is one of three available programmes. Tara is a specialised psychiatric hospital, consisting of 4 specialised units of the child, adolescent, eating disorders and

psychotherapy units, in addition to biochemical wards. The hospital follows the Mental Health Care Act No. 17 of 2002 (South African Government 2002) in its admission and care of in- and out-patients. The hospital's services are divided into secondary, tertiary and quaternary levels of care, with the hospital receiving referrals from primary hospital settings, schools and also from private healthcare settings, with some mental health care users being referred once their medical aid funds have run out.

The admission criteria differ for each unit, depending on the conditions being treated. Within the adolescent unit specifically, the age groups range from 13-18 years of age, with a referral from a primary hospital needed. The conditions treated with the unit range from behavioural disturbances, suicidal tendencies, mood disorders, school refusal and problematic home environments to name a few. Each patient's length of stay differs depending on each individual case and extrinsic environmental support structures. A maximum of 10 MHCUs are admitted to the unit at any given point, with a larger female gender population. During their stay, the multidisciplinary team (MDT) is involved with each case and intervention comprises of an all-inclusive comprehensive programme (Appendix A). The majority of the MHCUs attend school, situated on hospital premises, for half the day from 9am to 12.30pm, followed by group and individual sessions from various team members. As these inpatients have extremely complex cases, it is crucial that the programme is tailored to address their most prevalent needs. Once the inpatients have stabilised during their inpatient stay, some adolescents are granted weekend pass outs, to visit their families. This time period out is extended towards the end of their inpatient stay, with longer time periods at home, especially over public holidays. Adolescents do return to the hospital for follow up sessions, if they fall into the surrounding catchment areas of the hospital. This follow up includes medication and therapy follow-up appointments and occurs as needed or stipulated by the treating healthcare workers. Those who do not fall within the hospital's catchment area are referred to a hospital closer to their residential area.

Occupational therapy at Tara targets participation in activities in occupational performance areas using both group and individual sessions. Groups comprise of life skills, social and leisure skills and most importantly work performance, related to educational activities (Appendix B). Group settings are more prevalent within the occupational therapy programme, due to the limited time available for all the disciplines. MHCUs are therefore seen in groups, with individual sessions used to address individual concerns if needed. During MHCUs inpatient stay, it is imperative to provide valid information regarding any changes in their performance, which would inform their activity participation once discharged.

When responsiveness of an individual to intervention is measured trends can be noted during and after the implementation of the intervention. There is however a lack of research into this field, as there is limited documentation on the change in activity participation and intervention procedures, especially within this adolescent group being studied. This information would therefore be valuable as a measure of the effectiveness of inpatient programmes within this population group, together with the amount of change that can be documented over the period of their stay.

1.5 Problem statement

There seems to be minimal evidence demonstrating objective and observable change in activity participation between admission and discharge in adolescents with mental disorders. In addition there are limited tools for the assessment process of this group, tracking change in their activity participation.

1.6 Purpose of study

The purpose of the study is to determine if the Activity Participation Outcome Measure (APOM) can measure and track change of activity participation in adolescent MHCUs in an inpatient programme inclusive of occupational therapy.

The purpose is also to determine whether there is meaningful correlations between the APOM and the Emotion Profile Index (EPI), an assessment of personality based on a blend of eight basic emotional dimensions or adaptive patterns of behaviour that allow individuals to successfully deal with challenges. Personality and emotional conflict have been linked to locus of control, success in school and self esteem , which all can have an effect on activity participation in adolescents. It would be vital to review which of the tools available for use with MHCUs are valid for the adolescent mental health care population and which would be able to measure the response of change in the activity participation.

1.7 Research question

What is the responsiveness to change and convergent validity of the APOM when used in an adolescent mental health care population?

1.8 Aim of study

The aim is to examine the responsiveness to change of the APOM with an adolescent population of MHCUs as well as the convergent validity between the APOM and EPI.

1.9 Objectives of study

The objectives of this research project are the following:

- To determine the responsiveness to change in activity participation according to APOM scores

- To explore factors related to change in activity participation according to APOM scores
- To determine the convergent validity between the APOM to the EPI

1.10 Justification

There is limited research into adolescent's progress and rehabilitation in their activity participation during inpatient admissions to psychiatric facilities. The results will therefore aid in providing and tracking progress of inpatient adolescents during the programme, with observable evidence of change in their activity participation. This will provide valuable input to the MDT on patients functioning through their admission period, forming an integral part in determining whether APOM is a valid tool in the assessment process of adolescent MHCUs. The EPI would also be useful in gaining an insight on the participants' personality structure, which would inherently affect their social participation. This information would be valuable and provide information on their interactions within the school and home environments, with information being available on their progress or lack thereof throughout the inpatient programme.

1.11 Organization of the dissertation

Chapter 1

This chapter described the introduction to the research topic, together with the problem statement and purpose of this research. The research question was stated and the aims and objectives of the study were described. The study has also been justified within this chapter.

Chapter 2

A review of the existing literature will be provided within this chapter, which will highlight the main presenting ideas of this population group, the factors impacting on their development, risk factors and impact on their caregivers and futures vocations. There will also be a presentation of the current research into the uptake of adolescents into mental healthcare facilities, together with the outcome measures used during intervention programmes.

Chapter 3

The research methodology will highlight the study design used and the research population chosen and sampling done, the measurement tools and research procedure. The data collection and data analysis will be discussed in this chapter.

Chapter 4

This chapter will discuss the results of the data collected. It is presented per objective of the study.

Chapter 5

Discussions about the results are covered in this chapter, similarities and differences with previous research are highlighted.

Chapter 6

This chapter includes the evaluation of the study, recommendations, and the final conclusion of this research study.

Chapter 2: *Review of Literature*

2.1 Introduction

The adolescent population group is one that is often overlooked or grouped together with those not matching their unique or exact criteria. It was therefore important to understand the various factors impacting on their development. This literature review has looked at the development of their cognitive, social and emotional components, and how all of these integrate within their life stages and tasks required of them in their daily occupations. This review will look at the types of development within the adolescent population group, risk factors involved and how adolescents enter into mental health care services. It will also look at the effect of an adolescent with mental health disorders on their caregivers, together with outcome measures used within the adolescent population group.

2.2 Types of development in the adolescent population group

Adolescents are a developing group of individuals, transitioning towards adulthood. According to literature, adolescents are characterised by their age, with early, middle and late adolescence being used in the distinction. This means that their age groups can vary from 15-19 years old, to some literature saying its 10-20 or 13-23 years of age. (Griffiths 2004) Early adolescence is classified as the period between 10- 14 years old, with middle adolescence being from 14-16 years old, and late adolescence from 17-19 years old. (WHO 2015; Gentry & Campbell 2002) This developing group therefore does not fit into either the child or adult populations, with a difference in their role careers.

Adolescents comprise a large portion of the South African population group and therefore it would be important to identify their specific needs and unique

differences. (Stefan & van der Merwe 2008) According to Statistics South Africa, the statistics are difficult to critique due to the overlapping ages, which classify youth as being a combination of the adolescent and young adult populations. This overlap also indicates that the working age within the country is quite broad, which increases the stressors on the adolescent population group and could impact on their mental health. (Statistics South Africa 2015) It has however been noted that the population group between 10-19 years of age comprises of 18.5% of the South African population. (UNFPA South Africa 2014) It is imperative to make the distinction and take note of key differences between the adolescent population groups within South Africa as compared to the rest of the world. As the South African population is diverse and complex, with many interwoven race groups, religions and cultures, each adolescent patient has a different and unique background and context that needs to be considered throughout intervention. (Rothon, Stansfeld, Mathews *et al.* 2011; Gentry & Campbell 2002)

There are numerous factors that contribute to assessing an individual, so that a holistic view is obtained of an individual's wellbeing. They can be defined in numerous ways, depending on the development of a multitude of factors. This includes physical, cognitive, emotional, and social development factors. It is imperative to consider the needs, environmental factors and abilities of each adolescent independently, especially across genders, as male and female development differ. (Stefan 2008; Rothon *et al*. 2011; Gentry & Campbell 2002)

During the physical development of adolescents, their bodies change, as they reach puberty. (Stefan & van der Merwe 2008) During this time, there is also a growth spurt, which begins earlier in girls than in boys. (Gentry & Campbell 2002) Sexual development occurs during this time period, which results in various structural changes to the individual's body, resulting in the need to be emotionally prepared for the changes. It has been felt that females are more unprepared

emotionally than males for certain changes that their bodies undergo physically. (Gentry & Campbell 2002) Physical appearance and body image during the time of adolescence plays an integral role in the level of confidence displayed within social contexts. Adolescents desperately want to conform to peer groups, whose acceptance and opinion is greatly valued during this phase. (Rothon *et al.* 2011) This involves conforming to specific dress codes, ideas of weight and eating patterns and social views. Male and females experience peer pressure regarding their physical development, however, the nature of the peer pressure differs. Males place more emphasis on physical and muscular development in order to transition to adulthood at a quicker pace. Most females, however, prefer to keep their smaller stature, so as to avoid being referred to as obese, and thus being different from their peer group. (Gentry & Campbell 2002) These physical factors in adolescent development play a vital role in the maintaining a healthy self esteem and positive relation within their environment.

During cognitive development of adolescents, their ability to think more abstractly and reason changes as compared to their previous developmental stage, although this process does take some time. (Stefan & van der Merwe 2008) Gentry and Campbell (2002) noted that there have not been significant differences in the abilities between genders, however girls have been noted to display increased levels of confidence compared to males in certain areas of functioning. It has been noted that some adolescents, across the genders, have poor decision-making due to impulsivity and reduced levels of judgement. (Fischhoff 1999) There is evidence that adolescents often use peer influence when making decisions in their daily functioning, due to the need to fit in with societal expectations. It has therefore been noted that adolescents more often than not require adult input into their decision making processes, so that these are well thought out instead of impulsive which could have negative outcomes as a result. (Gentry & Campbell 2002)

During the adolescent period, emotions can at times be characterised by extreme highs and lows, with little control in the display of emotional responses, together with defiant behaviour. (Raising Children Network 2014) An adolescent's emotional development also entails developing a sense of self, self esteem and being able to cope with stressful situations and the emotions associated with them. (Santrock 2001) Erikson proposed a 5-stage lifespan model, highlighting the importance of the adolescent period, as it was believed that a person's self identity develops during this time. It was also believed that an individual's personality structure develops in accordance and sequentially with each stage of the proposed psychosocial model. (McLeod 2013) The adolescent period is mainly defined within the fifth stage of identity versus role confusion, with emphasis being placed on the adolescent's exposure and experimentation to their new roles associated with this phase and the next of transitioning to adulthood. (McLeod 2013) It has also been noted that during this phase, adolescents who are pressured into fulfilling roles, which they have not chosen, may demonstrate an exaggerated emotional response and defiant behaviour. (McLeod 2013) Due to adolescents' improved ability to think and reason more abstractly, they are able to analyse their positive and negative qualities, therefore inherently developing a sense of self and contributing to their level of self esteem. Those individuals presenting with a lower self esteem level have been linked to displaying a lower mood or energy level, with reduced engagement within social settings, due to the fear of being judged by their peers. Self-awareness forms part of the emotional development of an adolescent. This would be important in identifying emotions in a daily context, as well as during conflictual and stressful situations. During these times individuals would need to identify the emotions displayed and would therefore need to cope and respond effectively. This period of development is therefore important in developing these skills and testing certain behaviours in response. (Gentry & Campbell 2002; Jones 2005)

As mentioned above in the cognitive, physical and emotional development, adolescence is an important period where social relations play an integral role in development. During the early adolescent phases, family relations play an important part on gender roles, and during the later stages peer relations play an integral part in social development. (Rothon *et al*. 2011) Relations with fellow peers provide an opportunity for adolescents to develop their sense of self and therefore self-esteem, together with enhancing their sense of acceptance when they conform to this group.

Peer relations often influence the types of activities engaged in, together with there being a difference noted between genders. It has been thought that males engage more in physical based tasks, whereas females engage more in conversation-based tasks. (Smith 1997) Some adolescents who struggle socially can display negative behaviours due to not fitting in with their peer groups. (Gentry & Campbell 2002) This is explored further in section 2.3.

The US Institute of Medicine (IOM) and the National Research Council (NRC) have a committee on the science of adolescence. (IOM & NRF 2011) This committee highlights the environmental factors that contribute to the holistic development of an adolescent. These factors influence an individual's experience during this transitional phase. This includes their family structure, taking note of any economic difficulties and conflicts either with or between their parents. Peer group relations, and the school and community environment contribute towards providing feedback to the developing adolescent. (IOM & NRD 2011)

These individual extrinsic factors play an integral role on the development of physical, cognitive, social and emotional factors and can also contribute to exposing risk factors to an individual's development.

As seen from the literature above, important and critical physical, cognitive, emotional and social development takes place during this adolescent time period. (Stefan & van der Merwe 2008; Rothon *et al.* 2011; Gentry & Campbell 2002; Schwarz 2009) These factors are inter-linked with one another, with consequences due to negative symptoms within each factor. It is therefore important to consider each of these factors when assessing an adolescent, as they present with unique features that develop during this phase, that are related to their environment and engagement within it.

2.3 Risk factors for mental health care

When looking at adolescent development, it has been considered that a variety of components need to be taken into account, so that they progress and transition effectively. In some cases there are disturbances in the development of these factors and there are extrinsic and intrinsic risk factors that can result in vulnerability to an individual's developing a good mental health status. (Fergusson 2002; Edberg 2009)

Some key factors to consider include family and peer relations, sexual orientation, exposure and use of substances, illness and performance within occupational performance areas, as well as environmental factors. (Rothon *et al.* 2011; Gentry & Campbell 2002)

Family and peer relations form an important part of the development of emotional and social areas of an adolescent's life. Familial risk factors include conflicts with parents, a negative family environment, which includes parents involved in substance abuse themselves, a lack of parental supervision and abuse within the family environment. (Alaska Division of Behavioural Health 2011) Should there be significant disruptions within these areas, these individuals are placed at risk

of having negative implications on their mental health, due to not fitting in with peer groups and not having the necessary support from both adults and peers during this time of continuous change. (IOM & NRD 2011)

This adolescent period is also noted as being a time for experimentation and transition from the early phases of life. Individuals therefore explore sexual behaviours and orientations, which again can be influenced by their environment and peers. It is during this period that some proceed to show interests in dating and start relationships. (Gentry & Campbell 2002; McLeod 2013) At the time of adolescents exploring their sexuality, sexual orientation comes into play, which is highly influenced by the societal demands and exposure to environmental factors. These all contribute to risk factors, as adolescents presenting with an insecure view of their relations would be at risk to having a reduced sense of self, making them more at risk of having reduced mental health. (Fergusson 2002; Edberg 2009)

During this time of transition and the need to conform to social settings, some adolescents can periodically engage in risk taking behaviours such as substance abuse of drugs and alcohol. Risk taking behaviour can put them at risk of physical disorders, coupled with possible emotional problems associated with early relations forming. This has a negative impact on the occupational performance areas of the individual as well as on their mental health, as there has been a link between various conditions and this behaviour. (Fergusson 2002) In a recent study conducted, in an impoverished community in Cape Town, Wegner *et al.* noted that boredom within the leisure performance area influenced other areas of adolescents' lives. Leisure is considered to be activities done during one's free time, which is purposeful, meaningful and chosen by the individual to engage in voluntarily. (Wegner 2011) It has also been considered that leisure time provides adolescents with the chance to develop their social

skills and sense of self. (Passmore 2003) Should there be a disruption in this leisure sphere and the adolescent either is bored due to unsatisfactory tasks available or choosing to spend the time unconstructively, they may seek out other means of occupying that time, namely by engaging in substance use. (Wegner 2011)

Extrinsic environmental factors, such as living conditions, poverty and hence the inability to access health care services, have been noted to have an influence on the frequency at which individuals present with mental health care concerns or disorders. This has been noted within South Africa and in other articles from different countries that these extrinsic factors contribute to the risk factors within the adolescent population. (Rothon *et al.* 2011) It has been stated that those within a lower socio economic status group have fewer amenities available to them. This therefore results in increased time being spent engaging in destructive behaviours such as substance use. (Rothon *et al.* 2011; Wegner 2011) Extrinsic environmental factors have been noted to add to possible risk factors in this population, especially having exposure to violent circumstances that could result in emotional deficits such as post-traumatic stress disorder or depression (Rothon *et al.* 2011; Alaska Division of Behavioural Health 2011) Woodward and Ferguson noted that there were direct associations between depression and the presence of difficult extrinsic and intrinsic risk factors. (Fergusson 2002)

As adolescents go through the period of transition, these risk factors play a key role in their development and possible risks for mental health care disorders. As they receive the feedback from the environment, it moulds their development within this context. Any significant presentation of the above-mentioned risk factors, results in altered activity participation level, impacting on the various occupational performance areas. (Gentry & Campbell 2002)The development and ability to cope with the presentation of these intrinsic and extrinsic risk

factors are imperative in reaching the full functional ability of each adolescent. If these risk factors are more prevalent, there is an increased likelihood that these would contribute towards possible mental health impairments. (Engel 2008)

2.4 Adolescents entering into mental health care services and multiservice organisations

As the developmental process of adolescents takes place and as a certain number of adolescents struggle to cope with the demands of the transition, there is a need for the utilization of mental health care services.

Adolescents develop new roles within this phase, developing their sense of identity and self esteem within the process. These roles may include being a sibling, scholar, fulfilling volunteering roles or being a boyfriend or girlfriend. Fouche & Wegner (2014) noted that even though some thought adolescence was a turbulent time, there are conflicting views that the majority of this population group transition through this phase with success. However, within the circumstances of each individual's exposure to various risk factors, their transition through this phase may be experienced in differing manners.

During the development, within the physical, cognitive, social and emotional components, disruptions can occur resulting in the need to seek out professional guidance. Disruptions come in many forms, for instance, reduced activity participation, which results in a disruption in school performance and interpersonal relations. Support and guidance usually starts off within the school context, through teachers, guidance counselors and parents, after which there is a referral to in- or out- patient care in order to best support the child and family involved. (Gentry & Campbell 2002) With the physical components and changes associated with puberty, which affect physical appearance and in turn body image, some adolescents struggled to cope with the changes, even with the

support of structures within their environment. Competencies within their cognitive development are also questioned, resulting in emotional difficulties such as a reduced self-esteem and interpersonal interaction. (Gentry & Campbell 2002; Fouche and Wegner 2014) All of these components, which have resulted in negative effects that have caused a disruption in the level of functioning of the individual, need intervention from a health care practitioner. (Fouche and Wegner 2014) The severity of the concerns may vary, and the extent of involvement of the practitioner may also vary as a result.

The presence of risk factors within an adolescent's context may differ, and their ability to cope and manage with these may differ as well. Wegner (2011) noted specifically that the presence of increased risk behaviour was taken in those adolescents exposed to having limited resources to engage in leisure time constructively. This was also noted in impoverished areas, due to the limited resources available to support activity participation. UNICEF had also documented that the presence of certain well-being indicators resulted in an increased participation in daily activities, which meant that there needed to be improved health access and education, together with an improved support services. (Edberg 2009) It has been noted that the more prevalent the risk factors are, the more likely it is that the adolescent is predisposed to mental health deficits, with a reduced sense of well-being. (Stefan & van der Merwe 2008; Rothon *et al*. 2011; Edberg 2009; Wegner 2011)

Taking into account the prevalence of these problematic developmental and risk factors that this population group is exposed to, it has been documented that there is a high prevalence of adolescents within the healthcare system within South Africa. Stefan and van der Merwe (2008) and Litt (1998) noted that the majority of the adolescents within the South African context are admitted and managed within adult units, and that this is not beneficial as paediatric teams had

shown a better understanding of the developmental process of an adolescent, resulting in more effective management.

In view of the complex needs that the adolescent patient requires, a multidisciplinary team approach, involving medical, allied health and parental figures would be imperative during the case management. This is due to complexity of cases, the transition factors in the development of the adolescent and the risk factors associated with their change. Collaboration between child and adult teams would also be needed, as the adolescent moves from the one developmental stage to the next. (Stefan & van der Merwe 2008) There has been evidence which suggests that there are advantages to the admission of adolescents, and even further advantages should these units be purely adolescent based. (Smith 2004)

Kohn, Hitch and Stagnitti (2012) noted that the average age that access mental healthcare services were 17 years old, which is part of the adolescent population group. This therefore supports the argument that these risk factors exist and coupled with the vulnerability of this stage of development, this group needs support and intervention. (Kohn *et al*. 2012)

It has been identified that there is a need for adolescent specific units within the South African context, to address the growing concerns and presentations faced by those exposed to a high level of risk factors and problems within their developmental process. (Stefan & van der Merwe 2008)

2.5 Effects of child and adolescent mental health on parents and their own future vocations

During times of the prevalence of mental health care deficits, there is not just an impact on the adolescents themselves, but also on their parents or family members. An employer's guide to child and adolescent mental health, 2009 suggested that impairments within the child and adolescent ages can increase medical expenses and decrease the outputs of their caregivers within the workplace. (Kraczkowsky 2009)

Adolescents who present with mental health care disorders may need inpatient or outpatient services depending on the severity of their condition. The need for either one of these alternatives results in costs incurred by the caregiver in a direct and indirect format. There is the cost of hospitalisation, either a full admission or visits in order to follow up with the necessary health care professionals. Another cost includes that of medication, should it be required. Travelling costs for the caregivers and participants, for their visits and also follow up appointments. As a direct result of the above-mentioned concerns, caregivers are often noted as taking time off work, resulting in a higher absenteeism rate. (Kraczkowsky 2009) Rosenzweig and Huffstutter (2004) said that there is a misconception that employees who have children with mental healthcare difficulties do not need to provide their children with the continued support, in comparison to other chronic medical conditions.

Due to the increased demands being placed on caregivers within this situation, they often have to reduce their working hours to care for their children, and as a result leave formal employment to reduce the work pressures and demands. (Kraczkowsky 2009)

There is not only an impact on the caregivers and family of those experiencing mental healthcare deficits, but also on those individuals directly. As mentioned

previously, it can be stated that there is a direct influence of risk factors on the development of an individual, which predisposes them to mental disorders. In order to have a well-balanced lifestyle, individuals need to have a balance between their work, leisure, and social and basic activities of daily living areas, their environmental factors, roles and motivational factors. (Schneider 2014)

During the adolescent period, this age group's main occupation is that of being a scholar, which entails attending school and developing their educational vocation. Within their scholastic vocation, adolescents are expected to attend school, develop their social skills and progress through each grade, in order to prepare them for tertiary education and formal employment. Those who are exposed to a high number of risk factors or those who have developed mental healthcare disorders have an increased rate of reduced academic performance, social isolation and exposure to substance abuse (Children and Families Subcommission 2003). Rouse and Hitch (2014) noted that there were clear benefits towards consumers attending occupational therapy services, which impacted on their future engagement within their adult lives.

Throughout this time of having exposure and presenting with these disorders, an adolescent's school occupation is not the only deterioration or performance area affected. Leisure and social skills have been a commonly noted to be affected by mental healthcare disorders. Passmore (2003) proposed that leisure contributes to the promotion of mental health with observable evidence that there is a link between constructive leisure engagement and mental health of an adolescent.

During these periods of mental healthcare deficits experienced by adolescents, it can be clearly seen that they are not the only individuals affected. Kraczkowsky (2009) identified the impact on family members and caregivers, who have work

related, financial and emotional demands placed on them during this time. The adolescent affected presents with decline in functioning, resulting in poor performance within their occupational performance areas. According to the research, there is substantial documentation identifying that adolescents are often under treated and those not receiving adequate treatment can have far reaching consequences such as scholastic decline, leading to future vocational difficulties with further effects on their social interaction and self esteem. (Kraczkowsky 2009; Rouse & Hitch 2014)

2.6 Impact of mental health problems on activity participation of adolescents

The APOM has been described as having eight domains. The process skills domain assesses the cognitive and executive functions, such as planning out a task, selecting the correct tools and materials and being able to pace and adapt performance. As noted by Stefan 2008, adolescents' ability to think and reason more abstractly develop during this phase. Developmentally their ability to decision make and their levels of judgement are poor due to increased impulsivity. (Gentry and Campbell 2002)

Communications skills refer to the exchange of information through both verbal and non-verbal methods and building social relations. During the adolescent phase peer groups influence the adolescents' social skills and behaviours. It has been noted that there is an increased need to conform to peer groups, which would therefore affect the communication skills displayed during this phase of development. (Alaska Division of Behavioural Health 2011)

Lifeskills are those skills, which an individual would need to independently cope within the community. Problem solving skills are assessed within this domain,

and adolescents have a tendency to make impulsive decisions when problem solving. (Gentry and Campbell 2002)

Role performance refers to the ability to meet demands of roles which the individual engages in, which forms part of their social identity. Gentry and Campbell (2002) noted that adolescents often use peer influence when making decisions in their daily functioning, due to the need to fit in with societal expectations. They therefore still need adult input to ensure that their decision making does not have negative consequences due to impulsivity.

Balanced life style refers to the roles, habits, and routines within all areas of an individual's life. Having a variety and balance between the occupational performance areas would be important for the developing adolescent. Leisure specifically provides them with the opportunity to develop their social skills, increase their roles and develop meaningful habits. (Passmore 2003)

Motivation is another domain within the APOM, which involves the desire to explore one's environment, believing in oneself and taking responsibility for one's actions. During this developing phase, adolescents require intrinsic motivational levels to engage within their environment, to explore various activities and roles, which they can engage in. This requires believing in oneself and showing an interest in the activity, which is beginning to develop within this phase. (Gentry and Campbell 2002)

Self-esteem refers to one's worth and evaluation of one's qualities. Within the literature is has been noted that girls tend to display increased levels of confidence compared to males in certain areas of functioning. (Fischhoff 1999) As this group of individuals begins to think more abstractly, they evaluate their

positive and negative qualities more, which also affects their level of self-esteem. (McLeod 2013)

Affect is the last domain of the APOM and is referred to as the expression of emotions, with a variety of emotions being present in a controlled manner. Within the adolescent phase, there is an extreme of emotions with high and low periods, with little control in displaying their responses. (Raising Children Network 2014)

From the literature and from the APOM, it can be seen that this outcome measure would be a good tool to detect changes or differences in development of the individual.

2.7 Outcome measures in Adolescents

Within the assessment context, there is a definite need for valid and reliable tools to identify a baseline level of functioning. Multiple countries have identified routine outcome measures as being of utmost importance as an effective means of monitoring the interventions provided. (Batty, Moldavsky, Foroushani *et al.* 2013; Trauer, Callaly & Herrman 2009) An outcome measure can be defined as a process of obtaining a defined, projected result of an intervention procedure. There is a process of obtaining a baseline level of function, planning an assessment procedure, which is then implemented, and an assessment is done to monitor the change in performance.

Throughout the literature, it has been identified that outcome measures contribute to providing meaningful feedback within each case, and also further validates the use of these programmes during inpatient admissions. There are multiple positive effects and barriers in the implementation of these outcome measures, which have been identified. When considering the positive effects of

using outcome measures, research has stated that the completion of these measures provide the client, clinicians and stakeholders with the necessary quantifiable evidence of trends in change, due to the intervention provided. (Hall, Moldavsky, Baldwin *et al.* 2013; Huffman, Martin, Botcheva *et al*. 2004) Casteleijn and Graham (2012) noted that outcome measures provide valuable input into predicting recovery patterns, determining efficacy and efficacy of services, distribution of resources and determining critical pathways of professional conduct. The regular use of outcome measures have been identified as being beneficial in providing feedback to the multidisciplinary team working with the adolescent. Through the continued feedback to the MDT, it directly allows for feedback on the importance of the profession within the team. (Mental health practice 2007; Eklund, Ornsberg, Ekstrom *et al*. 2008)

Through the process of the implementation of outcome measures practitioners noted some barriers, which made the process difficult. Some practitioners noted that during the process of rating outcomes, much time was taken, which resulted in them, preferring to not implement the outcome measures. (Trauer *et al*. 2009) The availability of human and physical resources has also contributed to constraints in the implementation of these measures, with some clinicians stating that there are multiple outcome measures to choose from which therefore requires an increased time. (Batty, Moldavsky, Foroushani *et al.* 2013; Casteleijn & Graham 2012)

As these barriers have been identified in using outcome measures, some research has also pointed out the facilitators, which would assist in the effective use of these measures. In certain instances resources for uniformity had been identified as a concern, with a need for a measure, which provided uniformity at the collection points. (Johnston & Gowers 2005) Clinicians have also identified that increased training should be offered for those utilising specific measures,

with re-training being done at different points to refresh their skills. And lastly, it had been identified that should there be an electronic measure in place, this may assist in allowing for quick input and completion of the outcome measure at each collection point. (Batty *et al*. 2013; Hall *et al*. 2013)

It can therefore be said that even though implementing routine outcome measurements within the clinical setting can present with challenges, there have been a high number of advantages, together with factors that would promote the use of these measures. (Trauer *et al*. 2009)

2.7.1 Measures to track change in occupational performance

There have been multiple outcome measures reported on in literature for use within Occupational Therapy practice. Specifically, there are some outcome measures which have been well documented below, and there have also been documented outcome measures within the adolescent population, however the latter is limited.

The Canadian Occupational Performance Measure (COPM) is a standardized, client-centred measure, which monitors change in performance over a period of time. It can be used by any age group with a partially structured interview and scoring method. (Law, Baptiste, Carswell *et al.* 1998) There has been intensive research with this outcome measure, with it being documented as taking 20-40 minutes to complete. Although this outcome measure has been well studied, Bodium (1999) noted that COPM omitted clients with intellectual disabilities from being assessed with this measure. It is also noted that the success of this measure is dependant on the insight level of the client and their ability to follow through on the instructions in this self- report outcome measures.

The Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) has been identified as a measure used in the UK, specifically for adolescents within mental health care services. It comprises of 13 items within 2 sections, the first being about problems and impairments and the second about the difficulties and services present. There is a 5-point rating scale present, rating the problem from mild to very severe. This outcome measure has been identified as being a precise clinician-rated outcome measures, however the most noted barrier in the implementation of this measure is that there is no client viewpoint, and that clinicians may also be bias in always seeing improvement when their own treatments are provided. (Gowers 2002)

The Australian therapy outcomes measure (AusTOMs) is an outcome measure, which can be used internationally, which was developed from the therapy outcome measures (TOMs) by Unsworth and Duckett (2004). The measure can be utilised by allied health care professionals, specifically physiotherapy, speech therapy and occupational therapy. It consists of 12 scales scored on 4 domains, which include impairment, activity limitation, participation restriction and distress or well-being. (Abu-Awad, Unsworth, Coulson *et al.* 2014) Through literature gathered, it has been suggested that due to the different perceptions of the client versus the clinician, there has been an impact on the construct validity of this outcomes measure. (Unsworth & Duckett 2004)

Casteleijn (2012) developed the Activity Participation Outcomes Measure (APOM) with participation from various occupational therapists in mental health practices in Gauteng. MHCUs were also consulted to acquire their list of needs and expectations form occupational therapy. This resulted in identification of eight domains and 53 items representing the eight domains. Each item is measured on a scale of 18 increments or categories. This tool has been verified to be a valid and reliable method in establishing levels of functioning, at baseline

and post intervention procedures in MHCUs. (Casteleijn 2012) The psychometric properties of the APOM including the validity (content and construct) as well as the reliability are described as good. A few examples to illustrate this are as follows. Content validity of the APOM was analysed with the content validity index (CVI). The CVI allows for two levels of analysis namely an item-level index as well as a scale-level index. The item-level calculations all exceeded 0.78, which are considered the minimum for adequate results. The scale-level index also exceeded the minimum criteria of 0.78. The content validity has thus been noted as good. Cronbach's alpha was calculated to greater than 0.7 for each domain, being considered good internal consistency. The p value was 0.0001 for all areas showing that this tool is sensitive and change is easily detected. (Casteleijn 2012)

During the initial study the APOM was used with success on the adolescent population between ages of 14 to 19 years. It was able to show responsiveness to change and clinicians reported that the items and domains were relevant for adolescents' activity participation. (Casteleijn 2012) The sample in the initial study was however small (n=15) and more data needs to be collected for this population.

Establishing psychometric properties of an instrument is an on-going process. Casteleijn (2014) continued with this investigation by applying the Rasch Measurement Model to data collected by clinicians and further research. The results indicated that the scale of 18 categories has ordered thresholds for all 53 items and that it resembles the characteristics of the interval level of measurement. (Casteleijn 2014) Investigation into unidmensionality of the outcome measure, that is if the measure is assessing several constructs or only one construct has not yet reported.

The theoretical framework for the APOM is based on the Vona du Toit Model of Creative Ability (VdTMoCA). Occupational therapists using this outcome measure need to be trained in VdTMoCA as the rating of the APOM is aligned with the levels of creative ability. Creative ability is observed in a person through his/her "ability to form a relational contact with people, events and materials, and by his preparedness to function freely and with originality as his maximum level of competence." (De Witt 2014:4) Du Toit *et al*. states that creative ability in an individual is manifested in his creation of a tangible or intangible product. (Du Toit 1980) This is seen as a person goes through different stages of motivation and action in the recovery process. Motivation governs action and action is the manifestation of motivation and therefore through the assessment of action, the therapist would be able to measure the strength of motivation. (De Witt 1997; Casteleijn & de Vos 2007) Motivation has been described as the inner force which directs all behaviour. It has therefore been said that with the assessment of action, a therapist is able to measure the intensity of the motivation levels. The ability of an individual to convert their creative potential within a purposeful activity is in line with their level of creative ability, and exposure to environmental affords and presses, supporting their purposeful activity participation. (De Witt 2014) Du Toit described nine progressive stages of motivation, which correspond with various stages of action. (Du Toit 1980). The levels develop consecutively, but can also go back and forth between the levels. (Casteleijn & de Vos 2007) These theoretical assumptions guide the therapy process towards appropriate assessments, treatment principles and outcome measures.

The Emotional Performance Index (EPI) was proposed by Kellerman, and is based on a theory of emotions. (Plutchik 1983) The EPI is not an outcome measure, but rather an index measure, with more emotional components in comparison to the APOM. These two instruments might complement each other due to the emotional component being covered in the EPI. The EPI is a self-report questionnaire in which individuals select a word that best describes their

emotions, completing the questionnaire when required by the practitioner. This is an eight dimensional graphical illustration, once completed. The EPI can be used within the South African context, especially within the adolescent population group. The use of the EPI in conjunction with the APOM would therefore assist in adding substantial information for the full assessment report required to obtain the level of functioning in specific spheres of performance.

There is little information about the psychometric properties of the EPI. Initial studies on stability and dimensionality of the structure of the EPI showed poor stability and dimensions did not fall into one group or construct. Further investigations were suggested. Dragan (2006) reported through comparative and confirmative component analysis that a four bipolar factor structure emerged. The dimensions of distrustful vs trustful showed a solid empirical foundation while gregarious vs depressed and timid vs aggressive had an acceptable foundation. The dimension of controlled vs dyscontrolled required revision. A study by Zelenbrz (2005) in Croatia revealed poor sensitivity of the EPI as it did not distinguish between respondents based of their scores. It did show stability across gender and age. Despite the lack of evidence of psychometric properties, it is still a widely used instrument to assess personality structures. (Plutchik & Kellerman1983; Dragan 2006; Zelenbrz 2005).

Gentry & Campbell (2002) suggests the importance of emotional ability as an integral factor in adolescents' school performance. Therefore, the EPI and the APOM can be used together to illustrate key deficits within the individuals, all of which would contribute to deficits within their occupational performance areas. The concept of emotional conflict has been linked to locus of control, motivational levels and self esteem within adolescents. (Todorović 2002) This would have a significant impact on performance and activity participation as a result. From the literature researched the APOM and EPI are therefore valid tools standardised

for use in South Africa, which can be utilised within the intervention procedure to track change in performance during an inpatient programme.

2.7.2 Trends in activity participation and the effectiveness of Occupational therapy intervention

There is minimal literature to highlight the trends of change in activity participation of individuals engaging in Occupational Therapy intervention programmes, with only a few studies identified.

Schnell (2008) conducted a study of monitoring the progress of young people's occupational performance within an inpatient setting. The main objective of this study was to note the extent to which young people improved, in their occupational and social functioning, within an inpatient programme. This specific research made use of the Occupational Therapy Task Observation Scale (OTTOS). It had been noted that the individual's cognitive abilities had improved first, before displaying improvements in affect, with a reduced rate of improvement in behaviour. During this study, it was concluded that it was useful obtaining the baseline level of functioning and tracking the progress made within the ward, which assisted in making clinical decisions and whether the individual was ready for discharge, and how the young person with a mental illness recovers. (Schnell 2008)

Poon, Siub and Ming (2010) also conducted a study of outcome analysis of occupational therapy programmes with persons with early psychosis. During this study, vocational outcomes were tracked over a three-month period post-discharge, and a success rate was then determined, of whether these individuals were able to successfully integrate within the working environment following attendance to the occupational therapy inpatient programmes. The results of this

research study showed that there was an improvement in over half of the individuals tracked after discharge from the occupational therapy programme. These individuals were able to maintain some form of work, ranging from school to being involved in formal employment, which therefore indicated improved activity participation. (Poon, Siub & Ming 2010)

Eklund *et al.* 2008 conducted a study of outcomes using activity-based assessment compared with standarised assessment. Specific outcome indicators used in this study were the client's satisfaction with occupational therapy during the assessment period, the client's awareness of capacities and occupational problems, their satisfaction with assessment between the referring practitioners and the outcomes of intervention following the assessment period. These outcomes were then measured after the assessment and again after the treatment period. The suggested trends from this study highlighted improved performance and client satisfaction level after occupational therapy intervention. There was however limited differences in improvement between the standardised assessment and activity based assessment. During this study it was noted that outcome measures conducted after the assessment sessions noted improved client and practitioner satisfaction levels, with improved work satisfaction and usefulness being noted by the practitioner.

Throughout the research conducted in relation to tracking the activity participation and effectiveness of occupational therapy programmes, it can be seen that even though minimal research is present, those presented above highlight the need to track performance of clients. There have been specific benefits in tracking the change of these individuals, especially using outcome measures. It provides the treating teams with the necessary information on the activity participation changes, and the readiness of discharge, and provides the client with improved satisfaction levels, noting their improvement from admission. Following this

information, with tracking these individuals post-discharge, the therapist is also able to evaluate whether individuals are able to re-integrate back into the community, occupying functional roles.

2.8 Research methods commonly used in studies for responsiveness and convergent validity

2.8.1 Responsiveness studies

After a critical review of the literature on responsiveness, Husted, Cook, Farewell *et al.* (2000) refer to two types of responsiveness namely internal and external responsiveness. Internal responsiveness is defined as the measurement of change over a specific time while external responsiveness is the measure of change over time compared to change in a reference measure. This reference measure could include the general construct in the treatment programme for example quality of health.

Eyssen, Steultjens, Oud *et al.* (2011) refer to two types of responsiveness in a study to investigate the responsiveness of the Canadian Occupational Performance Measure (COPM). The researchers investigated criterion responsiveness (which is similarly described as internal responsiveness) as well as construct responsiveness (similar to external responsiveness).

The international Delphi panel on Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) (Mokkink, Terwee, Knol *et al.* 2010) defines responsiveness as the ability of an instrument to detect change over time in the construct that is measured. This is similar to the internal responsiveness mentioned above.

Terwee, Dekker, Wiersinga *et al.* (2003) state that definitions of responsiveness differ in the types of change that should be detected by a responsive instrument. These types are clinical important changes over time, changes due to treatment

effects or change in the score of the underlying construct. This leads to inadequate methods or approaches to evaluate responsiveness.

Controversy to quantify the change is evident in the literature. Terwee *et al.* (2003) listed 31 methods to calculate change over time. This abundance of methods makes it quite difficult for a researcher to select the best method for responsiveness. The COSMIN Delphi panel (Mokkink, Terwee, Knol *et al.* 2010) voices its concern about the inappropriate use of effect sizes or standardised response means. Their criticism is that these statistical methods provide evidence of change in patients and no support that the instrument is valid to detect change. Yet, many researchers still report the use of effect size and standardised response means to evaluate responsiveness of instruments. (Fioravanti, Bordignon, Pettit *et al.* 2012; Rydwik, Bergland, Forsén *et al*. 2011; Van der Zee, Baars-Elsinga, Visser-Meily *et al.* 2013 ; Wu, Chuang, Lin *et al.,* 2011)

2.8.2 Convergent validity

Convergent validity is a subtype of construct validity and has been defined as the correlation of scores of one instrument to that of a related instrument that measures a similar construct. (Abma, Rovers, van der Wees 2016). The theoretical basis of a construct is important when researchers judge the convergent and discriminant correlations between instruments. Correlations have to make sense from a theoretical point of view which maybe subjective (Furr & Bacharach 2008) but also from an objective perspective like correlations.

Convergent and discriminative validity go hand in hand as certain domains of an instrument might be positively correlated as they are measuring the same construct, but there might also be constructs that do not measure similar constructs. In these cases, negative correlations should come forward to indicate the difference. (Furr & Bacharach 2008)

A requirement of convergent validity is that the reliability and validity of the comparator instrument should be acceptable. This requirement poses problems in practice as it is not always clear what exactly is acceptable reliability and validity. Nevertheless the quality of comparator instruments should always be presented to put results into perspective. (Abma *et al.* 2016)

Convergent and discriminative validity are usually determined by a correlation coefficient like Pearson product-moment correlation coefficient or Spearman's ranked correlation coefficient. (Cohen 1988) Kendall's Tau may also be an appropriate correlation coefficient to use as it tests the relationship between two ranked variables. Spearman and Kendall's Tau are used with non-parametric data. Kendall's Tau is less sensitive to error and p-values tend to be more accurate with smaller samples. Regression may also be used to determine unrelatedness (discriminant validity). Cohen (1988) and Abma *et al.* (2016) proposed guidelines to interpret correlations coefficients. He suggested that correlations smaller than 0,29 be considered small, between 0,3 to 0,49 moderate, between 0,5 to 0,7 large and correlations above 0,7 to be very large.

Abma *et al.* (2016) strongly suggested that researchers should construct hypotheses for convergent validity and not only report on correlation sizes. Direction and size of correlations must be clear in the hypotheses.

Convergent validity is an important aspect to determine the quality of an instrument's construct validity. The Delphi panel of COSMIN suggested good guidelines to and investigate this aspect. (Abma *et al.* 2016)

2.9 Conclusion

This literature review covered the aspects of development within the adolescent population group. It took note of the physical, emotional, cognitive and social areas of change that occur during this phase and how interlinked these are. The review also identified specific risk factors present, which can alter the normal development of an adolescent, namely family and peer relations, environmental factors and the exposure to substances. With the presence of the risk factors in certain adolescent cases, there was also a look at adolescents entering into multiservice organisations. The role and involvement of the multidisciplinary team within the MHCUs inpatient stay and the main areas to be addressed in relation to the areas of development were highlighted. There was also a look at the role of caregivers and the far-reaching problems experienced by caregivers of an adolescent with mental healthcare disorders. This problem also presented as having an impact on the adolescent in later years, with an impact on functioning in their future vocations. This review documented the use of outcome measures within occupational therapy, highlighting the various valid and reliable tools. The APOM and an index called the EPI were identified as valid tools to use within the South African context. Evident from the literature review is the paucity of literature on tracking change after intervention, with a few studies having looked at client satisfaction and not intervention. It would therefore be valuable to note the trends in activity participation within this research study.

Research methods to investigate responsiveness and convergent validity have been described. It seems that there are more controversy in responsiveness testing and more clear guidelines for convergent validity.

Chapter 3: *Methodology*

3.1 Introduction

In this chapter the study design, population and sample are presented. The measurement techniques and research procedures are discussed, together with the variables, data analysis and ethical considerations applied during this study.

3.2 Study design

The study falls within the quantitative method of research. This method focuses on objective realities as observed in the natural world that are quantified. Many designs are available within quantitative methods. For this study, the category of descriptive quantitative designs as described by Kielhofner was chosen. Descriptive quantitative designs "often take advantage of naturally occurring events of available information in order to generate new insights through inductive processes". (Kielhofner 2006:58)

Kielhofner goes further and divides descriptive designs into univariate descriptive studies and correlational research (Kielhofner 2006). Univariate descriptions include frequencies and central tendencies while correlations demonstrate relationships between variables. This study used both univariate and correlational methods.

Single subject research falls under the descriptive designs and is sometimes referred to as single-system research. This research is based on "within-subject performance, with the unit of study being one person or a single group that is considered collectively". (Kielhofner 2006:140) During this research each subject served as his or her own control, with repeated measurements over an extended

period of time. Single-subject methods are useful for a variety of clinical practice questions, for example, whether interventions are effective or new information on the trends in the recovery process is noted. (Kielhofner 2006) This design has the advantage of not requiring treatment to be withheld from a control no-treatment group, as each individual serves as their own control, the treatment could be withheld from the individual once or twice and then re-instated. The single subject design takes note of the degree of variability between the subjects, including their support and environmental structures, educational levels, cultural and socioeconomic background and differential diagnostic criteria, which allows for differences between the subjects.

A characteristic of this study design is that a small sample is used. This can however be useful in informing practice and larger scale investigations. (Kielhofner 2006). There is a notation method used for single-subject designs, where A is noted as the baseline, B as the intervention phase and C for additional interventions received. For this research sample a variation to the basic AB design, called the ABA or withdrawal design was utilised. Activity participation was the behaviour measured, with a baseline level of functioning obtained (A), followed by the weekly intervention measurements (B), with another assessment after the withdrawal of intervention (A). During this research, the withdrawal of intervention was the discharge of the MHCU from the inpatient programme. (Kielhofner 2006; Ottenbacher 1986)

It was important to use this research design to track the progress made between the baseline and final measurements of the participants' activity participation during the research period. Each participant had comparisons drawn to them, based on their own performance and activity participation, rather than comparisons with other individuals. With this data, the responsiveness of the

APOM could be established and its convergent validity with the EPI could be investigated.

The design was longitudinal in nature, taking place over the time period of the participants' inpatient admission. Assessments determined the weekly progress within the sample with a follow up six to eight weeks post discharge, which determined their ability and function within their previous context, therefore highlighting the longitudinal nature of the study.

3.3 Research population

This comprised of adolescent inpatients at Tara Hospital. Those referred to the programme did not just have primary psychiatric conditions, but also faced complex social circumstances such as bullying, peer pressure and complex family environments which influenced their development and participation in their occupational performance areas. As Tara hospital is a tertiary hospital, referral sources are mainly primary healthcare facilities, admitting MHCUs during their acute presentations. These referring hospital and clinics have to complete a referral form to the unit, noting the main areas of concern and clinical presentation of the MHCU. There are differing socio-economic statuses of each MHCU, with some adolescents from private, government and Learners with Special Educational Needs (LSEN) schools.

3.4 Sample

Purposive sampling, which is "the deliberate selection of individuals by a researcher, based of predetermined inclusion and exclusion criteria" (Portney & Watkins 2000), was used for the research over a 12-month period. Participants were specifically chosen based on their age, with a varied distribution of female and male participants, of various cultural groups and backgrounds. For the

purposes of this specific study, adolescents ranging between the ages of 13 years 0 months to the age of 18 years were included.

3.4.1 Inclusion criteria

- 13 years 0months – 18 years 11months
- Mood disorders, schizophrenia, schizoaffective disorders, personality traits, learning disorders, autistic spectrum disorders, substance abuse, family and environmental problems
- Adequate literacy level and understanding due to the self-report format of the EPI

3.4.2 Exclusion criteria

- Eating disorders were excluded due to their strict protocol followed within the their stages of treatment.
- MHCUs identified as being too aggressive or too psychotic or medically unstable by the MDT

3.5 Measurement instruments

During this study, data collection was done using demographic information, activity participation scores with the APOM and emotional profiles using EPI. Each of these is described below.

3.5.1 Demographic information

Initial interview forms were used to obtain demographic information from each participant. Typical demographic information like name, age, school was

captured as well as last date attending school, relationship with parents and support at home and school (Appendix C).

3.5.2 The Activity Participation Outcomes Measure

The APOM was explained above, as per chapter 1 and 2.5.1. The APOM consists of eight domains. These domains are the Process skills, Communications and Interaction skills, Life skills, Role performance, Balanced lifestyle, Motivation, Self-esteem and Affect. Each domain consists of several items that represent the domain.

Fig 3.1 shows the domains with items per domain. Each of these items requires a rating of 1-18 upon each assessment. During the assessment of the APOM in this study, an initial baseline assessment was done for each adolescent, with weekly re-assessments conducted and a final assessment upon discharge. A follow up assessment after six to eight weeks of discharge concluded the series of assessments. The scores were documented onto a raw data sheet, specifically used for this research purpose (Appendix D).



Fig 3.1 APOM domains and items

3.5.3 Emotional Performance Index

The EPI was used during the assessment procedure, highlighting the emotional profiles of each of the participants involved in the research population. The EPI is a self-report questionnaire, with eight dimensions of emotion. Fig 3.2 represents the dimensions. Data from the EPI contributed towards the emotional status of the participants from their subjective experience. This data also provided information for the convergent validity between the APOM and EPI. (Appendix E)

The two instruments were used concurrently but at different time intervals. The

APOM was used weekly, while the EPI was only done upon admissions, at discharge and at follow up.



Fig 3.2 Emotions Profile Index dimensions

3.6 Pilot study

A pilot study was initially carried out, to identify the length of time taken to administer the APOM and whether the routine assessments would elicit enough information to score items of the APOM. Three MHCUs were used during the pilot study and were not included in the main research study. All assessments were completed by the researcher. The APOM was conducted at the initial referral to the OT programme, to obtain a level of creative ability, followed by a baseline level of functioning. The participants were then assessed when attending weekly sessions until they were discharged, with the activities listed in the table below.

Table 3.1 List of activities used for creative ability assessment and APOM collection points during pilot study

Activities used to determine level of creative ability	Activities used during APOM collection points
• Envelope making	• Origami
• Box-making	• Beadwork
• Social Bingo	• Gardening
• Painting wooden boxes	• Baking

During the pilot study, it was noted that the above-mentioned activities elicited the necessary information when determining the creative ability level, and when conducting the APOM. It was however noted that the activities needed some social component as well, or had to be used in conjunction with an individual session, in order to provide all the necessary information. The sessions were between 45-60 minutes in duration, during which the information needed could be elicited.

The EPI was not piloted as it is a self-report questionnaire, and participants did not need to be observed with activities.

3.7 Research procedure

Once ethical clearance had been obtained, before commencing with the data collection, permission had to be obtained from Tara, in order for the research to be conducted at the hospital and with the identified sample. Data collection took place over an 18- month period, in order to ensure that a sufficient sample size was obtained.

Before starting with the collection, the purpose of the research and ethical considerations was verbally explained to the participants, their parents or legal guardians and occupational therapist within the ward. Assent and consent were then signed by the agreeing participants and have been included in the Appendix. Once this process had been completed, data was collected at three points, namely at baseline, during the intervention process with weekly APOM measurements being taken and at discharge. This process will be described below.

The participants were selected based on the specific criteria mentioned in 3.3, which allowed for those within the adolescent unit to be identified as the target sample.

Upon referral to occupational therapy, data were systematically collected, once the MHCU and their parents had agreed to their participation. The researcher conducted an initial interview to obtain information for the demographic questionnaire. This was followed by assessments on the participant, to determine their level of creative ability, which has been documented in the table below. Once this had been completed, the initial baseline assessment was done with the self-report EPI.

This was followed up by weekly APOM assessments with the various activities listed below, which tracked change in their activity participation while receiving intervention.

Table 3.2 List of activities used for creative ability assessment and for APOM collection points during research procedure

Activities used to determine level of creative ability	Activities used during APOM collection points
• Envelope making	• Origami
• Box-making	• Beadwork
• Social Bingo	• Gardening
• Painting wooden boxes	• Baking
• cooking	• Card making
	• Making key rings
	• Socio-emotional groups
	• Board games
	• Sudoku

The intervention programme was executed by another therapist working at the hospital and not by the researcher. Weekly intervention procedures, inclusive of groups and individual sessions were followed by weekly APOM assessments (Appendix B). All those referred to the OT programme within the ward were seen in the group setting, however only those who agreed to partake in the research were observed and assessed with this research procedure. Individuals were mainly seen during group settings, which provided the social opportunities during the activities. Individual sessions were mainly done when participants were being discharged, which necessitated the administration of the EPI as well. The assessment procedures comprised of activities listed below, observations, interviewing and gaining collateral information from the therapist working in the ward, nurses and information from the files.

At the point of discharge, a final APOM measure was taken, and an EPI self-report questionnaire completed. The stability of the change was assessed on follow up six to eight weeks later after the withdrawal of treatment, once the participants had been contacted and agreed to come back to the hospital for the follow-up- refer to the table under the research methods for the details on the methods.

Reliability of the data collection was ensured as one researcher collected it, but the therapist working in the ward, who had been APOM training, checked this. The EPI did not need to be checked as it was a self-report questionnaire.

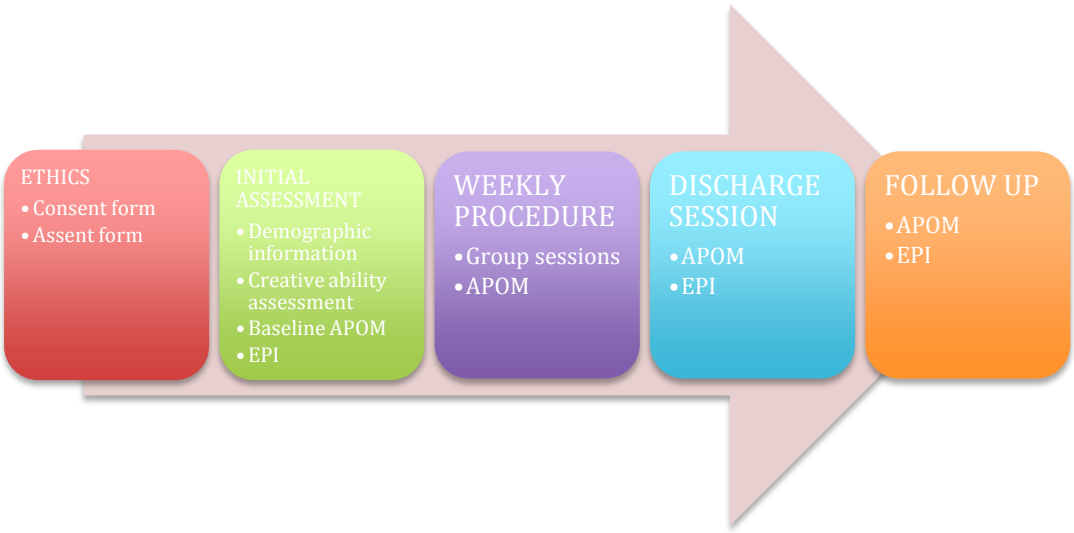


Fig 3.3 Research procedure outline

3.8 Variables

The relationship between independent and dependent variables were investigated to establish if the APOM was responsive to certain trends. The variables are described below.

3.8.1 Independent variables

The specific independent variables in this research were the demographics of age and gender of the participants. The diagnosis and length of stay were also noted to be independent variables.

3.8.2 Dependant variables

The eight domains of activity participation as measured with the APOM and the eight domains of emotions as measured with the EPI have been identified as the dependant variables.

3.9 Data analysis

Data on the APOM and EPI were collected, analysed and summarised. Descriptive statistics were used in analysing the demographic data.

The changes from admission, discharge and follow up assessment data as recorded on the APOM have been compared for each participant. The effect size using Cohen's *d* between the baseline (admission score) and final (discharge) scores of the APOM as well as between baseline and follow up, were calculated. The Wilcoxon test for non-parametric samples was used to determine if there was a statistically significant difference between admission, discharge and follow up.

The analysis of the single subject ABA design was completed for each participant using visual inspection in line graphs to represent the change. The sample was grouped into 4 categories based on their diagnosis and line graphs were done for each group. Trends between the dependent variable (activity participation as measured by APOM) and independent variables like gender, age and length of stay were done by Spearman rank order correlations.

The convergent validity between the APOM domains and the EPI dimensions were correlated using Kendalls Tau coefficient. The Programme STATISTICA was used to calculate the correlations coefficients. P-values were included to show which correlations were statistically significant. Guidelines for interpreting the correlations coefficients were used as follow: < 0,29 = small, between 0,3 - 0,49 = moderate, between 0,5 - 0,7 = large, > 0,7 = very large.

The scores of the EPI are differently interpreted from the APOM. In the EPI the scores of the eight domains are not summed to get a total score as in the case of the APOM. EPI scores are translated into percentages, low (0 – 30%) and high (70 – 100%) percentages for each dimension indicate a problem with that emotional domain while the middle scores (40 – 60%) indicate normal emotional functioning. Table 3.4 below indicates how the correlation was done to align low and high scores of the EPI to that of the APOM. Scores above 60 on the EPI, were subtracted from 100 to obtain the converted score for the correlation.

The correlations were analysed with the Kendall Tau Coefficient.

Table 3.3 Alignment of low and high scores of the EPI and APOM

EPI scores in %	Converted to	APOM scores
100	0	1 – 3
90	10	4 – 6
80	20	7 - 9
70	30	10 - 11
60		12
50		12
40		12
30		10 - 11
20		7 - 9
10		4 - 6
0		1 - 3

3.10 Ethical considerations

As human research participants were used in this study, ethical clearance was first obtained from the Human Research Ethics Committee of the University of the Witwatersrand (Ethical clearance no: 130925). These participants were inpatients within the adolescent unit at Tara hospital, which therefore required permission from the hospital's research committee, before commencement of the study. Once the committee had approved the study, consent forms were given to the inpatients' parents or legal guardians and assent forms were also given to the inpatients involved within the programme, who met the inclusion criteria. Participation was voluntary within the study, and refusal did not impact on the assessment and treatment of the participant within the programme. As the information formed part of the holistic MDT approach within the unit, the assessment findings contributed to the comprehensive report complied on the ward, and shared only with fellow health professionals, therefore upholding confidentiality of each individual case.

Chapter 4: *Results*

4.1 Introduction

This chapter presents the results of study, in order of the objectives. It includes the demographics of the sample, followed by the results of the responsiveness to change in activity participation of the APOM in the adolescent MHCU population. The trends in the change in activity participation of the adolescent MHCU population in the domains of the APOM will be presented, followed by the convergent validity of the APOM to the EPI.

4.2 The sample

The sample is presented below, being divided into the demographics of the sample and the environmental factors and is described at the end of each figure or table.

4.2.1 Demographics of sample

This figure provides a diagrammatic representation of the distribution of age groups across the male and female population group in the sample. The ages ranged from 13 years old to 18 years old, with a higher female participation.

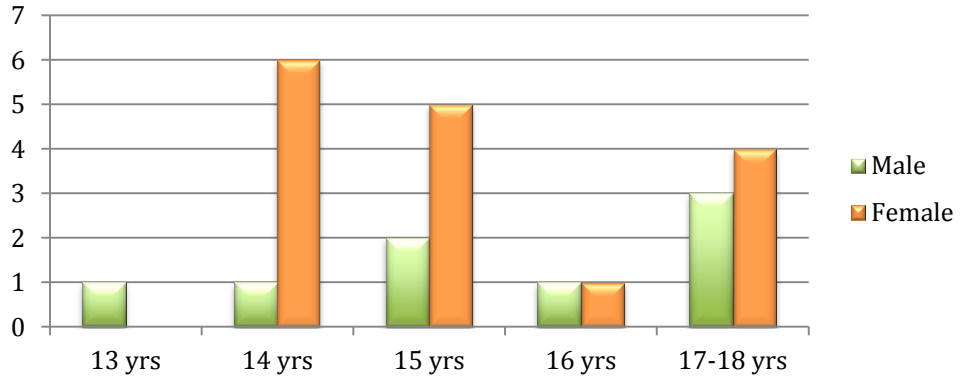


Figure 4.1. Age groups of participants (n=24)

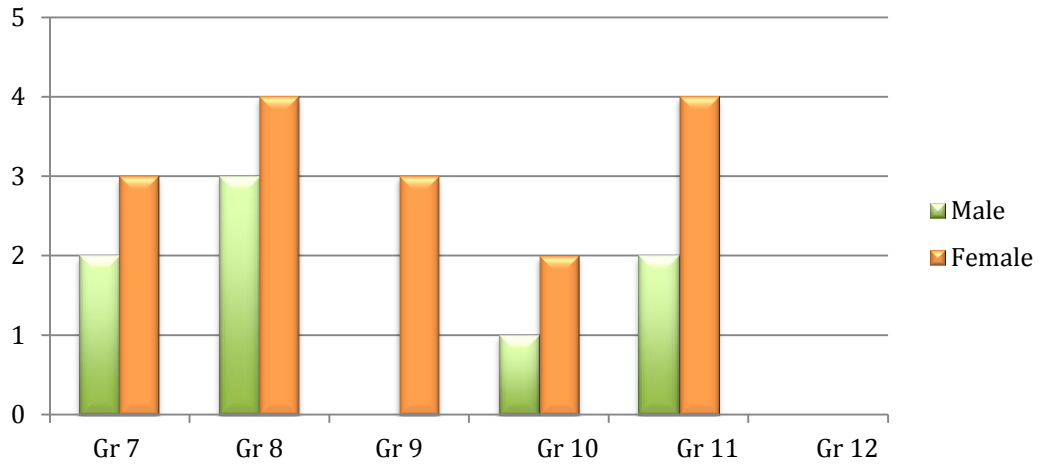


Figure 4.2. Grade distribution of participants (n=24)

It can be noted from the results above that there was a distribution of participants across the grades, with higher numbers in grade 8 and 11.

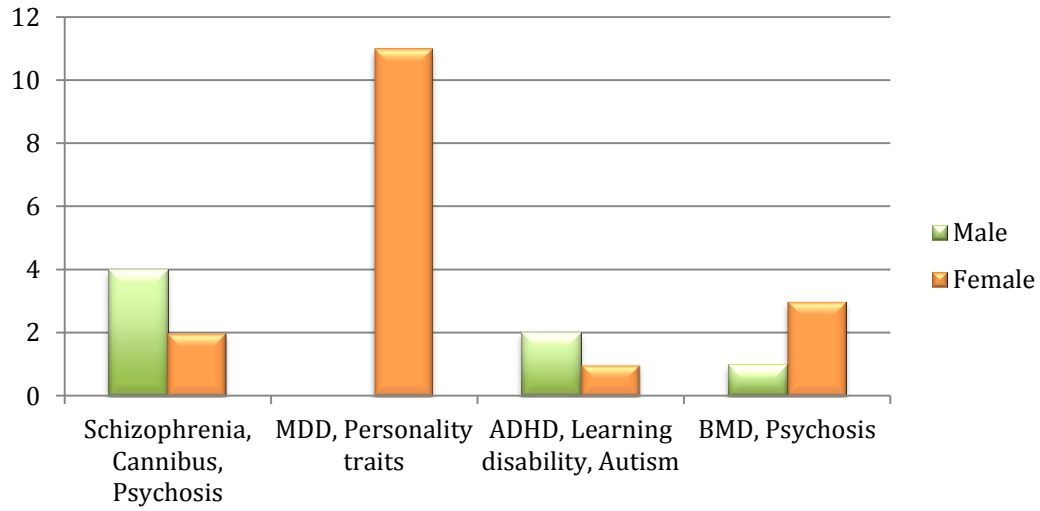


Figure 4.3 Diagnoses present in sample population (n=24)

During the study, there were a higher number of female participants present, with a high prevalence of mood disorders. The male participants mainly presented with psychosis, schizophrenia, substance abuse and Attention Deficit Hyperactivity Disorder (ADHD). Most participants had a combination of signs of

symptoms for example anxiety, personality traits, epilepsy and intellectual impairment but the diagnosis was made based on the most prevailing signs and symptoms at the time. Fig 4.3 is thus a grouping of the diagnosis for the purpose of this research.

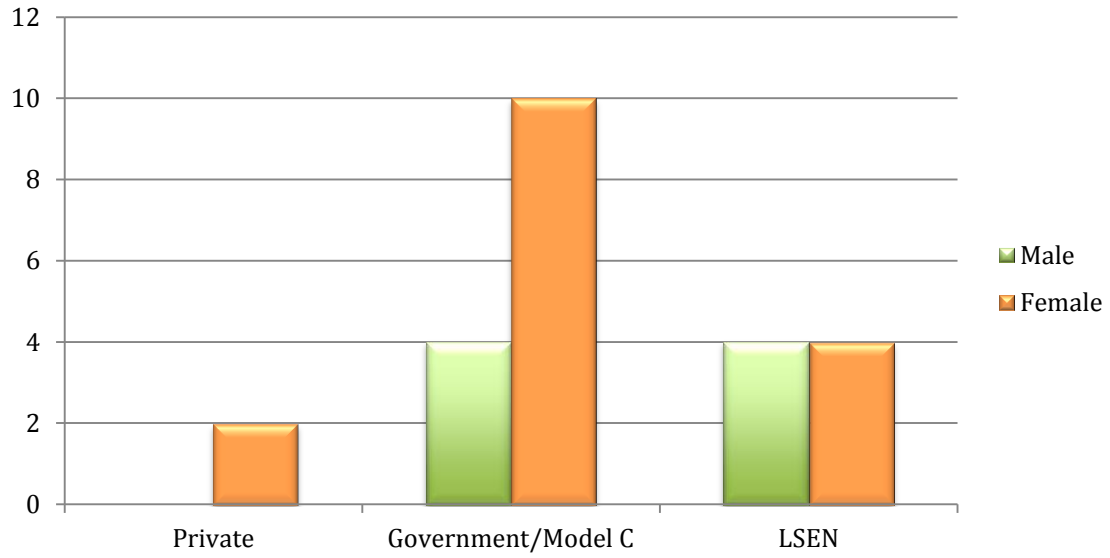


Figure 4.4 Types of schools attended by participants (n=24)

The majority of the sample attended government/ Model C school settings, with a small number attending private school settings. There were also some participants who attended LSEN schools, with an equal distribution of males and females within this school setting.

4.2.2 Environmental Factors of sample

The environmental factors of the sample have been presented below, taking note of the support systems present within the sample population, together with the socio-economic status and relationships towards parents.

Table 4.1 Environmental Factors of sample.

	M	F	Total
Socio-economic status:			
Low	3	3	6
Middle	4	6	10
High	1	7	8
Siblings			
Yes	5	10	15
No	3	6	9
Relationship towards parents:			
Poor	4	7	11
Average	3	4	7
Good	1	5	6
Social support within home environment			
Poor	1	4	5
Average	2	8	10
Good	5	4	9
Social support within school environment:			
Poor	5	13	18
Average	3	2	5
Good		1	1

Table 4.2 Missing data and loss to follow up

Collection points	Number of participants (APOM)	Number of participants (EPI)	Male	Female	Participant names/ ID's (APOM)	Participant names/ ID's (EPI)
Baseline	**24**	**24**	**8**	**16**	**Participants A-X**	**Participants A-X**
Final	**22**	**15**	**5**	**9**	**Participants A, B, C, D, E, F, G, H, J, L, M, N, Q, R, T**	**Participants A, B, C, D, E, F, G, H, J, L, M, N, Q, R, T**
Follow-up	**7**	**7**	**2**	**5**	**Participants C, D, E, G, L, M and R**	**Participants C, D, E, G, L, M and R**

At baseline, all participants were able to complete the EPI self report questionnaire and were measured to obtain their baseline level of functioning. At final measurements, two participants did not have a final APOM measure, due to having a one-week admission, whereas a smaller number were able to complete the EPI, due to participants being discharged before completion of the EPI within the discharge week. There were an even lower number of participants attending the follow-up sessions.

4.3 Responsiveness to change in activity participation in the adolescent MHCU sample.

Responsiveness to change was done for baseline (admission) to final (discharge) scores as reported in the APOM. The same was done for baseline to follow up scores.

Table 4.3 Loss to follow up with the APOM

Participants	Baseline to final	Baseline to follow up
A	1,09	
B	2,02	
C	8,19	4,22
D	1,85	2,44
E	0,37	2,17
F	1,40	
G	2,49	5,02
H	1,48	
I	1,84	
J	1,41	
K		
L	2,37	5,48
M	1,23	3,30
N	1,27	
O	1,27	
P		
Q	2,49	
R	4,13	
R (readmission)	3,97	5,84
S	1,27	
T	2,199	
U	0,771	
V	0,373	
W	0,104	
X	2,686	

Participant R was readmitted within a week of the initial discharge, resulting in two separate measurements. Participant K and P had missing data due to a one-week admission. There were also only seven follow up measurements noted above.

4.3.1 Change from admission to discharge

The results below show average change in the eight domains of the APOM from baseline to final assessment (fig. 4.5). This data presents the change in the adolescents while in hospital. There was a positive change in all the domains, with the highest being in Affect and the lowest communication skills.

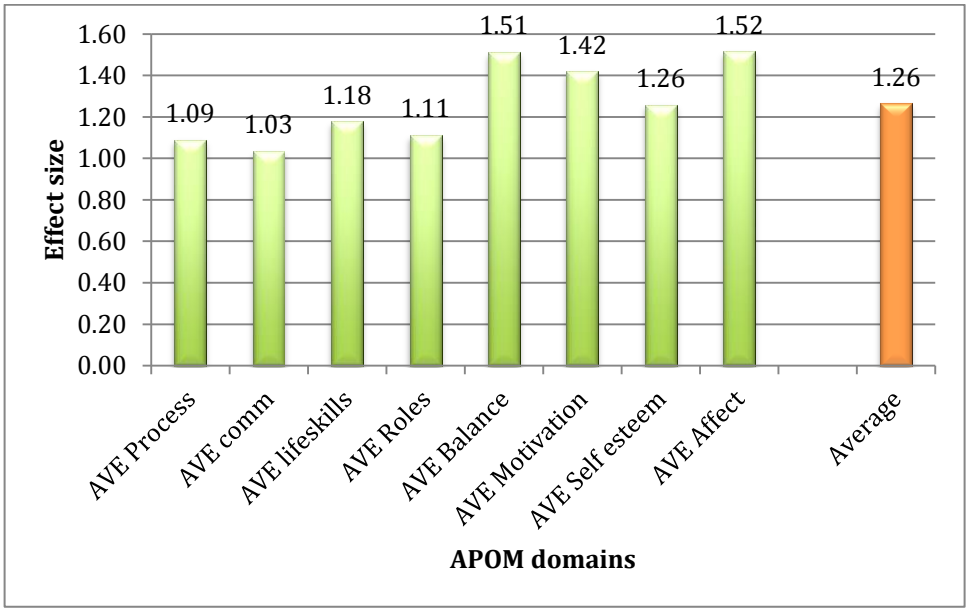


Fig 4.5 Average change in APOM domains of the sample from baseline to final (discharge) assessments (n=22)

Cohen's d was used to calculate the effect size. According to Cohen, an effect size of 0,8 indicates a large change. In the case of this study, 0,8 is in clinical terms a small change. The APOM raw score for average change in the eight domains was 2 points on the scale and that calculates to an effect size of 1,26. Two points on the APOM score means that a person stays within a level of creative ability but that he moved between phases within a level.

The Wilcoxon test was done to determine if the difference between the APOM scores at admission and at discharge was statistically significant. The p-value of

0,000 (Table 4.4) showed a highly statistical significant difference. This confirms that the APOM is responsiveness to pick up changes, even small changes as explained above.

Table 4.4 Difference between baseline (admission) and final (discharge) APOM scores (n=22)

Pair of Variables	Wilcoxon Matched Pairs Test Marked tests are significant at p <.05000			
	Valid N	T	Z	p-value
Baseline & Final	22	0.00	4.106905	0.000040

4.3.2 Change from admission to follow up

Fig 4.6 shows the average change in the APOM scores of the sample from baseline to follow-up.

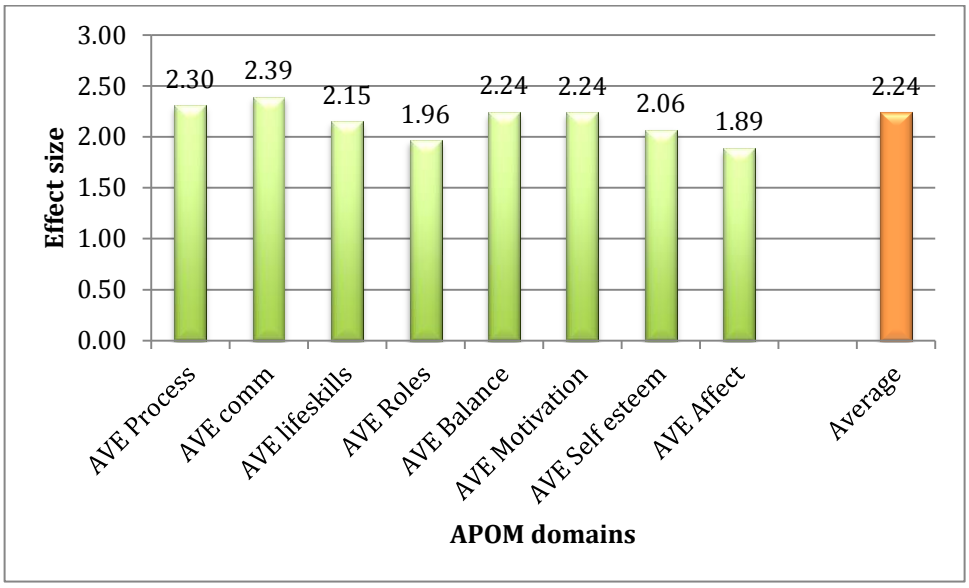


Fig 4.6 Average change in APOM domains of the sample from baseline to final (follow up) assessments (n=7)

It is interesting to note that the domain with the best change was Communication Skills. In the baseline to final data, this domain showed the weakest change. The same trend happened with Affect, it was the best domain in the baseline to final data but the lowest in the baseline to follow up data.

The effect size for average change from baseline to follow-up was 2,24, which represents 4 raw scores on the APOM scale. This means a person will improve with one level and one phase on the scale. This, in clinical terms is a good change.

The p-value (0,018) on the Wilcoxon test in table 4.5 showed a statistically significant difference between admission and follow up scores. The sample size was small for this period but nevertheless, the result is positive. This again supports the responsiveness of the APOM for this sample of adolescents.

Table 4.5 Difference between baseline (admission) and final (follow up) APOM scores (n=7)

Pair of Variables	Wilcoxon Matched Pairs Test Marked tests are significant at p <.05000			
	Valid N	T	Z	p-value
Average Baseline & Average Follow-up	7	0.00	2.366432	0.017961

The average APOM scores per domain at baseline, final and follow-up are presented in the graph below. This graph shows that the average level of creative ability at admission was between self-differentiation transitional phase and self-presentation therapist-directed phase. All participants progressed to the level of self-presentation between therapist-directed and transitional phase at discharge.

The seven participants that were measured at six to eight weeks after discharge showed good improvement and progressed to the level of passive participation, therapist-directed phase.

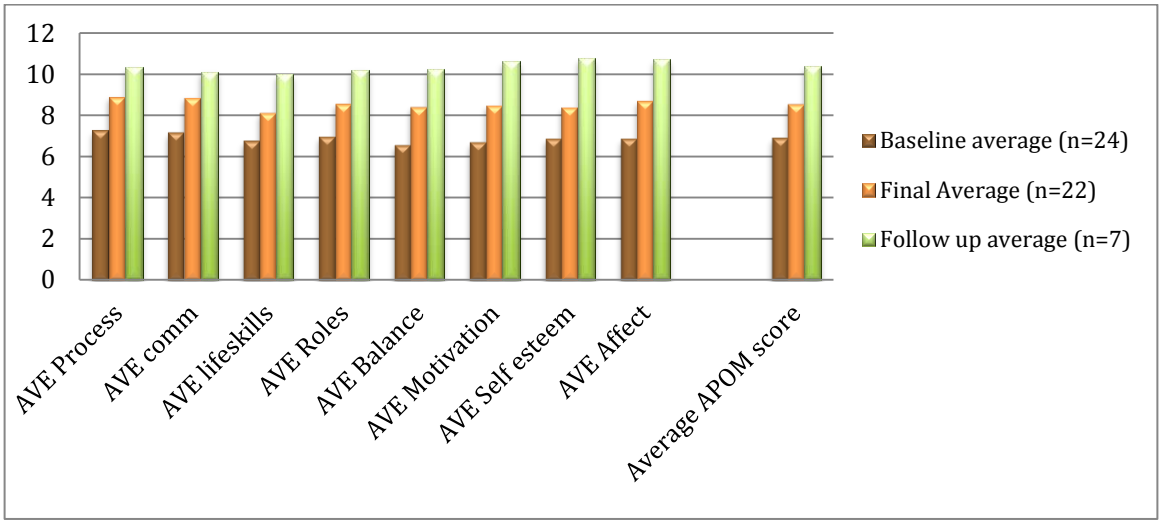


Fig 4.7 APOM scores a baseline, final and follow-up

4.3.3 Changes in individual participants from baseline to final to follow up

Fig 4.7 shows the change from baseline to follow up in individual participants. There was a positive change is all the adolescents with patient L showing the best change and patient W the lowest change. Participants I and O signed an RHT form (right to refuse hospital treatment), together with their parents resulting in premature discharge and two less discharge APOM assessments.

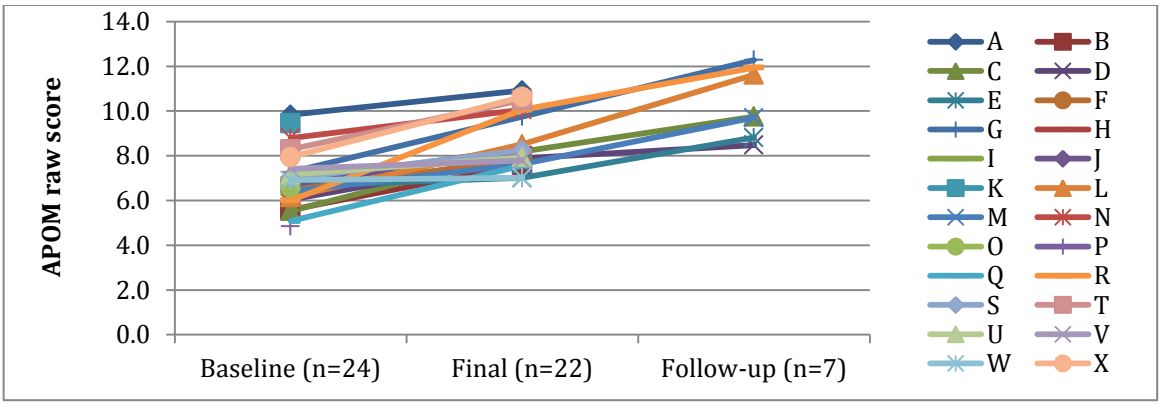


Fig 4.8 Changes in APOM scores from baseline to final to follow up

Many factors influence the change in activity participation. One of the factors could be the type of diagnosis. The next section presents changes in activity participation according to diagnostic groups.

4.4 Trends in change of activity participation

The following line graphs are visual inspections of the changes in individual participants. Individual participants are labeled in alphabetic symbols, A to X. Some participants have missing data, due to being granted extended weekends, and therefore missing their assessment session during that specific week.

The visual inspection of these graphs must be viewed against the fact that these adolescents' major life role is to attend school, perform academically and preparing themselves for adult life. To be successful in these life roles, an APOM score of at least 10 is recommended. The green dotted line on all the figures indicates the recommended level of functioning to return to school.

Figure 4.8 presents the entire sample (n=24) and shows change across weeks in hospital as well as the follow up assessment. Overall it can be seen that there was a positive change, with improvements over the admission period. There were however two participants (A and E) that declined slightly, due to a relapse

within the admission period, and a subsequent transfer to a more contained ward, due to aggressive symptoms being displayed. Their overall change was still positive. There were two participants (K and P) who only had a short one week admission within the ward, and so changes could not be obtained for those participants.

The majority of the adolescents did not reach the recommended level of activity participation (score of 10 on the APOM) to return to school.

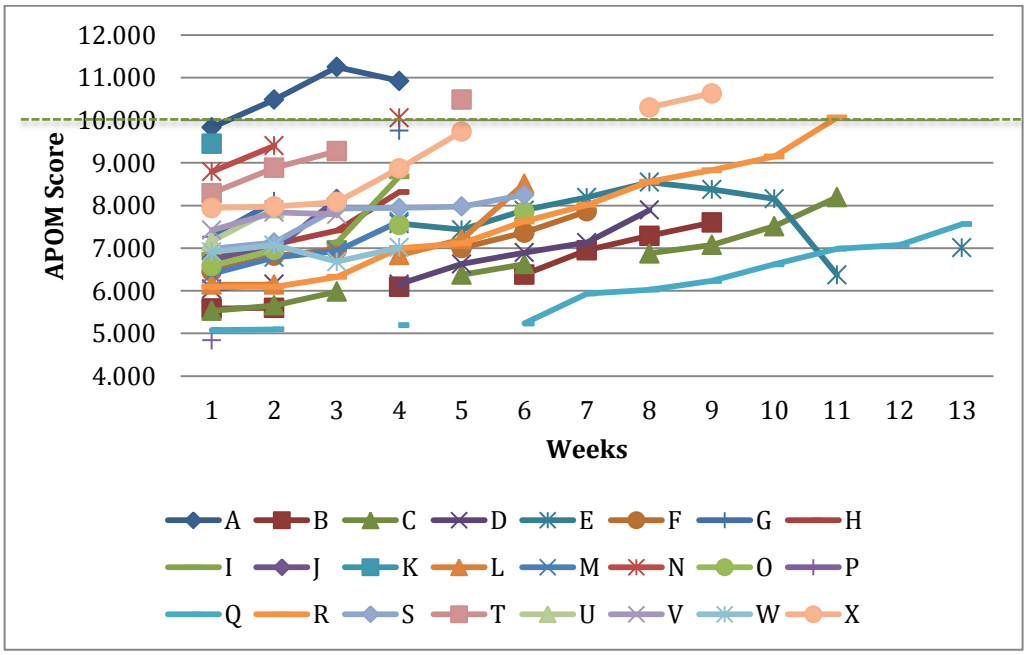
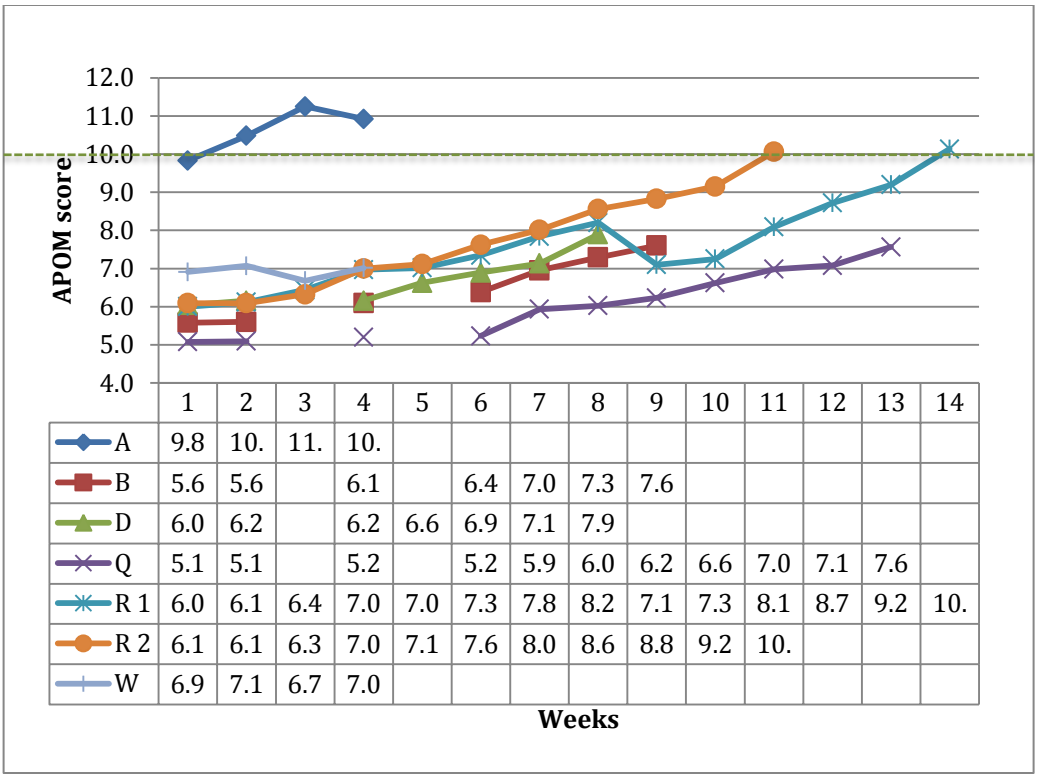


Fig 4.9 Visual inspection of changes in all participants (n=24).

Figure 4.10 demonstrates the change in activity participation for those participants with schizophrenia, cannabis abuse and psychosis. Within the illustration it can be seen that there is an overall improvement in activity participation over an extended period of time.

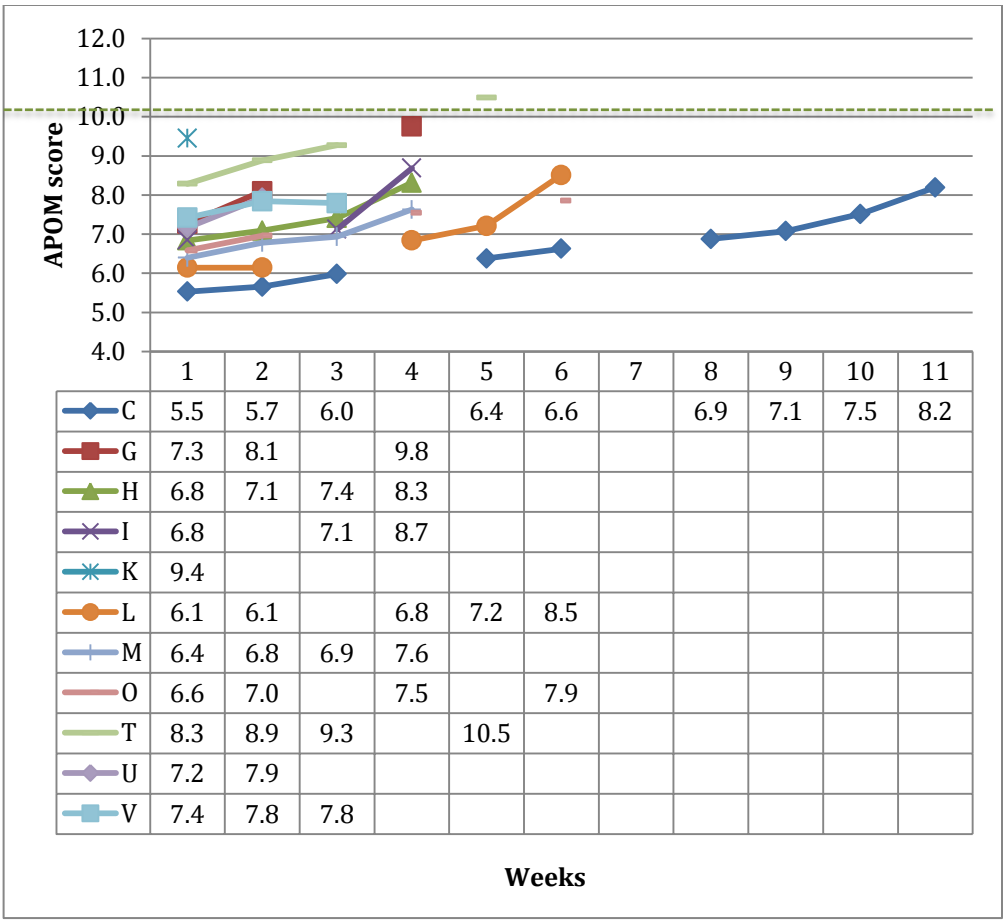


	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	9.8	10.	11.	10.										
B	5.6	5.6		6.1		6.4	7.0	7.3	7.6					
D	6.0	6.2		6.2	6.6	6.9	7.1	7.9						
Q	5.1	5.1		5.2		5.2	5.9	6.0	6.2	6.6	7.0	7.1	7.6	
R 1	6.0	6.1	6.4	7.0	7.0	7.3	7.8	8.2	7.1	7.3	8.1	8.7	9.2	10.
R 2	6.1	6.1	6.3	7.0	7.1	7.6	8.0	8.6	8.8	9.2	10.			
W	6.9	7.1	6.7	7.0										

Figure 4.10 Overall changes in participants with Schizophrenia, cannabis abuse and psychosis (n=5).

Participant A demonstrated a much higher level of improvement over a shorter time period, taking into account that the participant's baseline level of functioning was much higher than others in this population sample. Participant R was admitted over a 14-week period during their first admission, and had made improvement towards discharge. This was however short-lived, as the participant was re-admitted a week later for another 11 weeks. It is interesting to note that similar progress up to week 8 for both admissions was seen but with better improvement on second admission from week 8 to week 13, resulting in a shorter time period needed to achieve a higher level on the APOM.

At the time of the data analysis, participant W was still admitted/in hospital. Within the 4 weeks he showed very little progress with signs of psychosis being persistent.

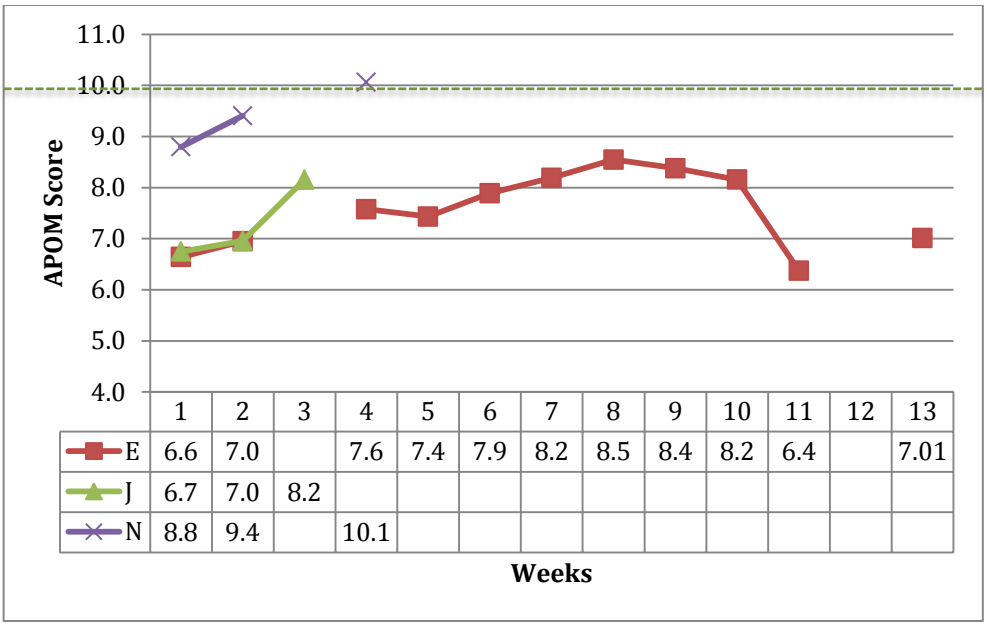


	1	2	3	4	5	6	7	8	9	10	11
C	5.5	5.7	6.0		6.4	6.6		6.9	7.1	7.5	8.2
G	7.3	8.1		9.8							
H	6.8	7.1	7.4	8.3							
I	6.8		7.1	8.7							
K	9.4										
L	6.1	6.1		6.8	7.2	8.5					
M	6.4	6.8	6.9	7.6							
O	6.6	7.0		7.5		7.9					
T	8.3	8.9	9.3		10.5						
U	7.2	7.9									
V	7.4	7.8	7.8								

Figure 4.11 Overall changes in participants with Major Depressive disorder and personality traits (n=11).

The group with Major Depressive disorder had the most participants (Fig 4.11). Within this sample population some participants had short inpatient admissions, resulting in either one data collection point or less than five collection points. (Participant G and K) It can be seen that this sample group made gradual progress, but did show an improvement with their APOM scores. The APOM was able to pick up the small changes.

At the time of the data analysis, participants U and V were still admitted. Progress in all of them could still be expected.

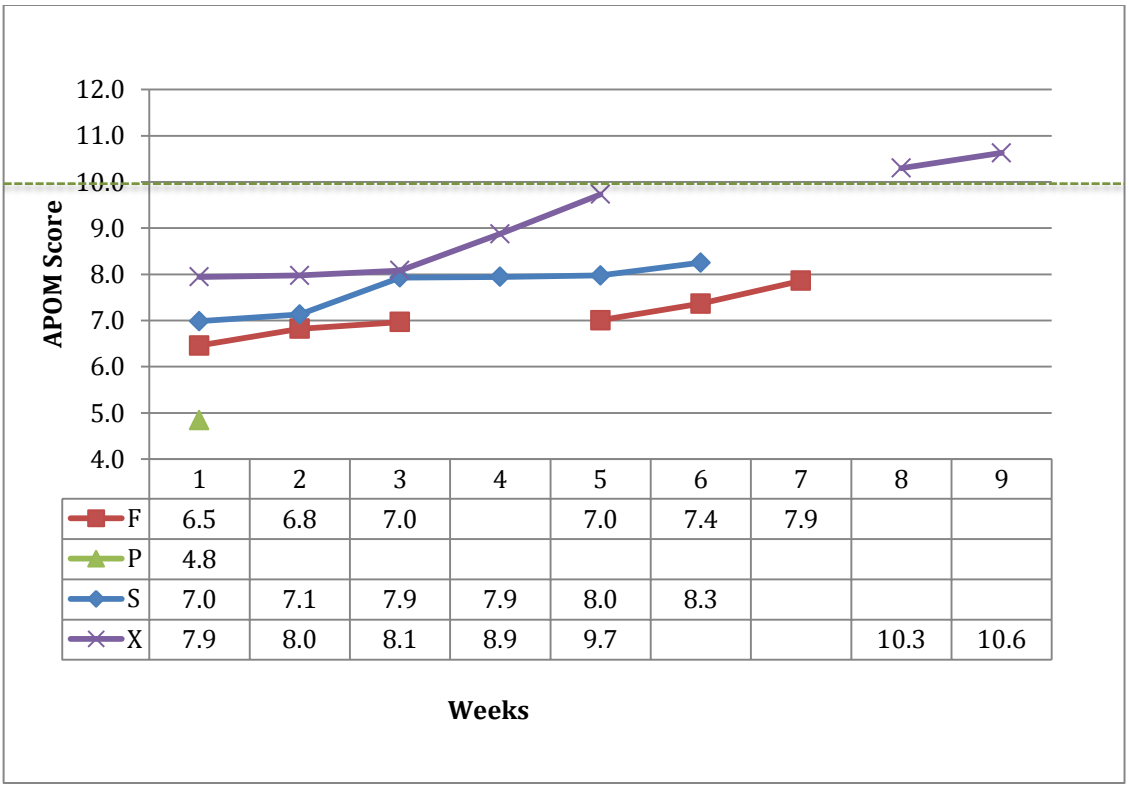


	1	2	3	4	5	6	7	8	9	10	11	12	13
E	6.6	7.0		7.6	7.4	7.9	8.2	8.5	8.4	8.2	6.4		7.01
J	6.7	7.0	8.2										
N	8.8	9.4		10.1									

Fig 4.12 Overall changes in participants with ADHD, Learning disorders and Autism (n=3)

Within this sample group participant E had a longer stay than the other two participants (Fig 4.12). He maintained a steady progress up to week 8 with a decline to a lower level of creative ability in week 11. This can be linked to a relapse during this stage, resulting in aggressive behaviour and a subsequent move to a more containing ward. After this transfer to the other ward, he showed a slight improvement again. Participant J and N made good improvements, showing a positive change in activity participation during their 4-week inpatient stay. Participant N is one of only three adolescents from the sample that progressed to the recommended level of 10 on the APOM.

The participants within this Bipolar Mood Disorder category (Fig 4.13) presented with a general overall positive change during their inpatient stay.



	1	2	3	4	5	6	7	8	9
F	6.5	6.8	7.0		7.0	7.4	7.9		
P	4.8								
S	7.0	7.1	7.9	7.9	8.0	8.3			
X	7.9	8.0	8.1	8.9	9.7			10.3	10.6

Figure 4.13 Overall changes in participants with Bipolar Mood Disorder (BMD) (n=4).

Participant P only had one collection point, due to a short one-week stay, needed to review medication. Participant X has shown a good rate of improvement since admission, and at the last collection point was above the 10-point APOM score. This participant was still receiving psychological intervention, resulting in a longer stay, in order to better cope with environmental factors once discharged.

4.5 Correlations between dependent and independent variables

Correlations between the dependent variable (activity participation as measured by the APOM) and independent variables (length of stay in weeks, age and gender) were done to explore the trends in this sample of adolescents.

4.5.1 Correlation between change in activity participation and length of stay.

The average length of stay showed a large variation between one to 14 weeks of stay. Table 4.6 below showed a weak to moderate positive correlation of 0.571. This correlation was significant.

Table 4.6 Spearman rank correlation for change in APOM score and length of stay

Variable	Spearman Rank Order Correlations MD pairwise deleted Marked correlations are significant at p <.05000	
	Change in APOM score	LOS in weeks
Change in APOM score	1.000000	0.570878
LOS in weeks	0.570878	1.000000

The scatterplot (Fig 4.14) is a visual presentation of the correlation.

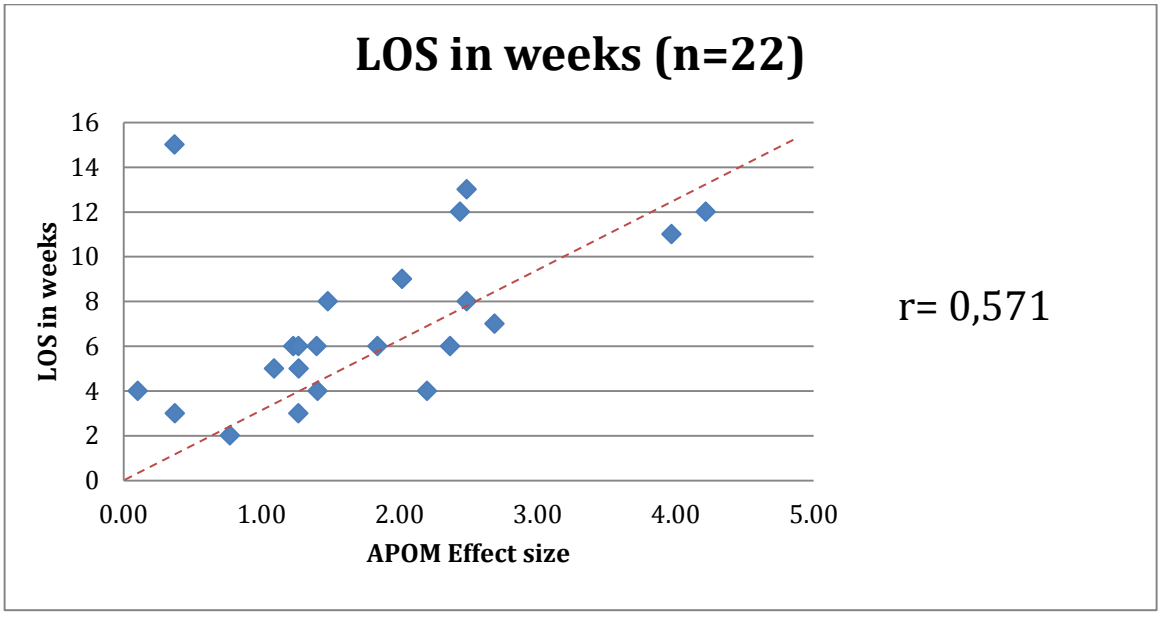


Fig 4.14 Correlation between length of stay and change in APOM scores

The average length of stay among the different diagnostic groups was calculated (Table 4.7). The group with schizophrenia had the longest stay of 8,5 weeks and the group with major depressive disorders had the shortest stay of 4,5 weeks.

The diagnostic group with ADHD, Learning disability and Autism only had three participants with a large variation. Participant E was diagnosed with only ADHD and he stayed 13 weeks while participant J who was diagnosed with ADHD and a learning disorder only stayed for three weeks. Participant N with Autism only stayed for four weeks. The sample for this group is too varied and too small to see a meaningful trend in length of stay.

Table 4.7 Average length of stay per diagnostic group for the sample of this study.

Diagnostic group	Average length of stay in weeks
Schizophrenia, cannabis, psychosis (n=6)	8,5 weeks
Major depressive disorder, personality traits (n=11)	4,5 weeks
Bipolar mood disorder, personality traits (n=4)	6 weeks
ADHD, Learning disability, Autism (n=3)	7 weeks

4.5.2 Correlation between change in activity participation and age

The correlation between the change in the APOM score and age in years showed a low correlation of 0.308 (Table 4.8). This correlation was not significant.

Table 4.8 Spearman rank correlation for change in APOM score and age

Variable	Spearman Rank Order Correlations MD pairwise deleted Marked correlations are significant at p <.05000	
	Change in APOM score	Age
Change in APOM score	1.000000	0.308315
Age	0.308315	1.000000

Figure 4.15 is a visual representation of the low correlation between change in APOM scores and age.

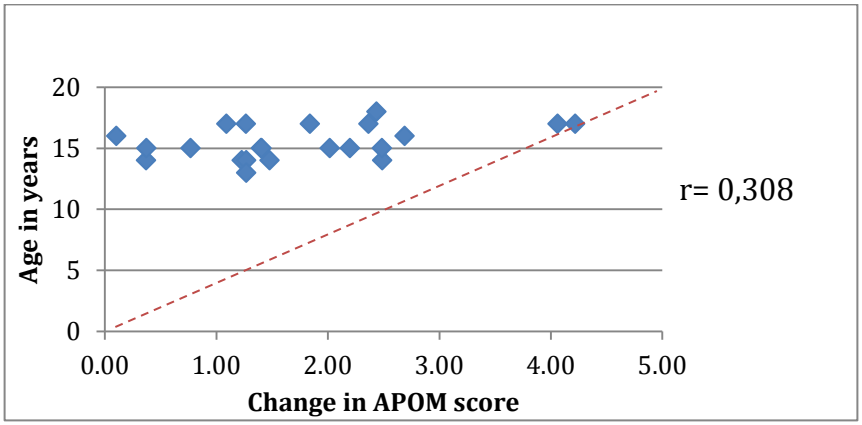


Figure 4.15 Correlation between age of participants and change in APOM scores

4.5.3 Correlation between gender and change in activity participation

The Mann Whitney test (Table 4.9) showed no significant difference between the changes in males (n=7) and females (n=15) with a p value of 0.113.

Table 4.9 Mann Whitney U test for differences between mean change in APOM scores in males and females

variable	All Groups Mann-Whitney U Test (w/ continuity correction) (gender) By variable Var2 Marked tests are significant at p <.05000						
	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-value	Z adjusted	p-value
Males and females	57.50000	195.5000	29.50000	-1.58604	0.112731	-1.58739	0.112426

The mean change for males was 1,24 and for females 2,02.

In figure 4.15 below presents the individual changes from admission to discharge. The variation in effect sizes is evident in this graph.

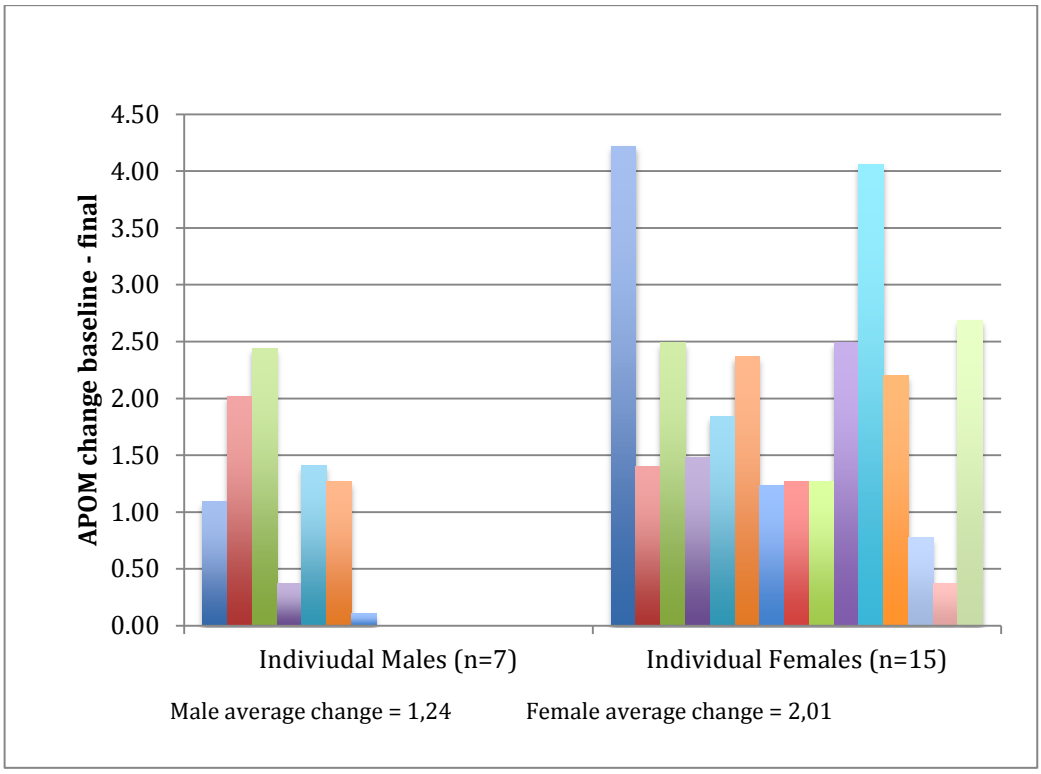


Fig 4.16 Individual changes in APOM scores between admission and discharge

Within Figure 4.17 it can be seen that there is an improvement from the baseline APOM scores, as compared to the final scores and again in the follow up scores. The seven participants who were able to attend the follow up sessions were illustrated in Figure 4.17, demonstrating the overall change of activity participation at the three specific collection points.

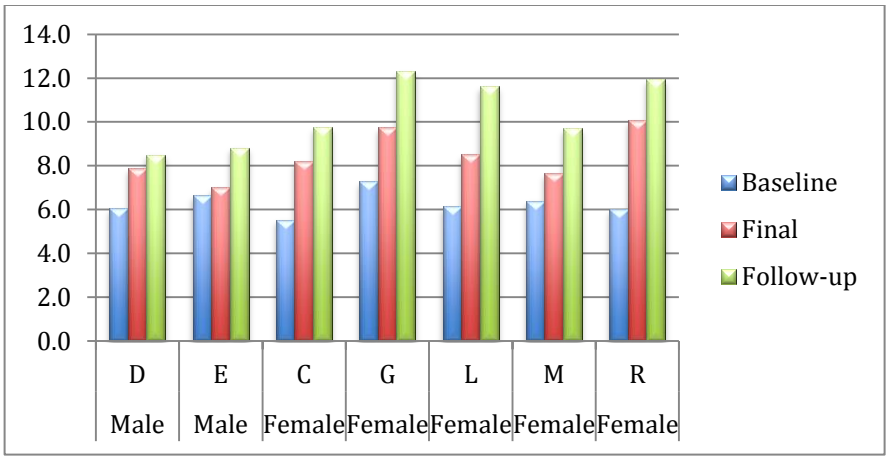


Fig 4.17 Changes in males and females at Baseline, Final and follow up (n=7).

4.6 Convergent validity of the APOM to the EPI.

Tables 4.10 to 4.12 illustrate the Kendall's Tau correlation coefficients between the APOM domains and EPI dimensions at baseline, final and follow-up respectively. In most cases negative coefficients were obtained. Coefficients in red are statistically significant.

Table 4.10 Baseline correlation between the APOM domains and EPI dimensions

Baseline	**EPI Aggressive**	**EPI Gregarious**	**EPI Depressed**	**EPI - dyscontrolled**	**EPI - controlled**	**EPI - Trustful**	**EPI - Distrustful**	**EPI - timid**
APOM - Process	-0,123	-0,111	0,039	-0,171	-0,066	-0,395	-0,228	0,133
APOM - Communication	-0,094	-0,054	-0,011	-0,192	-0,021	-0,358	-0,197	0,181
APOM - Lifeskills	-0,181	-0,028	-0,074	-0,237	-0,089	-0,432	-0,178	0,269
APOM - Role performance	-0,066	0,005	-0,006	-0,098	-0,011	-0,405	-0,183	0,262
APOM - Balanced Life style	-0,081	-0,051	-0,041	-0,0893	0,023	-0,341	-0,207	0,179
APOM - Motivation	-0,169	-0,167	-0,171	-0,172	-0,055	-0,431	-0,252	0,257
APOM - Self-esteem	-0,028	-0,101	-0,069	-0,063	0,011	-0,350	-0,301	0,226
APOM - Affect	-0,123	-0,220	-0,154	-0,071	-0,052	-0,390	-0,268	0,197

At baseline the dimension of Trustful had statistically significant negative correlations with all the APOM domains. This could be seen as discriminant validity but theoretically is does not make sense.

Table 4.11 illustrates that there were no significant correlations above a value of 0,4 and two statistically significant negative correlations between the APOM domains of Process skills and EPI dimensions of Distrustful and Timid.

Table 4.11 Final correlation between the APOM domains and EPI dimensions

Final	**EPI Aggressive**	**EPI Gregarious**	**EPI Depressed**	**EPI - dyscontrolled**	**EPI - controlled**	**EPI - Trustful**	**EPI - Distrustful**	**EPI - timid**
APOM -Process	0,221	-0,202	0,112	0,121	-0,071	0,172	-0,393	-0,41
APOM - Communication	0,019	-0,300	0,050	0,050	-0,020	0,080	-0,290	-0,188
APOM - Lifeskills	0,108	-0,338	0,080	-0,030	0,111	0,050	-0,258	-0,236
APOM - Role performance	0,121	-0,294	0,061	0,071	-0,082	0,132	-0,274	-0,221
APOM - Balanced Life style	0,242	-0,288	0,291	0,111	0,101	0,245	-0,232	-0,186
APOM - Motivation	-0,020	-0,237	0,125	0,031	0,020	0,124	-0,226	-0,173
APOM - Self-esteem	0,092	-0,238	0,293	0,156	0,063	0,166	-0,186	-0,266
APOM - Affect	0,119	-0,328	0,154	0,132	0,066	0,143	-0,153	-0,162

Table 4.12 Follow up correlation between the APOM domains and EPI dimensions

The table below shows a positive correlation between the APOM domains of Communication, Lifeskills, Balanced lifestyle, Motivation, Self Esteem and Affect with the EPI dimension of Depressed. The other domains and dimensions did not display a meaningful correlation.

Follow-up	EPI Aggressive	EPI Gregarious	EPI Depressed	EPI - dyscontrolled	EPI - controlled	EPI - Trustful	EPI - Distrustful	EPI - timid
APOM - Process	0,390	-0,487	0,35	-0,45	-0,097	-0,45	-0,85	-0,097
APOM - Communication	0,390	-0,585	0,45	-0,55	-0,195	-0,15	-0,65	0,195
APOM - Lifeskills	0,097	-0,195	0,45	-0,05	0,292	-0,05	-0,65	0,292
APOM - Role performance	0	-0,292	0,35	-0,05	0,292	-0,05	-0,65	0,292
APOM - Balanced Life style	0,097	-0,195	0,45	-0,15	0,195	-0,15	-0,55	0,195
APOM - Motivation	0,050	-0,450	0,41	-0,307	0,050	-0,205	-0,615	0,150
APOM - Self-esteem	0,097	-0,390	0,45	-0,15	0,195	-0,15	-0,75	0,195
APOM - Affect	0,250	-0,350	0,61	-0,205	0,150	-0,102	-0,718	0,250

4.7 Conclusion

The demographic profile of the sample and results for the three objectives were presented in this chapter. The responsiveness of the APOM was good as it was able to detect small to large changes in participants. Several trends were noted in individual participants as well as diagnostic groups. Independent variables like length of stay, age and gender provided valuable information for health care professionals. Convergent validity between the APOM and EPI showed that only some domains of the APOM and dimensions of the EPI correlated positively.

Chapter 5: *Discussion*

5.1 Introduction

During this chapter the objectives will be discussed in accordance with the results presented in chapter 4. It includes the demographics of the sample, followed by the discussion of the responsiveness to change in activity participation of the APOM in the adolescent MHCU population. The trends in the change in activity participation of the adolescent MHCU population in the domains of the APOM will be discussed, followed by the convergent validity of the APOM to the EPI.

5.2 Demographics of the sample

Some of the demographics have been discussed in 5.1, however these trends are specific to the research setting and may differ from other adolescent units.

During the sample period a total number of 24 participants were included within the group over a 24-month time period. There were some MHCUs who did not give assent to participant within the research, resulting in a reduced number of participants. There was also a five month time period during which the ward was closed due to renovations. This also limited the sample size as a result. The sample population included adolescents between the ages of 13 to 18 years old. There was a higher female population compared to males, which is largely attributed to the bigger female component within the ward's structure compared to their male counterparts. The participants were mainly placed within the grade 7 and grade 11 years, with an equal distribution within the grades in between.

When analysing the diagnostic components of each participant, it was noted that there was a distribution between various conditions over the study's time period.

The female population presented with more mood disorders and personality traits, and the male participants presented with a higher presentation of psychosis, ADHD and substance related disorders. This provided great diversity in the sample being studied, providing opportunities to note the trends across the different diagnostic groups. This trend cannot be generalised by any means due to the small sample size but it is possible for clinicians to continue with the APOM administration, which would therefore further highlight specific trends in activity participation during the inpatient stay, and also would inform effect size over the admission time.

There was a good distribution across the types of schools attended by the participants, with most participants attending government mainstream schools, and much fewer attending LSEN schools. It was however noted in the follow up sessions with some participants that they had changed from mainstream schooling to LSEN schools. This was linked to a number of factors, including a smaller class size, resulting in an ability to cope with the classroom material within the allocated time. The participants reported having improved environmental support structures, with better access to assistance and support within the new school environment. The final important component was that the participants activity participation had changed due to symptoms associated with their mental illness. The effects of their mental illnesses have therefore had far-reaching effects, with an impact on schooling, which have resulted in the need to change schooling environments. This process had been started while in the ward, while attending the Tara H Moross school, which assisted in placing each participant within the relevant grade, based on their activity participation within the school setting.

When analysing the environmental factors within the sample, the majority of the sample presents as being within an average socio-economic status, with most

having siblings within the family. This did not translate into having a supportive environment, as the majority of the participants documented having conflicts with either their parents or with their social groups. During the literature review, Gentry and Campbell (2002) and Rothon *et al.* (2011), noted that peer relations and a good support system were important within the normal transition of this phase of development. The results reflect this concept, that the decreased family and peer support can result in a disturbed development and transition, affecting the adolescent's well being.

5.3 Support structures within adolescent development

Throughout the research study, contact was made with the parent or caregivers of the adolescent participants. This was needed in order to obtain consent to commence the data collection, gain collateral information and also to organise follow up sessions. During this time period, there were specific trends noted within the participants' environmental structures, which have also been documented in the results chapter. Within some cases the participants had parents/ caregivers who wanted to be involved in every step of the treatment process, and who also facilitated the adolescent to participate in the research study in order to gain insight on the level of functioning and whether improvement had taken place within the programme. This provided the adolescent with the necessary support through their inpatient stay, and also resulted in the participant's follow up. However, there were other situations in which a difficult family situation was present, resulting in poor environmental support through this transitional period. The difficult family situations ranged from parent-child conflicts to parental conflicts and financial difficulties. As can be noted from the research, a good support system is important for the successful progression through this developmental phase. (Gentry & Campbell 2002) Some caregivers were unable to come through for regular hospital visits, due to financial constraints, which resulted in minimal support being provided to those inpatients. During the follow

up process, some caregivers were unable to bring the participants through for a follow up, due to work commitments and also due to their place of residence being too far away from the hospital. Within the literature review, there were clear concerns by the parents of children with mental healthcare disorders, noting that there was an impact on their working schedule, resulting in limited time off to take their child for follow up sessions. (Kraczkowsky 2009) This problem is especially pertinent when parent are in entreprenurial positions, resulting in a loss of income if time is spent outside of the working environment. An interesting and often overlooked component, which presented itself during the follow up discussions by some parents, was that they had noted some difficulties in adapting to living with their child having a mental health disorder. This therefore resulted in increased strain being placed on the parents/caregivers within the home environment, needing assistance in recognising what support is needed for their child and also needing support in coping with their own everyday activities.

The majority of the participants had older or younger siblings within their home environments, however this did not translate into having an increased support structure. During the adolescent period, these individuals perform better when they are able to relate to their peer group, which therefore necessitates an improved relation within the school environment. The support structures are also not just important for the familial environment, but also for the scholastic component. During the literature review, Gentry and Campbell (2002), Santrock (2001) and McLeod (2013) documented the need for adolescents to conform to their peer group, enhancing their feeling of acceptance, and therefore their self-esteem as a result. Within the sample group, the majority of the sample had reduced support within the school environments, and upon follow up four or five of the follow-up cases had moved to different schools, during which they found the support to be better in comparison to previous environments. There is limited research into the far-reaching effects of mental health disorders on participants

parental figures, together with the effects school environments have on understanding and providing the necessary support to these adolescents.

5.4 Responsiveness of the APOM for the adolescent population

The APOM has been found to be responsive to this sample group, and can be documented as a good measure to be used within the adolescent population group. Even though the sample was small, it has provided statistically significant evidence of being responsive in noting changes within this population. Throughout the research, the APOM was able to document specific changes that took place during the admission period, and could also take note of whether these changes were maintained on follow up.

Within the admission period, the APOM was responsive to the changes being made within each domain being assessed. The highest change occurred within the affect domain, with the lowest being with the communication domain. These two domains also presented as being the most noticeable upon follow up, with the highest change being within the communication domain and the lowest being within the affect domain as compared to the other domains. It is important to note that the nature of the inpatient programme provides MHCUs with the opportunity to engage in social contexts, as there are many treatment sessions being held in a group context. This increased the exposure and experimentation with various social behaviours with peers and authority figures. As documented in the literature by Santrock (2001) McLeod (2013) and Gentry and Campbell (2002), the adolescent time period is characterised by the need to conform to social norms and peer groups. This often results in adolescents testing behaviours and emotional responses, and in some cases the display of rebellious social interactions, which do not conform to society's expectations. The ability of the APOM to be responsive to the changes within specific domains within the admission period and follow up provides valuable insights into the domains

improved on and those still needing attention, especially in accordance with their developmental process. This also provides useful information in assisting the therapists and MDT to plan home programmes upon discharge and follow up.

5.5 Adolescent population trends before and after occupational therapy intervention

Over the course of the research study, participants underwent baseline assessments, with weekly assessments thereafter, tracking their activity participation. While documenting these changes, it was noted that there was an overall improvement in the activity participation as measured by the APOM. When analysing the scores, it was found that participants needed an overall score of 10 or above, in order to function effectively and cope with the school environment.

Participants A and E were the only two noted to have a decline in their activity participation towards the end of their admission period. This was mainly attributed to relapses occurring during the inpatient stay, which resulted in the transfer to a more containing unit. It was interesting to note that when participant E followed up, he was within an LSEN school environment, which correlates to his APOM score being below 10. When analysing the EPI for this participant, it can be seen that he presented with the same personality components as his admission, of being aggressive and distrustful towards others. The use of both of these instruments as part of the assessment process links well to providing detailed information on various areas of activity participation, to provide a holistic picture of each MHCU.

When comparing the change from the baseline to final scores and when looking at the follow up results, it can be seen that there is a trend of overall improvement

across most of the participants' activity participation. This therefore links well with the literature review, highlighting the need for intervention strategies when needed. (Stefan & van der Merwe 2008; Kohn *et al.* 2012)

5.6. Trends in activity participation across various diagnoses

Over the sample period, there were a variety of diagnoses presented. These were clustered together in order of similarity, specifically with schizophrenia, substance abuse and psychosis, major depressive disorder and personality traits, ADHD, Autism and learning disorders and Bipolar Mood Disorder.

When looking at the trends of activity participation for the schizophrenia, substance abuse and psychosis group, it was noted that these participants had a steady rate of improvement, but were also inpatients within the ward for a longer time period. This can be attributed to them needing an increased time period to stabilise and as a result having an increased exposure rate to inpatient services, resulting in an increased activity participation. It was also found that the majority of these cases were male rather than female, with more substance abuse among this gender group in the sample. Kumperscak *et al.* (2011) noted that the early onset of schizophrenia and other psychotic disorders resulted in a poor future prognosis in comparison to adult onset. This further highlighted the need for early identification and treatment in a multidisciplinary team.

Within the Major Depressive disorder and personality traits diagnoses, there was a larger female population group. The duration of stay was shorter in comparison with the other diagnostic groups, but there was an increased rate of change in activity participation over a shorter time period. From the literature, Carr (2008) noted that the presentation of depression at a young age can result in a quick recovery, however there are recurrences in depressive episodes as the

adolescent progresses through life. It is interesting to note that there was also a gender difference, with females displaying more of a presentation of this diagnosis, linked to their increased rumination of life events. (Hankin & Abramson 2001) This linked with the presentation in this research sample, as the MDD and personality traits group was the largest in the diagnoses presented.

The ADHD, Learning disorders and Autism category had a much smaller sample group, however from this sample it could be seen that the rate of improvement in activity participation was much smaller. Participants tended to stay within the lower ranges of the APOM scoring with little overall improvement over their inpatient stay. Mannuzza and Klein (2000) noted that with those adolescents presenting with ADHD, there is a higher likelihood of them presenting with social and academic difficulties as time passes. This can be linked to the presentation of aggressive, antisocial or conduct disorder symptoms. This can specifically be linked to participant E, who started presenting with these symptoms, which could be seen in the follow up session.

The Bipolar Mood Disorder (BMD) group was the smallest diagnostic group in comparison to all the others of the population sample. Within this sample, there was a steady rate of change for the participants, having them be in the ward for a long time period, but also having a small rate of improvement. Within the literature by Perlis (2004) and Bellivier (2001), it had been noted that the early onset on bipolar mood disorder in adolescence can have far-reaching effects on the individual, with possible suicide attempts. This therefore also results in a reduced prognosis in adolescents with the diagnosis, in comparison with adult onset bipolar mood disorder.

Having separated the population sample into the various diagnostic groups, it can be seen that there are specific trends noted for each category or diagnostic group. This gives good insight on the level of activity participation as MHCUs progress through their inpatient stay, and the approximate length of stay that affords the best possible activity participation for each MHCU. This information cannot be generalized for the entire adolescent population but provides good information for clinicians at Tara, and can further be monitored to see if the same trend continues.

5.7 The trends in the change in activity participation across gender

Within figure 4.16, it can be seen that the female population group displayed a higher average change overall, with higher average changes in three specific participants. The female population group had a higher average change from the baseline to final measures compared to the male population group. The fact that both genders displayed a change in activity participation can be linked to the uniformity of treatment provided within the structured programme of the ward being researched. During all of these cases, it was important to take note of the external environmental factors and length of stay, which play a role in contributing to the changes in activity participation of the participants. Support structures within the home, school and social environments play an important role in contributing towards changes in activity participation.

5.8 Usefulness of APOM

Throughout the research study it was seen that the APOM provided valuable information on the rate of change in activity participation throughout the participants inpatient stay. This information was not only important during this time period, but also when conducting follow-up assessments, as it could be

ascertained whether the participant maintained their level of improvement when all therapy sources were removed.

The APOM provided valuable information on the length of stay an inpatient needed in order to reach their maximum potential activity participation level, in accordance with their diagnostic group. This allowed for trends to be associated with each diagnostic group, as described in the section 5.5. The changes in activity participation could be linked with the domains of the APOM, and provide valued information on symptoms related to the diagnosis being admitted. A research study conducted by Otieno (2010) looked at the possible length of stay for mental health care users within Tara's inpatient units and the factors that impacted on the length of stay. It was found that female participants were admitted for a shorter time period, and that socio-environmental factors played a role in the length of stay, with those who had jobs and a home to return to staying for a shorter time period. During this study it was noted that further in depth studies needed to be conducted to further inform length of stay of inpatients. The APOM would be a good outcome measure to use, to evaluate the effect size and inform length of stay.

In chapter 4, figure 4.14 it was noted that the average length of stay was between five to ten weeks, with some outlying participants (participant E and R), who stayed for a time period of 15-30 weeks. The results noted that most of the improvement was seen at the five-six week mark. This further illustrates that those individuals displaying minimal improvement at this stage need to have other environmental and support structures investigated, which could also be impacting on the level of activity participation. Within table 4.7 it was also important to take note of the average length of stay as per the diagnostic groups within the sample. This information illustrates the trend of length of stay, within

each group, however the sample size was too small for certain groups to form a meaningful pattern.

This information also translated in being beneficial to team members, in providing information on the readiness for discharge, amount of support needed after discharge and improvements within various components of functioning, for example level of 7 – 9 on the APOM scoring can be translated to the MHCU not being expected to independent functioning, 10 – 12, more independence but being unsure of their skills and needs encouragement and external support, 13 – 15 independent, being able to cope with usual demands but not unexpected changes. This information could therefore be conveyed to the families and teachers once discharged, so that individuals within this environment know the skills present within each case.

5.9 Convergent validity of APOM and EPI

During the research process, both self-report and objective measurements were used, with the participants scoring themselves on the self-report EPI and the APOM being objectively rated by the clinicians.

The nature of scoring of the two measurements is different and no statistically significant correlations were found between domains of the APOM and dimensions of the EPI. Several negative correlations were found but these were inconclusive in terms of clinical significance. At baseline, the EPI dimension of trustful correlated negatively with all eight domains of the APOM, while at follow up the EPI dimension of distrustful correlated negatively with all eight domains of the APOM. This result is contradictory and is therefore interpreted as inconclusive.

An interesting result at follow up was the correlation between the EPI dimension of depressed and the APOM domain of Affect, which showed a positive correlation of 0,62, but yet it was not statistically significant. A similar trend was seen between this dimension and the APOM domains of communication/interaction skills, Lifeskills, balanced lifestyle, motivation and self-esteem, where the correlation was between 0,41-0,45 and yet not statistically significant. From a clinical perspective this would be meaningful as the dimension of depressed would have an effect on activity participation, in the domains of communication/interaction skills, Lifeskills, balanced lifestyle, motivation, self-esteem and affect. However the sample size at follow up was only seven and thus results remain inconclusive.

5.10 Conclusion

The demographics of the sample and support structures were highlighted within the discussion chapter. There was an interesting pattern of the need for familial and social support structures and the impact of adolescents' mental illness on parents and caregivers. Patterns were noted for each diagnostic group, which provided information on their length of stay and activity participation. This information would be useful for the hospital setting specifically, as the sample size for each diagnostic group was too small. The APOM was found to be responsive to the sample group being researched, resulting in statistical significance in using the APOM with the group. This would therefore assist in tracking activity participation during inpatient admission, determining whether the progress is maintained post-discharge and in providing effective treatment planning as a result. Trends in activity participation before and after Occupational therapy intervention have indicated that MHCUs need a score of 10 or above to cope effectively within the school environment. Those who were below this level, and who came for the follow up session were seen to have moved to LSEN schools after their admission. The APOM had been noted as being useful in providing information on length of stay, readiness for discharge and in

determining the amount of support needed for the adolescent once discharged. The EPI added to providing a holistic picture of each participant, adding personality constructs, which further linked and correlated to items on the APOM. The convergent correlation with the EPI was inconclusive and did not add any new insights into the assessment process during the research procedure.

Chapter 6: *Conclusion*

6.1 Introduction

The final chapter of this research presents an evaluation of the study. This will be done according to strengths, challenges, limitations and recommendations. A final conclusion concludes this research.

6.2 Evaluation of the study

6.2.1 Strengths

This research provided an excellent opportunity to observe adolescents from a specific mental health urban setting who are suffering from mental illness and to generate new insights from these observations.

It provided a good opportunity to analyse the importance of external support structures and the role these play within the development of the adolescent, taking into account that the MHCU cannot be looked at in isolation, but rather within the holistic picture.

This is further demonstrated in the use of the single subject design, as each participant was studied based on his or her own unique presentation. This was beneficial to the researcher, clinician within the ward, adolescent and their parents as well as the schoolteacher. The reasoning for this was that it provided detailed information within each case and also resulted in consultation with the caregivers and parents, which provided information on their own difficulties with having a child with a mental disorder, as well as their own coping skills and work difficulties as a result. The ward, clinician and schoolteacher were therefore also

made aware of the progress as assessments occurred. This entire process was therefore a gain within the research process for all of those involved.

The APOM provided substantial information on the activity participation of the participants of this research group. This information could therefore provide valuable insights to the treating therapist, such as any changes from previous weeks, which could have been linked to the relapses noted in the sample. This could therefore assist in changing treatment methods.

The presence of having occupational therapists within the ward, who were trained in the APOM also provided assistance in the understanding of the levels of activity participation and the progression of each participant through the admission period. The presence of the researcher being an external therapist and the treating therapist within the sessions allowed for the bias to be reduced, with the researcher just assessing the participants and not providing the treatment as well.

The presence of a self-report questionnaire done by the participants and an objective measurement being taken by the therapist, resulted in some involvement by the participants within the research process.

The methodology of this study was successful in the sense that in spite of a small sample, the ABA pattern of single subject designs assisted to view each individual’s progress. This was combined with responsiveness investigations where the sample was pooled to calculate average changes per domain of the APOM. This yielded good clinical insights.

6.2.2 Challenges and Limitations

At the start of the research procedure, it was a necessity for assent and consent forms to be signed by the participants and their parents/guardians, due to ethical considerations. In certain circumstances, the MHCU wanted to participate, but their family was not willing to, due to not accepting that the participant had a mental illness. Some MHCUs were also not willing to participate in the research, displaying rebellious behaviour in accordance with developmental traits associated with the age group.

There was also a small sample group, firstly due to some participants not wanting to be part of the research, and also due to the small MHCU ward capacity. The small sample size was also attributed to a renovation process, which resulted in no admissions over a 5-month process. This therefore limited the sample size.

The participants follow up sessions were dependent on the parents/guardians. Some parents had noted that they did not have the time to bring the participants through for follow up, as they would need time off work, which they could not afford to do, either due to being self-employed or not having the ability due to increased job demands. Some follow up sessions were also difficult to organise due to the location of the residence of the participants.

Upon commencement of the research, the researcher was working at the hospital and within the ward being researched. However having left at the point of commencement of the data collection resulted in difficulties with obtaining approval from Tara to conduct the research, as the department was understaffed at the time. It also resulted in difficulties with knowing exactly when participants would be discharged, especially if there were sudden discharges or RHTs.

Although there were aspects of the methodology that were positive, the limitations of the methodology should not be overlooked. Responsiveness is criticised in the literature by the Delphi panel. (Mokkink *et al.* 2010) Their consensus opinion is that effect sizes or standardised response means are used inappropriately. Their criticism is that these statistical methods provide evidence of change in patients and no support that the instrument is valid to detect change. The effect size of this study has been interpreted as providing evidence of the responsiveness of the APOM to change in the adolescent population. The Delphi panel will thus not agree with the findings of this study.

The methodology for convergent validity was another limitation as discriminative validity, which usually accompanies convergent validity was not included. The comparator instrument (EPI) had weak evidence of appropriate validity and reliability and was perhaps also not the best instrument to select. It was a personal interest of the researcher to investigate to correlations between the EPI and the APOM as anecdotal information from psychologists on the multi-disciplinary team sparked this interest.

6.3 Recommendations

Further recommendations for this study include having follow up sessions with the parents of the participants, with possible support programmes in place to assist them with coping with their child who presents with a mental illness. Follow up sessions could also be aligned with the all members of the MDT, ensuring compliance by all those discharged patients, as it was noted that having MHCUs come back on differing days to see each member of the team resulting in non-compliance.

It is recommended that this routine measurement of change in activity participation to be continued in future. As mentioned above, some of the occupational therapists are trained in the use of the APOM and they may use it on a routine basis. The weekly assessments might be time consuming. It is

recommended that APOM is used at admission, repeated between the third and fourth week as well as the sixth to seventh weeks. The final APOM should be done at discharge. These intervals are based on the average length of stay per diagnostic group.

This study could also be repeated at all South African adolescent units using the VdTMoCA. The data from the different units could be pooled to document a comprehensive account of trends in the activity participation of adolescents with mental disorders.

In this study, a score of 10 was assumed as the level of coping with support when returning to school. A score of ten equals the patient-directed passive participation phase of creative ability in the VdTMoCA. Persons on this level are aware of the norms and standards of their environment but are hesitant and unsure to meet the demands. They require some assistance to initiate participation. Persons below this level are not aware of the norms and standards, often inappropriate and ideally, should not be exposed to demands of main stream schooling. This assumption that adolescents below the level of passive participation will not cope at school has never been tested. However from clinical opinion and experience, the majority of clinicians might agree to this assumption. During this research it was observed that some participants who were discharged at levels below a score of 10, were moved to LSEN schools. Further research into this assumption is thus recommended.

More in-depth demographic details would need to be elicited in further research studies, so as to provide information on whether these individuals have jobs, are caring for siblings, engaging in extra-mural activities and whether there is the presence of any other home demands, which may further impact on their mental health status.

Convergent validity should be repeated with another instrument that have closer convergence from a theoretical perspective. The Canadian Occupational Performance measure or the Assessment of Motor and Process Skills, which are both occupational performance related instruments, could be used.

6.4 Conclusion of study

The aim of this research was to examine the responsiveness to change of the APOM within the adolescent population and to convergent validity of the APOM and EPI. The research procedure provided an excellent opportunity for the achievement of this aim of study as the APOM was sensitive enough to document these changes as the participants were tested on a weekly basis. This also assisted in providing feedback to the MDT, participants and their families.

Specific trends were also noted within the research study and could therefore be applied when planning for discharge. It was interesting to note that during the follow up studies, there were many points brought forward by the participants and caregivers alike. This further highlighted some areas, which are overlooked by the MDT. These factors include the difficulties MHCUs face in returning to previous school environments; in they are not effectively prepared to cope with the workload presented. Another factor is the need for increased support structures to be in place for parents, who are also struggling to cope with family members and specifically their own children, who are now presenting with a mental illness.

During the process of my research, I started off working at Tara, which made the protocol process easier, as I was familiar with the environment, procedures and protocols followed. However, I did leave the hospital after ethics approval was granted, which resulted in some difficulty to obtain permission from the hospital to

carry out the research, due to staff shortages. Once approval was granted, the research procedure commenced, but was again halted due to ward renovations over a 5-month period. These situations did limit the sample numbers, which could have been higher. The result of not being a staff member at the hospital did present in difficulties with knowing who would be discharged, especially if it was a sudden discharge or RHT. There was however a flip side to this situation as well, in that I was able to carry out the assessments, in obtaining their APOM scores while another therapist conducted and carried on the therapy programme. This therefore gave an unbiased view on the functioning level at each collection point.

Overall it is felt that the research provided a better understanding into a topic of great passion. It was interesting to take note of the multitude of factors which a role in the development of this population group, and the need for strong external support systems through their transition period.

This research also highlighted the benefits in using an outcome measure like the APOM, which provided objective clinical reports on activity participation.

Lastly, the interesting (and in some cases rewarding) part of being able to follow up with some participants, even though the process was difficult, was seeing exactly where the participant has progressed to, within all areas of functioning. It also illustrates that those who were not at the required level at the point of discharge, experienced difficulties adjusting to their previous school environments. This would therefore open the door for further research into tracking performance from an inpatient stay into whether adolescent cope with their previous school working environments.

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Appendices

Appendix A: Adolescent programme at Tara H Moross Hospital

Appendix B: Occupational Therapy Programme in Adolescent unit

Appendix C: Initial Demographic Interview form

Appendix D: Activity Participation Outcomes Measure (APOM)

Appendix E: Emotional Performance Index (EPI)

Appendix F: Assent form

Appendix G: Consent form

Appendix H: Ethics Clearance form

APPENDIX A

ADOLESCENT PROGRAMME AT Tara HOSPITAL

Times	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6am – 8am	Medication, blood and vitals check Activities of daily living						
9am – 12.30pm	School					Free time	
12.30pm – 13.30pm	Lunch						
13.30pm – 17.00pm	Therapy times- group or individual					Free time	
17.00pm – 18.00pm	Visiting hours and homework						
18.00pm – 19.00pm	Supper time						
20.00pm – 21.00pm	Sleep time						

APPENDIX B

OCCUPATIONAL THERAPY PROGRAMME IN ADOLESCENT UNIT

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
MORNING SESSION		**11.30am-12.30pm** LESIURE AND SOCIAL SKILLS GROUP	**11.30am-12.30pm** WORK SKILLS GROUP		
AFTERNOON SESSION	**14.00pm-15.00pm** LIFE SKILLS GROUPS				

APPENDIX C

INITIAL DEMOGRPAHIC INTERVIEW FORM

DEMOGRAPHIC INFORMATION SHEET

Name: _____

Age:_____Gender:_____

Grade:_____

Name of current school: _____

Last date attended school: _____

Home address: _____

Siblings: _____

Mother's name: _____ Age: _____

Contact details: _____

Father's name: _____ Age: _____

Contact details: _____

Relationship towards parents:

_____

_____

Social support within home environment:

_____

_____

Social support within school environment:

_____

_____

Diagnosis:

_____

_____

Date of admission:

_____

APPENDIX D

Date of assessment APOM Score sheet Patient research ID:_____

Process skills	
Attention	
Pace	
Knowledge – of tools and materials	
Knowledge – concept formation	
Skills to use tools and materials	
Task Concept	
Organizing space and objects	
Adaptation	
Communication / Interaction skills	
Physicality – physical contact	
Physicality – Gazes	
Physicality – Gestures	
Physicality – Use of body	
Information exchange – Use of speech	
Information exchange – Content of conversation	
Information exchange – Expression of needs	
Information exchange – Initiate interaction	
Relations – Social norms	
Relations – Rapport	

Lifeskills	
Personal care, hygiene, grooming	
Personal safety	
Care of medication	
Use of transport	
Domestic skills	
Child care skills	
Money management, budgeting skills	
Assertiveness	
Stress management	
Conflict management	
Problem solving skills	
Pre-vocational skills	
Vocational skills	
Role performance	
Awareness of roles	
Role expectations	
Role balance	
Competency	

Balanced life style	
Time use and routines	
Habits	
Mix of occupations	
Motivation	
Active involvement	
Motives and drives	
Shows interest	
Goal directed behaviour	
Locus of control	
Self-esteem	
Commitment to task /situation	
Using feedback	
Self-worth	
Attitude towards self – self-assurance	
Attitude towards self – satisfaction with self	
Awareness of qualities	
Social presence	
Affect	
Repertoire of emotions	
Control	
Mood	

Emotions Profile Index

PROFILE SHEET

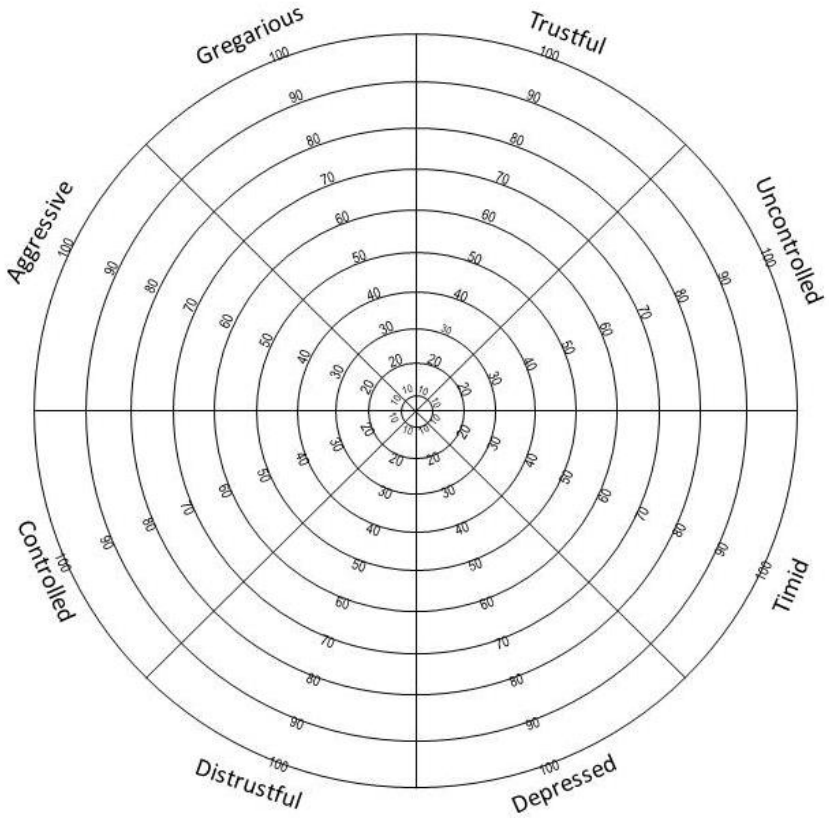
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Name:	
Date:	
Age:	Gender:
Marital Status:	
Current level of education:	
Occupation:	
Comments:	

Emotional Dimension	Raw score	Percentile
1. Trustful		
2. Uncontrolled		
3. Timid		
4. Depressed		
5. Distrustful		
6. Controlled		
7. Aggressive		
8. Gregarious		



			1	2	3	4	5	6	7	8	9				1	2	3	4	5	6	7	8	9
1	Friendly	1	o							o		1	Self-conscious	1						o			
2	Adventurous	2		o				o				1	Sensitive	2							o		
1	Sensitive	1					o		o			1	Self-conscious	1						o			
2	Shy	2			o			o			o	2	Troublemaker	2							o		
1	Impulsive	1							o			1	Troublemaker	1					o		o		
2	Adventurous	2						o			o	2	Friendly	2	o							o	o
1	Sombre	1				o						1	Obedient	1	o		o						o
2	Sensitive	2					o					2	Adventurous	2		o				o			
1	Impulsive	1		o					o			1	Impulsive	1			o				o		
2	Cautious	2			o			o			o	2	Self-conscious	2					o	o			
1	Unfriendly	1				o			o			1	Self-conscious	1					o	o			o
2	Cautious	2			o			o			o	2	Unfriendly	2				o			o		
1	Adventurous	1		o				o				1	Social	1	o							o	o
2	Social	2	o							o	o	2	Unfriendly	2				o			o		
1	Friendly	1	o							o	o	1	Adventurous	1		o				o			o
2	Impulsive	2		o					o			2	Troublemaker	2					o		o		
1	Adventurous	1		o				o			o	1	Unfriendly	1				o					
2	Sombre	2				o			o			2	Impulsive	2		o							o
1	Cautious	1			o			o			o	1	Obedient	1	o		o						o
2	Sensitive	2					o		o			2	Unfriendly	2				o			o		
1	Troublemaker	1					o		o			1	Unfriendly	1				o			o		
2	Obedient	2	o		o						o	2	Social	2	o							o	o
1	Obedient	1	o								o	1	Unfriendly	1				o			o		
2	Shy	2						o				2	Adventurous	2		o				o			
1	Social	1	o							o	o	1	Shy	1			o			o			
2	Self-conscious	2					o	o				2	Impulsive	2		o					o		
1	Adventurous	1		o				o			o	1	Cautious	1				o		o			o
2	Sensitive	2					o		o			2	Sombre	2					o		o		

1	Sensitive	1					o		o			1	Friendly	1								o	
2	Friendly	2	o							o	o	2	Obedient	2			o						o
1	Shy	1			o							1	Adventurous	1		o							o
2	Self-Conscious	2					o					2	Self-conscious	2					o				
1	Cautious	1			o						o	1	Sombre	1				o			o		
2	Self-conscious	2					o					2	Obedient	2	o		o						o
1	Social	1	o						o	o		1	Impulsive	1		o							o
2	Troublemaker	2					o		o			2	Sombre	2				o					
1	Troublemaker	1					o		o			1	Sensitive	1					o				
2	Shy	2			o			o			o	2	Impulsive	2		o							o
1	Impulsive	1		o					o		o	1	Self-conscious	1					o	o			
2	Social	2	o							o		2	Friendly	2	o							o	o
1	Adventurous	1		o								1	Friendly	1	o							o	o
2	Cautious	2			o						o	2	Unfriendly	2				o			o		
1	Shy	1			o			o			o	1	Shy	1			o						
2	Unfriendly	2				o			o			2	Adventurous	2		o							o
1	Social	1	o							o		1	Impulsive	1		o							o
2	Cautious	2			o			o				2	Troublemaker	2					o				
1	Sensitive	1					o		o			1	Sombre	1				o			o		
2	Obedient	2	o		o						o	2	Shy	2			o			o			o
1	Self-conscious	1					o	o				1	Shy	1			o			o			
2	Obedient	2	o		o						o	2	Social	2	o							o	o
1	Cautious	1			o			o			o	1	Obedient	1	o								
2	Friendly	2	o							o		2	Cautious	2						o			
1	Unfriendly	1				o			o			1	Social	1	o							o	o
2	Self-conscious	2					o	o				2	Sensitive	2					o		o		
1	Friendly	1	o							o	o	1	Troublemaker	1					o				
2	Shy	2			o			o				2	Unfriendly	2				o					
1	Sombre	1				o						1	Sensitive	1					o				
2	Troublemaker	2					o					2	Unfriendly	2				o					
1	Sombre	1				o			o			1	Obedient	1	o		o						o
2	Friendly	2	o							o	o	2	Impulsive	2		o					o		
1	Cautious	1			o		o		o			1	Obedient	1			o						
2	Troublemaker	2					o		o			2	Social	2								o	

	Column 1-Tr	Column 2-Dy	Column 3-Ti	Column 4-De	Column 5-Di	Column 6-Co	Column 7-Ag	Column 8-Gr	Column 9-Bi
Raw Score									

Name…… Date……

APPENDIX F

CONSENT INFORMATION DOCUMENT – Parent / guardian

Title of research: Responsiveness to change and convergent validity of the Activity Participation Outcome Measure (APOM) in adolescent mental health care users.

Good day Sir/ Madam

My name is Sayuri Pillay, and I am currently doing research in Occupational Therapy on the adolescent group at Tara H Moross Hospital. Research is just a process of learning the answer to a question. In this study we want to learn whether we can track change within each participant, during his or her stay on the programme. This will be done by testing whether a new assessment tool can be used to provide input regarding the change of participation while receiving therapy on the unit, and once discharged.

We would therefore like to ask for you to consent for your child to be part of the research study.

The research will start from referral to Occupational Therapy. This will include an initial interview and assessment; with weekly follow-ups, and a final assessment prior to discharge. This process will track change in performance within the programme and determine whether the progress made is sustained once discharged, during a follow up session. The research process will last for the duration of

the inpatient stay, with one follow up six to eight weeks after discharge. The assessments will take place for an hour-long session upon each follow up, with standard procedures being done during the study period.

Benefits of being involved in the study include that a comprehensive report will provide input weekly to the multidisciplinary team in the unit, with a thorough final report compiled, illustrating the overall progress within the programme.

Relevant information will be made available on the study, while involved in the project and after the results are available.

Participation within this research study is voluntary, and refusal to participate will not

involve any penalty or loss of benefits within the programme. The decision to discontinue participation at any time will not result in penalty or loss of benefits.

Reimbursement will be provided for transportation fees (return trip) if making an additional trip to the hospital to follow up. The amount will depend on the transport you used e.g. taxi fare or petrol money (R2.30/km).

Efforts will be made to keep personal information confidential. Names of the adolescents will be coded and only the researcher will have access to the coding list. Absolute confidentiality cannot be guaranteed. Personal information may be disclosed if required by law.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the Research Ethics Committee. If results are published, it may lead to individual / cohort identification.

For further information regarding the study or reporting the study due to any adverse events, the contact details of researcher are as follows:

email: srpillay1@gmail.com.

You are welcome to contact the Ethics Committee to report any complaints or in case you have any queries. The contact person is Anisa Keshav, Wits Research Office, 10th Floor Senate House, East Campus at 011-717-1234 or e-mail anisa.keshav@wits.ac.za

Please sign below that you have read all the information regarding the research procedure.

Parent/guardian name:_____

Parent/guardian Signature: _____

Date: _____

APPENDIX G

ASSENT INFORMATION DOCUMENT

Title of research: Responsiveness to change and convergent validity of the Activity Participation Outcome Measure (APOM) in adolescent mental health care users.

Hello

My name is Sayuri Pillay, and I am currently doing research in Occupational Therapy on the adolescent group at Tara H Moross Hospital. Research is a process of improving the service in the hospital. In this study we want to learn whether we can see progress in your everyday functioning while participating in the occupational therapy programme. This will be done by testing whether a new assessment tool can detect your progress while in hospital as well as after discharge.

We would therefore ask you to be part of the research study.

The research will as soon as you are referred to Occupational Therapy. This will include an initial interview and assessment; with weekly follow-up appointments, and a final assessment prior to discharge. The research process will last for the duration of the inpatient stay, with one follow up six to eight weeks after discharge. The assessments will take place for an hour-long session upon each follow up, with standard procedures being done during the study period.

Benefits will be a comprehensive report that provides input weekly to the multidisciplinary team in the unit, with a thorough final report compiled, illustrating the overall progress within the programme.

Participation within this research study is voluntary, and you may refuse to participate. You will not be penalised or loose any benefits if you do not want to participate in the

research. In such case, you will continue with the normal programme in Occupational Therapy.

Reimbursement to the person who brings you to the hospital will be provided if making an additional trip to follow up.

Efforts will be made to keep personal information confidential. Your name will be coded (a number instead of the name). Absolute confidentiality cannot be guaranteed. Personal information may be disclosed if required by law.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the Research Ethics Committee. If results are published, may lead to individual / cohort identification.

For further information regarding the study or reporting the study due to any adverse events, the contact details of researcher are as follows:

email: srpillay1@gmail.com.

You are welcome to contact the Ethics Committee to report any complaints or in case you have any queries. The contact person is Anisa Keshav, Wits Research Office, 10th Floor Senate House, East Campus at 011-717-1234 or e-mail anisa.keshav@wits.ac.za

Please sign below that you have read all the information regarding the research procedure.

Client name:_____

Client Signature: _____

Date: _____

APPENDIX H

R14/49 Ms Sayuri Pillay

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M130925

NAME: (Principal Investigator)	Ms Sayuri Pillay
DEPARTMENT:	Occupational Therapy Tara H Moross Centre
PROJECT TITLE:	Responsiveness to Change and Concurrent Validity of the Activity Participation Outcome Measures (APOM) in adolescent Mental Health Care Users
DATE CONSIDERED:	27/09/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Daleen Casteleijn
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	02/12/2013

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**.

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES