Table 3

*Descriptive statistics, results of t-tests, and effect sizes for differences in psychological measures among participants infected with HIV and participants not infected with HIV in rural areas.*

| Variables | HIV Uninfected N = 496 | | HIV Infected N = 85 | | p | Cohen d |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| AFM_PA | 31.16 | 5.43 | 32.95 | 5.46 | 0.006 | -0.33 |
| AFM_NA | 27.37 | 6.55 | 26.30 | 6.85 | 0.170 | 0.16 |
| SWLS | 15.58 | 5.75 | 15.37 | 6.48 | 0.762 | 0.03 |
| CCES | 22.85 | 5.06 | 21.04 | 5.29 | 0.003 | 0.34 |
| MHCSF_EWB | 6.80 | 3.50 | 7.43 | 3.37 | 0.132 | -0.18 |
| MHCSF_SWB | 10.23 | 4.61 | 10.55 | 4.71 | 0.571 | -0.07 |
| MHCSF_PWB | 19.48 | 4.88 | 18.91 | 5.13 | 0.329 | 0.11 |
| MHCSF | 36.54 | 9.28 | 36.87 | 9.09 | 0.760 | -0.04 |
| GSE | 27.69 | 4.17 | 27.96 | 4.27 | 0.598 | -0.06 |
| NGSE | 28.65 | 5.08 | 28.19 | 4.95 | 0.454 | 0.09 |
| SOC | 125.49 | 25.07 | 121.77 | 21.94 | 0.207 | 0.15 |
| GHQ_SS | 2.43 | 2.15 | 2.31 | 1.88 | 0.644 | 0.05 |
| GHQ_AS | 2.63 | 2.22 | 2.15 | 1.79 | 0.060 | 0.22 |
| GHQ_SD | 2.31 | 1.63 | 2.33 | 1.75 | 0.902 | -0.01 |
| GHQ_DS | 1.79 | 1.91 | 1.78 | 1.73 | 0.954 | 0.01 |
| GHQ | 9.16 | 6.53 | 8.56 | 5.85 | 0.442 | 0.09 |

Note: AFM:PA = Affectometer (Positive Affect); AFM:NA = Affectometer (Negative Affect); SWLS = Satisfaction With Life Scale; CCES = Community Collective efficacy Scale; MHC:EWB = Mental Health Continuum (Emotional Well-being); MHC:SWB = Mental Health Continuum (Social Well-being); MHC:PWB = Mental Health Continuum (Psychological Well-being); MHCSF = Mental Health Continuum Short Form; GSE = General Self-efficacy Scale; NGSE = New General Self-efficacy Scale; SOC = Sense of Coherence Scale; GHQ:SS = General Health Questionnaire (Somatic Symptoms); GHQ:AS = General Health Questionnaire (Anxiety and Insomnia); GHQ_SD = General Health Questionnaire (Social Dysfunction); GHQ:DS = General Health Questionnaire (Severe Depression); GHQ = General Health Questionnaire.

Table 2

*Descriptive statistics, results of t-tests, and effect sizes for differences in psycho-logical measures among participants infected with HIV and participants not infected with HIV in urban areas.*

| Variables | HIV Uninfected N = 367 | | HIV Infected N = 68 | | p | Cohen d |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| AFM_PA | 33.89 | 6.56 | 32.42 | 6.79 | 0.096 | 0.22 |
| AFM_NA | 26.08 | 6.17 | 26.70 | 6.09 | 0.446 | -0.10 |
| SWLS | 19.87 | 5.80 | 19.59 | 6.55 | 0.720 | 0.04 |
| CCES | 23.57 | 4.16 | 23.57 | 4.91 | 0.993 | 0.00 |
| MHCSF_EWB | 8.68 | 3.45 | 8.59 | 3.36 | 0.845 | 0.03 |
| MHCSF_SWB | 12.69 | 3.75 | 13.03 | 4.58 | 0.505 | -0.07 |
| MHCSF_PWB | 19.58 | 5.06 | 19.31 | 4.86 | 0.687 | 0.05 |
| MHCSF | 40.99 | 8.85 | 40.94 | 10.01 | 0.968 | 0.00 |
| GSE | 28.11 | 5.00 | 27.51 | 4.36 | 0.357 | 0.12 |
| NGSE | 27.45 | 5.63 | 26.87 | 5.52 | 0.432 | 0.10 |
| SOC | 126.57 | 19.63 | 119.77 | 17.50 | 0.008 | 0.35 |
| GHQ_SS | 1.84 | 1.78 | 2.31 | 1.96 | 0.051 | -0.24 |
| GHQ_AS | 2.14 | 1.86 | 2.54 | 1.88 | 0.107 | -0.21 |
| GHQ_SD | 2.08 | 1.72 | 2.22 | 1.88 | 0.547 | -0.07 |
| GHQ_DS | 1.49 | 1.77 | 1.90 | 1.87 | 0.079 | -0.22 |
| GHQ | 7.55 | 5.96 | 8.97 | 6.46 | 0.075 | -0.22 |

Note: AFM:PA = Affectometer (Positive Affect); AFM:NA = Affectometer (Negative Affect); SWLS = Satisfaction With Life Scale; CCES = Community Collective efficacy Scale; MHC:EWB = Mental Health Continuum (Emotional Well-being); MHC:SWB = Mental Health Continuum (Social Well-being); MHC:PWB = Mental Health Continuum (Psychological Well-being); MHCSF = Mental Health Continuum Short Form; GSE = General Self-efficacy Scale; NGSE = New General Self-efficacy Scale; SOC = Sense of Coherence Scale; GHQ:SS = General Health Questionnaire (Somatic Symptoms); GHQ:AS = General Health Questionnaire (Anxiety and Insomnia); GHQ_SD = General Health Questionnaire (Social Dysfunction); GHQ:DS = General Health Questionnaire (Severe Depression); GHQ = General Health Questionnaire.

Table 1

*Descriptive statistics, results of t-tests, and effect sizes for differences in psychological measures among participants infected with HIV and participants not infected with HIV in the total group:*

| Variables | HIV Uninfected N = 863 | | HIV Infected N = 153 | | p | Cohen d |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| AFM_PA | 32.31 | 6.08 | 32.72 | 6.07 | 0.453 | -0.07 |
| AFM_NA | 26.82 | 6.42 | 26.48 | 6.50 | 0.543 | 0.05 |
| SWLS | 17.40 | 6.14 | 17.28 | 6.82 | 0.833 | 0.02 |
| CCES | 23.16 | 4.71 | 22.17 | 5.26 | 0.021 | 0.19 |
| MHCSF_EWB | 7.60 | 3.60 | 7.96 | 3.40 | 0.261 | -0.10 |
| MHCSF_SWB | 11.28 | 4.43 | 11.67 | 4.80 | 0.320 | -0.08 |
| MHCSF_PWB | 19.52 | 4.95 | 19.09 | 4.99 | 0.326 | 0.09 |
| MHCSF | 38.43 | 9.36 | 38.72 | 9.70 | 0.730 | -0.03 |
| GSE | 27.87 | 4.54 | 27.75 | 4.30 | 0.774 | 0.03 |
| NGSE | 28.14 | 5.35 | 27.59 | 5.24 | 0.248 | 0.10 |
| SOC | 125.95 | 22.92 | 120.87 | 20.03 | 0.011 | 0.22 |
| GHQ_SS | 2.18 | 2.02 | 2.31 | 1.91 | 0.457 | -0.07 |
| GHQ_AS | 2.43 | 2.09 | 2.33 | 1.84 | 0.586 | 0.05 |
| GHQ_SD | 2.21 | 1.67 | 2.28 | 1.81 | 0.641 | -0.04 |
| GHQ_DS | 1.66 | 1.85 | 1.83 | 1.79 | 0.292 | -0.09 |
| GHQ | 8.47 | 6.34 | 8.75 | 6.12 | 0.620 | -0.04 |

Note: AFM:PA = Affectometer (Positive Affect); AFM:NA = Affectometer (Negative Affect); SWLS = Satisfaction With Life Scale; CCES = Community Collective efficacy Scale; MHC:EWB = Mental Health Continuum (Emotional Well-being); MHC:SWB = Mental Health Continuum (Social Well-being); MHC:PWB = Mental Health Continuum (Psychological Well-being); MHCSF = Mental Health Continuum Short Form; GSE = General Self-efficacy Scale; NGSE = New General Self-efficacy Scale; SOC = Sense of Coherence Scale; GHQ:SS = General Health Questionnaire (Somatic Symptoms); GHQ:AS = General Health Questionnaire (Anxiety and Insomnia); GHQ_SD = General Health Questionnaire (Social Dysfunction); GHQ:DS = General Health Questionnaire (Severe Depression); GHQ = General Health Questionnaire.

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only small and medium practical significance as indicated by the calculations of effect size, it may be worthwhile to take note of Matthews, Gallo and Taylor (2010) remark that minor associations or differences in samples may be meaningful and informative on a population level.

The current study is one of the first research studies to compare the psycho-social health profiles of the participants infected with HIV, who are unaware of their infected status, with those of the participants not infected with HIV, and therefore contributes to the body of knowledge about the possible influence of the virus's biological-physical processes on a person's psychological functioning. An alternative or supplementary explanation of behavioural pathways is also offered, which points to the possible role that the experience of social integration and collective responsibility may play in achieving mutual goals. This might be a strength that protects participants from behaviours which might increase the possibility of becoming infected with HIV. Further research should be done, however, to gain a greater understanding of the discrepancy between the participants' psycho-social profiles in rural and urban areas and those in groups with a relatively stronger individualistic cultural orientation.

being infected with HIV and the duration of the infection was not known, the phase of the illness could not be determined. This inability to determine the phase of the illness limited an understanding of the full extent of the influence that the biological-physical processes in the body had on the psychological well-being of the participants. Further research should be conducted on the proposed social-integration hypothesis, as part of a psychological/behavioural mechanism for explaining the differences in the well-being of the participants infected with HIV and the participants not infected with HIV, especially also in relatively individualistic groups. The higher level of positive affect in the rural group of participants infected with HIV is still unexplained and requires further research.

## Conclusion

The research question for the current study was whether people with and without HIV infection differ in their psycho-social symptoms and strengths before their HIV status is made known to them. The findings suggest that the participants infected with HIV as a total group had a lower sense of coherence and a lower belief in their efficacy to succeed in joint community activities than the participants not infected with HIV, but the effect sizes showed only a small practical applicability of this finding. The urban group of participants infected with HIV had a lower personal sense of coherence that was of practical significance, and also showed more somatic symptoms (of small practical significance). Unexpectedly, the rural group of participants infected with HIV experienced practically significantly more positive affect than the participants not infected with HIV, but the participants not infected with HIV had a statistically and practically greater capacity to succeed in joint community activities than the participants infected with HIV. Therefore it can be said that people with and without HIV infection do differ in some respects in their psycho-social symptoms and strengths, even before they know their HIV status. Although these differences are relatively small and of

case of infected participants, and might therefore have lead to high-risk social behaviours and consequent infections. Antonovsky (1987, 1993) conceptualises the core components of the sense of coherence (as measured by the SOC) as comprehensibility, manageability and meaningfulness, and indicated that it expresses a person's experience of his/her life in context. Antonovsky (1987, 1993) showed that a sense of coherence is an important determinant of psychological well-being and has positive correlations with many indices of physical well-being. Carroll et al. (2005) state that they intended their Community Collective Efficacy Scale (CCES) to indicate a person's sense of involvement in collective efficacy in a community network, and argue that it measures a sense of "we-ness" as opposed to "I-ness". The belief in collective efficacy influences the futures people seek to achieve through their collective responsible action and their use of the resources available to them. It may therefore be that participants with a relatively low sense of social coherence, integration and cooperation towards collectively achieving meaningful goals were more inclined to manifest behaviours that would lead to detrimental consequences (in this case HIV infection) for themselves and others. Such an explanation is in line with the findings of Wissing and Vorster (2000) in another African sample, namely that specific destructive coping strategies are associated with a higher probability of contracting HIV and AIDS. The current finding may be specific to an African community with relatively strong collectivist cultural systems (cf. Wissing & Temane, 2008) and should be explored further in more individualistically oriented groups to see whether the same findings would apply.

**Limitations of the current study and suggestions for future research.** A greater number of participants in the urban areas completed the psychological measurements than the number of participants in the rural areas, which might have had an influence on the reliability of the results. This may not necessarily be the case, however, as the number of participants still had significant power. Furthermore, as the participants had been newly identified as

These traces of lower psychological health shown by the participants infected with HIV even before their status was known to them could be explained from a biological and/or psychological/behavioural perspective. From a biological perspective, the lower well-being in some instances among the participants infected with HIV may reflect the effect of the virus on their bodies, which in turn influences their psychological well-being. In this case the negative impact of HIV on the participants' psycho-social functioning would not be due to the knowledge of their HIV-infected status, but to biological-physical processes. Some of these biological-physical processes could be part of the symptoms experienced in the minor symptomatic phase, or the major symptomatic phase, or the severe symptomatic phase. Another possibility that should not be disregarded is the effects of HIV on the central and peripheral nervous system (Obe-Larsson et al., 2009) or even the possibility that participants may have the AIDS dementia complex (Lezak et al., 2004; Widmaier et al., 2004). In the last-mentioned case, however, they would not have been selected for participation in the study because only apparently healthy participants were included in the participant group.

Alternatively, some of the participants might have suspected that they were infected with HIV while completing the psychological health questionnaires, and the reality and severity of the expected stigmatisation of being infected with HIV may have influenced the results. This possibility might also explain the negative impact on their psychological well-being. Therefore the effect of the participants' suspected HIV-infected status on the results cannot be completely dismissed, and may reflect an anticipatory reactive state. However, this possibility does not explain the differences that were noted on the specific measures but not on others that also measured facets of well-being.

From a psychological and behavioural perspective, it is noteworthy that the differences found on psychological measures (SOC and CCES) were on the indices reflecting a personal sense of social coherence, integration and responsibility, which was lower in the

The p-values of the MANOVA Wilk's Lambda indicated no significant difference among the participants not infected with HIV and the participants infected with HIV, but when the participants are divided into rural and urban groups, both relations are statistically significant ($p = 0.04$ and 0.01 respectively). Therefore, although there are not many statistically significant differences in the individual psychological measures, there is a significant difference at a more global level. In both of these cases, the effect sizes (0.05 and 0.06 respectively) are between small and medium (cf. Steyn & Ellis, 2009), indicating the possibility of practical significance. Further research should be done to understand the effect size.

No association between psychological measures for the participants infected with HIV and the participants not infected with HIV was found that might indicate a practically significant effect for gender or age.

## Discussion

The aim of this study was to explore the psycho-social health profiles of people with and without HIV and AIDS before their infection status was known to them.

The findings show that the participants not infected with HIV are in some respects psychologically healthier than the participants infected with HIV. In the total group, the participants not infected with HIV had a higher sense of coherence and a greater capacity to succeed in joint community activities than the participants infected with HIV. In the urban group, the participants infected with HIV showed more somatic symptoms and had a lower personal sense of coherence. In the case of the rural group, the participants infected with HIV showed an unexpectedly higher level of positive affect, but also a lower sense of community efficacy and a notable, but statistically non-significant, lower sense of coherence.

community activities than the participants infected with HIV. It is important to note, however, that the differences in the size of the effects indicate only a small practical applicability.

[Table 1]

Table 2 shows the descriptive statistics, the results of t-tests, and the effect sizes for differences on psychological measures between the participants infected with HIV and the participants not infected with HIV in urban areas. Participants infected with HIV in the urban areas had a statistically significant lower sense of coherence (SOC) than the participants not infected with HIV. The effect size indicates that this might be important in practice. A statistically significantly larger number of somatic symptoms (GHQ:SS) were also found in the urban group, but the effect size indicates that this difference is of only small practical importance. When considering the findings for the rest of the psychological measures, it can be seen that there are no statistically significant differences, but that there is a tendency for most of the psychological measurements to be more positive (and therefore healthier) in the participants not infected with HIV than in the participants infected with HIV.

[Table 2]

Descriptive statistics, the results of t-tests, and the effect sizes for differences in the psychological measures among the participants infected with HIV and the participants not infected with HIV in rural areas, are presented in Table 3. The participants infected with HIV in the rural areas experienced statistically significantly more positive affect (AFM:PA) than the participants not infected with HIV. The participants infected with HIV had a statistically significant lower capacity to succeed in joint community activities (CCES) than the participants not infected with HIV in the rural areas. In both instances, the effect sizes were in the medium range and therefore indicate the possibility of an effect in practice.

[Table 3]

However, it is important to note that these guideline values are only a basis to interpret the effect of differences between means, and should not be used in an absolute sense. Since typical effect size magnitudes may vary greatly across different research areas and tend to be larger in controlled laboratory studies than in uncontrolled field studies, these values should not be interpreted with the same rigidity as $\alpha = 0.05$ that has been applied to statistical tests (Steyn & Ellis, 2009). When working with the social sciences, it is generally expected that the values would fall in the medium effect range, since there are large variances among human beings.

Possible significant differences in psycho-social profiles among the participants with and without HIV and AIDS, and in the rural and urban groups, were also determined by means of a multivariate analysis of variance (MANOVA). Steyn and Ellis (2009) state that the Wilk's Lambda is reported as an indication of the statistical significance of the multivariate difference between groups infected with HIV and groups not infected with HIV. The practical significance of this difference is reported as an effect size (1 – Wilk's Lambda). Guidelines for the interpretation of the Wilk's Lambda of the effect size of the MANOVA in the current case are 0.02 = small effect, 0.13 = medium effect and 0.26 = large effect (Steyn & Ellis, 2009).

## Results

Descriptive statistics, the results of t-tests, and the effect sizes of psychological measures for the participants infected with HIV and the participants not infected with HIV are presented in Table 1. There are statistically significant differences in the sense of coherence (SOC) of the two groups of participants and their perspective on their own community's capacity to succeed in joint activities (CCES). Participants who were not infected with HIV had a greater sense of coherence and a greater capacity to succeed in joint

measures employed in this study were translated into Setswana by a registered African translator, back-translated by two multi-lingual African doctoral students, and then finalised by using a research committee approach as advised by Van der Vijver and Leung (1997) and described in the validation studies mentioned above.

**Data analysis**

Descriptive statistics were determined for all measures for all the participants with, and without HIV. Significant differences in the psycho-social profiles among individuals with and without HIV and AIDS, and also between those in the rural and urban groups, were determined with t-tests.

A random sample creates an opportunity for studying the properties of a population. In such cases, the statistical significance tests (e.g., t-tests) are used to show that the results (e.g., difference between two means) are significant. The p-value is a criterion of this, giving an indication of the probability that the value rejects the null hypothesis (e.g., that there is no difference between the population mean of the two groups). For the purposes of this study, differences were regarded as statistically significant when the p-value was smaller than 0.05 (cf. Ellis & Steyn, 2003; Steyn, 2000).

Ellis and Steyn (2003) also state that statistical significance does not necessarily imply that the result is important in practice, as these tests have a tendency to yield small p-values as the sizes of the data sets increase. An accepted way of commenting on practical significance is to use the standardised difference between the means of two populations, i.e., the difference between the two means divided by the estimate for standard deviation (Cohen's d value). Cohen (1988) states that guidelines for the interpretation of the effect size in the current case are d = 0.2 (small effect), d = 0.5 (medium effect) and d = 0.8 (large effect).

measurement of a few physiological aspects. Everyone, who had given consent after pre-counselling, was tested for HIV, but each was given the choice whether they wanted to know their status or not. HIV status was determined by the First Response (PMC Medical, India) rapid HIV card test, using whole blood. If the test was positive, the test was repeated for confirmation with the Pareeshak (BHAT Bio-tech, India) card test. Everyone received pre-test counselling in groups of 10 participants before the blood sample was taken and individual post-test counselling took place while the participants were given the results of the HIV tests and also the results of other tests (e.g. blood pressure and blood sugar level) before they went home. Every individual identified with an abnormality in the tested markers was referred to the nearest clinic or hospital. A total of 1 025 participants were tested. The psychological health questionnaires were completed before the participants' HIV status was revealed to them.

Training was provided to the 16 Setswana-speaking fieldworkers who took part in the administration of the above-mentioned measures to the randomly selected participants in all four of the communities. Training consisted firstly of a discussion about the basic principles of survey research, the administration of the battery of measures and the manner in which data should be gathered. Secondly, students in Psychology administered the battery of measures to each fieldworker. This was followed by an open discussion where fieldworkers indicated problematic items and discussed administrative procedures. The meaning of each translated item was compared to the English version to ensure accurate translation. Once there was certainty about the fieldworkers' understanding of each item, the fieldworkers administered the measures to one another, to ensure that every fieldworker would have an opportunity to receive feedback on his/her interviewing skills. As most of the participants from the remote rural areas are illiterate, a structured interview format was used during the administration of the measures (Van der Walt, Potgieter, Wissing, & Temane, 2008). All the

**Sense of Coherence Scale (SOC) (Antonovsky, 1987).** The SOC measures an individual's way of experiencing the world and his/her life in it. Antonovsky (1993) indicates that the SOC manifested internal reliability indices of 0.78 to 0.93 as reported in 26 different studies. Wissing et al. (1999) and Wissing et al. (2008) have demonstrated the reliability and validity of this scale for the current group of participants.

**General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979).** The GHQ detects common symptoms, indicative of various syndromes of mental disorder, and differentiates between individuals with psychopathology as a general class and those who are considered to be normal. The Cronbach alpha reliabilities reported vary from 0.82 to 0.86 (Goldberg & Hillier, 1997), from 0.77 to 0.84 for the subscales and 0.91 for the Total Scale Score by Wissing and Van Eeden (2002) in a South African group. A Cronbach alpha reliability coefficient, for a Setswanna-speaking group, was reported by Keyes et al. (2008) as 0.89 for the Total Scale.

## Procedure

At the time of the present study, the data had already been collected. The procedure was as follows (see Watson, 2008; and Van Straten, et al., 2008). Permission to execute the PURE-SA study was obtained from the provincial Department of Health (North West Province), local authorities and from the Tribal Chief in the rural area by the PURE-SA study leader (Kruger, 2005). The participants who took part in the PURE-SA study were randomly selected to give each volunteer in the selected population an equal probability of being part of the study and to provide for generalising the sample to the greater population (Watson, 2008).

The participants who were visited at home and who completed the physical and psychological health questionnaires (as mentioned above), were transported by taxi to a team of expert researchers, where the participants once again gave informed consent for the

participants in this particular group was demonstrated by Wissing et al. (1999) and Wissing, Wissing, Du Toit, and Temane (2008).

**Satisfaction With Life Scale (SWLS) (Diener et al., 1985).** The SWLS (a 5-item scale) was developed to give an indication of a person's general satisfaction with life. Diener et al. (1985) reported a Cronbach alpha-reliability index of 0.87. With regard to the South African context, Keyes et al. (2008) found an internal reliability of 0.69 in the current group of participants.

**Community Collective Efficacy Scale (CCES) (Carrol, Rosson, & Zhou, 2005).** The CCES measures the community's capacity to succeed in joint activities. Carroll, Zhou and Rosson (2005) report an internal reliability of 0.86. Only seven items were selected from the CCES for use in the present study, as the rest of the items in the scale by Carrol et al. (2005) were not relevant to collective community efficacy. This seven-item version was validated by Van Straten, Temane, Wissing, and Potgieter (2008) who reported a 0.72 Cronbach alpha for this scale for the participants in the current research group.

**Mental Health Continuum Short Form (MHC-SF) (Keyes, 2005).** The MHC-SF consists of 14 items. It measures the degree of (1) emotional well-being; (2) social well-being, and (3) psychological well-being (Keyes, 2005). The internal reliability of the overall MHC–SF Scale for the participants in the current research group was 0.74 (Keyes et al., 2008).

**New General Self-efficacy Scale (NGSE) (Chen, Gully, & Eden, 2001).** This scale measures the tendency of individuals to view themselves as more or less capable of meeting task demands in various contexts (Chen et al., 2001). Internal consistency reliabilities have been found to range from 0.86 to 0.90, and in a South African study Van Straten et al. (2008) found a Cronbach reliability coefficient of 0.74.

informal settlements surrounding community C. The research team visited 4 000 participants from these communities at home and after they had given voluntary and informed consent, the participants completed comprehensive questionnaires about their physical and psychological health, socio-economic background, lifestyle practices and the support systems available to them. Because of time constraints and the length of the test battery, only 1 025 participants completed all the psychological health questionnaires. Of the 1 025 participants who completed the psychological health questionnaires, 153 were infected with HIV (14.9%) and 863 were not infected with HIV (since the HIV status of nine of the participants was not known, they were not included in the study). In the urban communities 435 participants completed the psychological health questionnaires, of whom 68 were infected with HIV (15.6%) and 367 were not infected with HIV. In the rural communities 581 participants completed the psychological health questionnaires, of whom 85 were infected with HIV (14.6%) and 496 were not infected with HIV. The participants were mainly from a black African socio-cultural background with aspects such as religion, traditional beliefs and customs, extended families as well as the value of collectiveness forming an important part of their lives. All of them were from previously disadvantaged communities (Kruger, 2005).

**Measuring Instruments**

All measures had been previously professionally translated and validated for use in a Setswana-speaking group as part of the FORT2 project. The following measures were used for the current purposes:

**Affectometer 2 (AFM) (Kammann & Flett, 1983).** The AFM measures a general sense of well-being or general happiness. Kammann and Flett (1983) report Cronbach alpha-reliability indices of 0.88 to 0.93. Reliability and validity in a South African context for the

consent, before their HIV status was revealed to them (which was also part of the same investigation and service delivery process).

The research question for the current study was therefore whether people with and without HIV infection differ in their psycho-social symptoms and strengths before their HIV status is revealed to them. Accordingly, the aim of this study was to compare the psycho-social health profiles of people with and without HIV and AIDS before they knew their infection status.

## Method

### Design

A cross-sectional survey design was employed to gather psychological data as part of a multi-disciplinary study where the participants' HIV status was also determined after obtaining their informed consent and also giving them pre- and post-test counselling.

This study falls in the overlap of the South African leg of the Prospective Urban and Rural Epidemiology study (PURE-SA) that investigates the health transition and chronic diseases of lifestyle in urban and rural subjects (Kruger, 2005; Teo, et al., 2009), and the FORT project (Fortology: Understanding and promoting psychosocial health, resilience and strengths in an African context) (Wissing, 2005, 2008) on psychological well-being and its biological correlates. All the baseline data were collected during 2005.

### Participants

A rural community (A) was identified 450 km west of Potchefstroom on the highway to Botswana. A remote rural community (B), 35 km east from A and only accessible by a gravel road, was also included. Both communities are still under tribal law. Community C was selected from the established part of the township next to Potchefstroom and D from the

Patients may exhibit emotional disturbances, such as irritability, depression, apathy, agitation, and blunt affect; hallucinations, delusions, and paranoid thinking (Lezak et al., 2004).

Different people (for reasons not yet fully understood) respond differently to HIV infection. Some people have no symptoms for years, whereas others deteriorate rapidly (Van Dyk, 2008). Some of the reasons for the above might be explained by the many different strains of HIV. In South Africa HIV-1, subtype C, is prevalent and is characterised by high viral loads in the blood and by rapidly spreading. The viral load differs among people and their bodies respond differently to the virus. The general health of the person concerned affects the course of the illness. People who are already chronically ill with diseases such as malaria or tuberculosis (highly prevalent in South Africa), and those whose health status is poor because of malnutrition, poverty, recurrent infections, repeated pregnancy, or anaemia, will experience a much more rapid deterioration than relatively healthy individuals who become infected with HIV (Van Dyk, 2008).

It is not clear whether people who are unaware of their HIV status show symptoms of psychological ill-health and well-being in comparison to a group of people not infected with HIV, because no literature could be found on this topic. Although the influence of HIV on a person's psycho-social functioning is undeniable (Kessler et al., 2009; Van Dyk, 2008), this effect may be the result of the person's knowledge of his/her HIV-infected status. If the psycho-social functioning of people infected with HIV (whose HIV status is not known to them at the time of psychological evaluation) differs from that of people not infected with HIV, biological-physical processes in the body might be involved. It is difficult to disentangle the biological and psychological effects of HIV on the person because these effects happen simultaneously (Ross & Deverell, 2005). In the current study, there was an opportunity to study the manifestations of psycho-social functioning and well-being of people infected with HIV as part of a multi-disciplinary project, with the participants' informed

The second phase is an asymptomatic latent phase. This phase may have a long duration and though some people remain HIV-infected for many years without any physical symptoms, others may deteriorate rapidly (Evian, 2003; Van Dyk, 2008). The third phase is a minor symptomatic phase. During the major symptomatic phase, which is the fourth phase, opportunistic diseases (diseases usually suppressed by a healthy immune system) begin to appear (Evian, 2003; Van Dyk, 2008). The severe symptomatic phase (phase five) is the final stage of HIV infection and the onset of AIDS. This phase is characterised by severe immune deficiency, with a CD4 cell count below 200 cells per $mm^3$. It is distinguished by the identification of clinical symptoms which reveal opportunistic microbial infections, leaving the patient fatigued and exhausted (Evian, 2003; Iweala, 2004; Van Dyk, 2008).

The effect that HIV has on the central and peripheral nervous system increases during the AIDS phase of the illness, culminating in a wide spectrum of neuropsychiatric disorders (Obe-Larsson, S□ll, Salamon, & Allgulander, 2009). This includes neurocognitive disorders such as HIV-associated dementia, minor neurocognitive disorder, mania/psychosis, anxiety, depression, seizures, and neuropathy with accompanying chronic neuropathic pain and physical disabilities (Patrick, Johnston, & Power, 2002).

The dementia seen in patients with AIDS is called the AIDS dementia complex or AIDS encephalopathy (Lezak, Howieson, & Loring, 2004; Widmaier et al., 2004). HIV does not attack neurones but infects the microglia, which function as macrophage-like cells in the central nervous system. Such invasion causes the microglia to produce abnormally high levels of inflammatory cytokines and other molecules toxic to neurons (Widmaier et al., 2004). Excessive inflammatory responses may lead to leukoencephalopathy and ultimately to neuronal apoptosis (Ghafouril, Amini, Khalilil, & Sawaya, 2006). Lezak et al. (2004) state that dementia may have an insidious onset with rather subtle symptoms, such as depression or complaints of lack of concentration and memory problems and of mental sluggishness.

psycho-social well-being when that person does not know whether he/she is infected with HIV.

Current research on the link between psychological well-being and HIV focuses mainly on coping with HIV as a chronic illness (Kraaij et al., 2008; Schmitz & Crystal, 2000) and on the influence that HIV has on the quality of life of a person living with HIV (Kaplan, Patterson, Kerner, Hampton, Atkinson, & Heaton, 1997). Little or no research has been done on the psycho-social functioning of people infected with HIV before they became aware of their infected status. Such research would allow the disentangling biological effects from psychological reactive effects.

Many biological processes occur in a person who is infected with HIV and who is ill with AIDS. To understand these processes and their influence on psycho-social functioning, it is important to understand how HIV affects the human body. The immune system, known for fighting infections in the human body, is activated via the helper T cells (CD4 cells). HIV tends to invade and attack the helper T cells in the body in order to multiply. This invasion of the helper T cells leads to cell death (apoptosis), reducing the number of helper T cells (CD4 cell count) in the body. The CD4 cell count is therefore an indication of the functioning of the immune system (Van Dyk, 2008, Widmaier, Raff & Strang, 2004). The progression from being infected with HIV to having AIDS is a process of gradual decline in the number of CD4 cells in the blood from 1 000 cells per $mm^3$ to about 200 cells per $mm^3$, and can take several months to ten years or longer (Iwami, Nakaoka, & Takeuchi, 2008). This process is characterised by five phases. The first phase is the primary HIV infection and begins as soon as seroconversion takes place. Seroconversion is the point where a person's HIV status converts from being HIV-uninfected to HIV-infected. The HIV antibody test will be positive four to six weeks after infection when the immune system reacts to the virus by secreting antibodies (Evian, 2003; Van Dyk, 2008).

longevity, that well-being does not predict longevity in ill populations, but it does predict longevity in healthy populations by protecting them from becoming ill.

Having an illness has a direct influence on a person's psychological and social well-being (Ross & Deverell, 2005). Van Dyk (2008) asserts that being infected with HIV affects people mentally, socially, and emotionally. They may often therefore display anxiety, low self-esteem, depression suicidal behaviour (suicidal thoughts), preoccupation with their health, hypochondria, and spiritual concerns (Van Dyk, 2008). Mood and anxiety disorders, particularly depression, are the most common psychiatric diagnoses and are 5–10 times more common in people infected with HIV than in the general population (Kessler et al., 2009). Gaynes, Pence, Eron and Miller (2008) state that the presence of multiple rather than a single psychiatric diagnosis is the norm rather than the exception in people infected with HIV.

These psychological changes occur because of the difficulties HIV brings to life and the reality of the prognosis of the illness (Van Dyk, 2008). People who are infected with HIV and their families are subjected to the prejudice, discrimination, abuse, and hostility related to the stigma associated with HIV (Holzemer & Uys, 2004). Crawford (1996) found that the degree of stigma associated with AIDS is greater than with other medical conditions such as genital herpes, hepatitis, drug abuse, diabetes, and cancer. It has also been found that in general there are more incidents of stigmatisation and discrimination against people infected with HIV and people with AIDS in urban areas than in rural areas in South Africa (Naidoo et al., 2007). The stigmatisation of people infected with HIV causes further severe emotional strain (Van Dyk, 2008). Many people think that they might be infected with HIV, but are very reluctant to be tested because of the stigmatisation of those with the illness (Holzemer & Uys, 2004). The influence that HIV has on a person's mental, emotional, and social functioning, however, are all related to the knowledge that they are infected with HIV (Van Dyk, 2008). However, there is scant information about the influence of HIV on a person's

autonomy, relatedness and competency (Ryan & Deci, 2000**),** constructive coping (Zeidner & Endler, 1996), etc., and may include both hedonic and eudaimonic components of experience (Wissing & van Eeden, 2002) and as flourishing (Keyes, 2007). The exploration of the psycho-social profile of people with and without HIV infection in the current study takes cognisance of the indicators of psycho-social ill-health and also the manifestations of psycho-social (positive) health, with the emphasis on psychosocial well-being, as no previous studies could be located in this regard.

Ryff (2008) briefly reviewed the findings of research linking psychological well-being to multiple biological systems. She found that a positive emotional style (e.g., calm, happiness, vigour) over one month was associated with better endocrine function (lower levels of cortisol, epinephrine and norepinephrine) as indicated by Cohen, Doyle, Turner, Alper, and Skoner (2003) and also by Polk, Cohen, and Doyle (2005). According to Marsland, Cohen, Rabin, and Manuck (2006) a higher trait positive affect has been linked with higher levels of antibody production in immune measures. The integration of psychological well-being and biological systems is also argued by Huppert (2009). She asserts that emotions are linked with certain primary brain structures, namely, the prefrontal cortex, amygdala, hippocampus, anterior cingulate cortex, and insular cortex. These structures normally work together to process and generate emotional information and emotional behaviour. Huppert (2009) states that high levels of maternal care produce a permanent increase in the concentration of glucocorticoid receptors in the hippocampus and prefrontal cortex of the brain, and are associated with resilience in stressful situations and high levels of learning and memory throughout life. Howell, Kern, and Lyubomirsky (2007) conclude from a meta-analytical study that there is strong evidence that psychological well-being has a salutary effect on physical health, especially on the immune system. However, Veenhoven (2008) concludes from an analysis of previous studies on well-being and

**A Psycho-Social Profile and HIV Status in an African Group**

It is estimated that 30 to 36 million people worldwide are living with the Human Immunodeficiency Virus (HIV). Almost a third of all new HIV infections and Acquired Immunodeficiency Syndrome (AIDS) related to deaths worldwide occur in southern Africa (UNAIDS, 2007). An estimated 5.7 million people were living with HIV in South Africa in 2009, making it the country with the highest incidence of infection in the world (UNGASS, 2010). Peltzer, Matseke, Mzolo and Majaja (2009) state that it is unclear how many of these 5.7 million people live in urban and rural areas respectively, because people residing in the urban areas are almost twice as likely to have been tested than those residing in rural areas. It is well known that HIV infection and AIDS are accompanied by symptoms of psycho-social distress (Van Dyk, 2008) which is partly a reaction to the diagnosis, but relatively little research has been conducted on its direct effect on psychological well-being among participants who are not aware that they are infected with HIV.

In the past decade, many researchers have stressed the perspective that the absence of symptoms is not the same as the presence of positive mental health, and that we should understand human behaviour and experience on the whole continuum from pathology to flourishing (Keyes, 2002; Peterson, 2006; Seligman & Csikzentmihalyi, 2000). At the upper end of the mental health continuum, Keyes (2002, 2005 & 2007) distinguishes three categories, which he calls languishing, moderate mental health, and flourishing. In the same way that depression consists of symptoms of malfunctioning, mental health consists of symptoms of positive functioning. Well-being at the upper end of the mental health continuum is conceptualised in various ways, for example it is characterised by a sense of coherence (Antonovsky, 1987), self-efficacy (Schwarzer & Jerusalem, 1993), satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985), positive affect (Fredrickson, 2000),

**Abstract:**

South Africa has the highest worldwide prevalence of HIV. People infected with HIV show psychological symptoms as a reaction to, and/or as part of the physical consequences, of the infection. It is unclear whether people who are infected and unaware of their status differ in psychological symptoms from those who are uninfected. This study aimed to explore the psycho-social health profiles of people with and without HIV before they learned their infection status. A total of 1 025 participants from black African socio-cultural backgrounds, completed psychological questionnaires and were tested for HIV. Of the 1 025 participants, 153 were infected. Descriptive statistics were determined. The significance of differences in psycho-social profiles between individuals with and without HIV in rural and urban subgroups was established. The participants infected with HIV had a statistically significant lower sense of coherence, and a lower capacity to succeed in joint community activities than the uninfected participants. The participants infected with HIV in urban areas had statistically and practically a lower sense of coherence, whereas those from rural areas had statistically and practically a significantly lower capacity to succeed in joint community activities, but experienced more positive affect than the uninfected participants. This suggests that people with and without HIV infection differ in some respects in psycho-social symptoms and well-being before they are conscious of their HIV status. It may therefore be that the experience of social integration and collective responsibility for achieving mutual goals might protect participants from behaviours which might lead to HIV infection.

**Key words**: HIV and AIDS, psycho-social well-being, biological influences, African, rural areas, urban areas.

Running head: PSYCHO-SOCIAL PROFILE AND HIV STATUS IN AFRICA

# A Psycho-Social Profile and HIV Status in an African Group

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- Methods (summary of the participants, design, measures);
- Results (primary findings); and
- Conclusions (specific statement of the implications of the data).

- After the abstract, please supply up to five keywords or brief phrases.

## Length:

- The page limit for research manuscripts is 25–30 pages. The page limit is inclusive of **all** parts of the manuscript, including the cover page, abstract, text, references, tables and figures.
- Authors may request consideration of longer papers, in advance of submission, when there is clear justification for additional length (e.g., the paper reports on two or more studies or has an unusual or complex methodology).
- All manuscripts should be double-spaced, with margins of at least 1 inch on all sides and a standard font (e.g., Times New Roman) of 12 points (no smaller).
- Authors also have the option of placing supplemental materials online.
- Submissions that exceed the page limits will be returned to the author for shortening prior to the initiation of peer review.

## References:

- List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

## 6.1. Instructions to authors

## Health Psychology

### Manuscript preparations:

- Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition).
- Double-space all copy.

### Manuscript:

- The manuscript title should be accurate, fully explanatory, and preferably no longer than 12 words. The title should reflect the content and population studied.
- The title page should include the names of all authors and their affiliations at the time the research was done.
- All manuscripts must include a structured abstract.
- All statistical tests should include effect size whenever possible.
- Terminology should be sensitive to the individual who has a disease or disability. The journal endorses the concept of "people first, not their disability." Terminology should reflect the "person with a disability" (e.g., children with diabetes, persons with HIV infection, and families of people with cancer) rather than the condition as an adjective (e.g., diabetic children, HIV patients, cancer families). Nonsexist language should be used.
- It is important to highlight the significance and novel contribution of the work.

### Abstracts and Keywords:

- All manuscripts must include an abstract containing a maximum of 250 words typed on a separate page, with the following sections:

## 6. MANUSCRIPT

# A Psycho-Social Profile and HIV Status in an African Group

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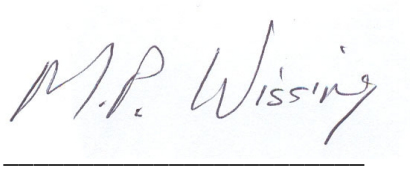
***The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. The opinions expressed and conclusions drawn are those of the authors and should not necessarily be attributed to the NRF.***

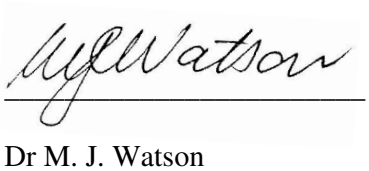
## 5.3. Letter of Consent

We, the co-author(s), hereby give our consent for Lanél Maré to submit this manuscript for the purposes of a mini-dissertation. It may also be submitted to the journal *Health Psychology* for publication.



Prof M. P. Wissing

Supervisor



Dr M. J. Watson

Co-Supervisor

# 5. PREFACE

## 5.1. Article format

For the purposes of this mini-dissertation, which is part of the requirements for a professional master's degree, the article format described in General Regulation A.13.7 of the North-West University was chosen.

## 5.2. Selected Journal

The target journal for publication is *Health Psychology*. The manuscript as well as the reference list has been styled to meet the journal's specifications, which includes the APA (American Psychological Association) reference style.

Die resultate van die totale groep dui daarop dat daar statisties beduidende verskille tussen deelnemers wat MIV-geïnfekteer is en wat MIV-ongeïnfekteer is, bestaan ten opsigte van hulle koherensiesin en hul perspektief op die gemeenskap se vermoë om in gesamentlike aktiwiteite te slaag., Die verskille was egter net van klein praktiese belang. Deelnemers van die stedelike groep, wat met MIV geïnfekteer is, het statisties en prakties 'n beduidend minder mate van koherensiesin ervaar en hulself as minder bekwaam gesien om eise in verskillende gemeenskap kontekste te hanteer, as die ongeïnfekteerde deelnemers. Die ongeïnfekteerde deelnemers in die landelike groep het 'n statisties en prakties beduidend beter vermoë gehad om 'n sukses van gesamentlike aktiwiteite as deelnemers wat met MIV geïnfekteer is, te maak. 'n Interessante bevinding is egter dat die deelnemers wat met MIV geïnfekteer was, meer positiewe affek as deelnemers wat nie met MIV geïnfekteer was nie, ervaar het. Die bevindings van die navorsing toon dus dat mense met en sonder MIV-infeksie verskille in hul psigososiale simptome en sterktes toon, selfs voor hulle van hulle MIV-status bewus geword het.

Dit is noemenswaardig dat die verskille wat met die psigologiese toetse gemeet is, die deelnemers se koherensiesin en siening van hulle gemeenskap se vermoë om in gesamentlike take te slaag, weerspieël wat laer was in die geval van deelnemers wat met MIV geïnfekteer was. Dit mag wees dat die deelnemers met 'n laer koherensiesin en integrasie en samewerking tot 'n gemeenskaplike doel, meer geneig was om gedrag met vernietigende gevolge vir hulself en vir ander (in dié geval MIV-infeksie) te toon. Die hoër vlak van positiewe affek van die deelnemers in die landelike groep is steeds nie verklaar nie en verg verdere navorsing.

multidissiplinêre studie. Die studie oorvleuel met die Suid-Afrikaanse been van die *Prospective Urban and Rural Epidemiology*-studie (PURE-SA) wat die gesondheidsveranderinge en kroniese siektes as gevolg van leefstyl in landelike en stedelike areas ondersoek (Teo, Chow, Vaz, Rangarajan, & Ysusf, 2005) en die FORT2 en 3-projekte (FORT2 = *Understanding and promoting psychosocial health, resilience and strengths in an African context; Fort 3 = The prevalence of levels of psychosocial health: Dynamics and relationships with biomarkers of (ill) health in the South African contexts)* (Wissing, 2005, 2008) oor psigologiese welstand en die biologiese korrelate. Al die basislyn data is gedurende 2005 ingesamel. Van die 1 025 deelnemers wat al die psigologiese gesondheidsvraelyste voltooi het, was 153 (14.9%) met MIV geïnfekteer en 863 nie met MIV geïnfekteer nie (die MIV-status van nege van die deelnemers was onbekend en dus is hulle uit die studie weggelaat). In die stedelike gemeenskappe het 435 deelnemers die psigologiese gesondheidsvraelyste voltooi, waarvan 68 (15.6%) met MIV geïnfekteer en 367 nie met MIV geïnfekteer was nie. In die landelike gemeenskappe het 581 deelnemers die psigologiese gesondheidsvraelyste voltooi, waarvan 85 (14.6%) met MIV geïnfekteer en 496 nie met MIV geïnfekteer was nie. Die volgende sewe gevalideerde Setswana weergawes van psigologiese gesondheidsvraelyste is gebruik: *Affectometer* 2 (AFM), *Satisfaction With Life Scale* (SWLS), *Community Collective Efficacy Scale* (CCES), *Mental Health Continuum Short Form* (MHC-SF), *New General Self-efficacy Scale* (NGSE), *Sense of Coherence Scale* (SOC) en die *General Health Questionnaire* (GHQ). Beskrywende statistiek is vir al die vraelyste en vir al die deelnemers met en sonder MIV gebruik. Verskille in die psigososiale profiele tussen individue met en sonder MIV en VIGS en tussen deelnemers in die landelike en stedelike gebiede is deur middel van ’n t-toets en met meerveranderlike analise van variansie (MANOVA) bepaal. Praktiese beduidendheid is deur middel van die groottes van effekte bepaal.

## 4. OPSOMMING:


### ’n Psigososiale profiel en MIV-status in ’n Afrika-groep

**Sleutelwoorde:** MIV en VIGS, psigososiale welstand, biologiese invloede, Afrika, landelike gebiede, stedelike gebiede.

Daar word beraam dat 30 tot 36 miljoen mense in die wêreld tans met die Menslike Immuniteitsgebrek Virus (MIV) leef. In 2009 was 5,7 miljoen mense van die 30 tot 36 miljoen mense wat met MIV geïnfekteer is, in Suid-Afrika woonagtig, wat dit die land met die grootste aantal geïnfekteerdes ter wêreld maak (UNGASS, 2010). Volgens Van Dyk (2008) gaan MIV-infeksies en Verworwe Immuniteitsgebreksindroom (VIGS) gepaard met simptome van psigososiale stres, maar daar is tans min inligting beskikbaar oor die direkte invloed wat MIV en VIGS op ’n individu se psigologiese welstand het. Psigologiese stres kom hoofsaaklik voor as gevolg van die moeilike daaglikse bestaan van individue met MIV-infeksies en die swak prognose van die siekte (Van Dyk, 2008). Uit die studie is dit nie duidelik of individue wat met MIV geïnfekteer is en nie van hulle MIV status bewus is nie, tekens van psigologiese simptome (in vergelyking met individue wat nie met MIV geïnfekteer is nie) toon nie. Die navorsingsvraag wat in die studie gestel is, was dus of individue, wat met MIV geïnfekteer is en individue wat nie met MIVgeïnfekteer is nie, ten opsigte van hul psigososiale simptome en sterktes verskil, voordat hulle hul MIV status geweet het. Die doel van die studie was om die psigososiale gesondheidsprofiele van individue met en sonder MIV en VIGS, voor hulle status aan hulle bekend is, te ondersoek.

Data vir die studie is ingesamel met behulp van ’n dwarssnee-navorsingsontwerp. Nadat die deelnemers se ingeligte toestemming verkry is en hulle voor- en na-toetsberading ontvang het, is psigologiese data ingesamel en die deelnemers se MIV-status bepaal as deel van ’n

their sense of coherence and their perspective on the community's capacity to succeed in joint activities, but these differences were of only small practical significance. The HIV-infected participants in the urban areas displayed statistically and practically a lower sense of coherence and viewed themselves as less capable of meeting task demands in community contexts, than did the participants not infected with HIV. Though the participants not infected with HIV in the rural group had, statistically and practically, a significantly greater capacity to succeed in joint community activities than the participants infected with HIV, an interesting finding was that the participants infected with HIV experienced more positive affect than the participants not infected with HIV. The research showed that people with and without HIV infection differ in some respects in their psycho-social symptoms and strengths even before they are conscious of their HIV status.

It is striking that the differences found on the psychological measures for the participants reflected a personal sense of social coherence and perspective on their community's capacity to succeed in joint activities, which was lower in the case of participants infected with HIV, and might therefore have led to high-risk social behaviours and consequent infections. It might be that the participants with a relatively lower sense of social coherence, integration, and co-operation towards collectively achieving meaningful goals were more inclined to manifest behaviours that would lead to detrimental consequences (in this case HIV infection) for themselves and others. The higher level of positive affect in the rural group of the participants infected with HIV is still unexplained and requires further research.

(PURE-SA) that investigates the health transition and chronic diseases of lifestyle in urban and rural areas (Teo, Chow, Vaz, Rangarajan, & Ysusf, 2009), and the FORT2 and 3 projects (FORT2 = Understanding and promoting psychosocial health, resilience and strengths in an African context; Fort 3 = The prevalence of levels of psychosocial health: Dynamics and relationships with biomarkers of (ill) health in the South African contexts) (Wissing, 2005, 2008) on psychological well-being and its biological correlates. All the baseline data were collected during 2005. Of the 1 025 participants who completed all of the psychological health questionnaires, 153 (14.9%) were infected with HIV and 863 were not infected with HIV (since the HIV status of nine of the participants was not known, they were not included in the study). In the urban communities 435 participants completed the psychological health questionnaires, of whom 68 (15.6%) were infected with HIV and 367 were not infected with HIV. In the rural communities, 581 participants completed the psychological health questionnaires, of whom 85 (14.6%) were infected with HIV and 496 were not infected with HIV. The validated Setswana versions of the following seven psychological health questionnaires were used: Affectometer 2 (AFM), Satisfaction With Life Scale (SWLS), Community Collective Efficacy Scale (CCES), Mental Health Continuum Short Form (MHC-SF), New General Self-efficacy Scale (NGSE), Sense of Coherence Scale (SOC) and the General Health Questionnaire (GHQ). Descriptive statistics were determined for all measures for all the participants with, and without HIV. Significant differences in psycho-social profiles among individuals with and without HIV and AIDS and also between those in the rural and urban areas were determined by means of t-tests and by a multivariate analysis of variance (MANOVA). Practical significance was determined by the size of the effects.

The results for the entire group showed statistically significant differences between the two groups of participants who were infected with HIV and those not infected with HIV regarding

# 3. SUMMARY


## A psycho-social profile and HIV status in an African group

**Key words**: HIV and AIDS, psycho-social well-being, biological influences, African, rural areas, urban areas.

An estimated 30 to 36 million people worldwide are living with the Human Immunodeficiency Virus (HIV). In 2009 about 5.7 million of the 30 to 36 million people who are infected with HIV were living in South Africa, making South Africa the country with the largest number of people infected with HIV in the world (UNGASS, 2010). Van Dyk (2008) states that HIV infection and Acquired Immunodeficiency Syndrome (AIDS) are accompanied by symptoms of psycho-social distress, but relatively little is known of the direct effect of HIV and AIDS on psychological well-being. The psychological distress is mainly due to the difficulties HIV brings to daily life and the harsh reality of the prognosis of the illness (Van Dyk, 2008). It is not clear whether people infected with HIV who are unaware of their HIV status show more psychological symptoms than people in a group not infected with HIV. The research question for the current study was therefore whether people with and without HIV infection differ in their psycho-social symptoms and strengths before they know their HIV status. Accordingly, the aim of this study was to explore the psycho-social health profiles of people with and without HIV and AIDS before they knew their infection status.

A cross-sectional survey design was used for gathering psychological data. This was part of a multi-disciplinary study where the participants' HIV status was determined after obtaining their informed consent and giving pre- and post-test counselling. This study falls in the overlap of the South African leg of the Prospective Urban and Rural Epidemiology study

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## CONTENTS

# A psycho-social profile and HIV status in an African group

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