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## Psychological Intervention to Address Hypertension in South Africa's Peri-Urban Settlements

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### Abstract

Hypertension is a chronic health condition affecting the lives of almost a billion people globally. Managing diet is crucial for controlling high blood pressure. Peri-urban communities in South Africa face multiple barriers that make the consumption of a healthy diet particularly difficult. These barriers include: residence in informal settlement areas, long distance commutes, low socioeconomic status, poor health awareness and knowledge, lack of food availability, poverty, low levels of education, high stress levels, the impact of HIV/AIDS, and cultural perceptions of food types. Psychological intervention techniques, such as motivational interviewing (MI) and cognitive behavioral therapy (CBT), can assist necessary behavior change by challenging thought processes around healthy eating and hypertension, whilst aiding the implementation and maintenance of healthier eating regimes.

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## Introduction

Hypertension is a major chronic health condition that affects almost one billion adults worldwide (Kearney et al., 2005). If left untreated, it can result in serious disability and death. Although the prevalence of hypertension is decreasing in developed countries, its prevalence continues to increase in developing countries such as South Africa, where over 6 million people are affected (Kearney, Whelton, Reynolds, Whelton, & He, 2004; Steyn et al., 2001).

Hypertension is particularly problematic in South Africa's black, peri-urban<sup>1</sup> communities (Seedat & Rayner, 2012; Steyn et al., 1996; 2001). Migration and urbanization has resulted in distinct dietary practices that are characterized by high levels of fat consumption and low levels of carbohydrate and fibre intake (Bourne, Lambert, & Steyn, 2002). This pattern of eating places individuals at greater risk for hypertension. Consequently, implementing a more balanced and nutritious diet is essential for the prevention and mitigation of hypertension in South African communities (Appel et al., 1997).

Despite the lack of improved national hypertension developed clinical practice guidelines (Al-Ansary et al., 2013), improved health-related outcomes for individuals with hypertension can still be achieved in these peri-urban communities. This article aims to highlight the utility of using psychological intervention techniques, namely motivational interviewing (MI) and cognitive behavioural therapy (CBT), to develop effective and culturally salient interventions to reduce the prevalence of hypertension in peri-urban areas of South Africa.

Initially this article discusses the hypertension-related dietary patterns found in South Africa's impoverished peri-urban settlements. It further explores community-specific barriers to diet-related prevention. The remainder of the paper highlights the basic principles underlying the above-mentioned health psychology techniques (MI, CBT); arguing how these interventions address the community-specific barriers to behaviour change, thereby concluding their effectiveness for facilitating a transition towards better dietary patterns and reduced hypertension prevalence.

## Dietary Patterns in Peri-Urban South African Settlements

Individuals in peri-urban settlements in South Africa follow problematic diet regimes that consist of an excessive intake of saturated fats, calories, salt, sugar, and animal proteins, and the insufficient intake of fibre and essential vitamins and minerals – caused by minimal fruit, vegetable, and dairy consumption (MacIntyre, Kruger, Venter, & Vorster, 2002; Mungai-Singh, 2012; Sacks et al., 2001; Steyn, Katzenellenbogen, Lombard, & Bourne, 1997; Temple, Steyn, Myburgh, & Nel, 2006). This diet directly opposes the nutrition guidelines provided by The South African Hypertension Guideline (2011), which

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<sup>1</sup> immediately adjoining an urban area usually comprising of low income housing and mixed formal and informal settlements

emphasises the adoption of a diet that is low in total and saturated fat, caffeine, salt, and sugar, and high in fibre, low-fat dairy products, vitamins, and minerals (Appel et al., 1997; Seedat & Rayner, 2011).

There is sufficient evidence to support the critical need for health promotion and lifestyle modification interventions in addressing the high prevalence of hypertension in peri-urban areas in South Africa (Al-Ansary et al., 2013; Mungai-Singh, 2012). However, despite the higher tendency of urban black African dwellers to seek medical attention, research shows that adherence to behavioural interventions, such as dietary regimes, is in decline (King, Mainous, Carnemolla, & Everett, 2009; Marks, Murraray, Evans, & Estacio, 2011, van der Hoeven, Kruger, & Greef, 2012). A multitude of community-specific barriers – such as deficient education, low socio-economic status, environmental barriers, social pressure, social events, and cultural misconceptions – hinder the effective implementation of, and adherence to, dietary-related behavioural interventions (Serour, Alghenaei, Al-Saqabi, Mustafa, & Ben-Nakhi, 2007).

## **Community-Specific Barriers to Dietary Changes**

### **Urbanisation and long distance commutes**

Peri-urban culture promotes a diet which is high in fat, low in complex carbohydrates, and deficient in essential vitamins and minerals (Bourne, 1996; Bourne et al., 1993, 2002). Duration of urbanisation has been identified as an independent predictor of hypertension among black persons in Cape Town (Steyn et al., 1996). Working longer hours, being away from home for long periods of time, economic limitations, time constraints that are perpetuated by commutes to and from work, as well as increased availability of fast foods creates a preference for cheap convenient food with minimal preparation time (Bourne et al., 2002; Steyn, 2006). These meals are typically higher in refined carbohydrates and contain greater quantities of fat.

### **Availability of Food, Poverty and Income**

In Cape Town's peri-urban settlements, residents have reported an insufficient amount of fruit, vegetables, and low-fat milk sold in the local shops (Chopra & Puoane, 2003). However, these shops do sell cheap starchy foods and foods with a high fat content. Because it is easier for community members to shop within their local areas, they tend to purchase unhealthy foods due to increased accessibility and availability (Opie & Sedaat, 2005). Moreover, many individuals in peri-urban settlements live in abject poverty, which does not allow for the provision or consumption of a wide range of foods (Bourne et al., 2002). Labadarios et al. (2005) found an average of approximately nine food items per household: maize, sugar, and tea were among the most commonly consumed food items.

The social, physical and economic characteristics of neighbourhoods are increasingly recognised as having both short- and long-term consequences for residents' quality, and healthy years, of life (Voster, 2010). Among the most prevalent of community

health concerns is the inadequate supply of affordable housing, and the increasing concentration of poverty. This can result in physical and social deterioration of neighbourhoods as indicated by housing disinvestment and deteriorated physical conditions (Murali & Oyeboode, 2004). This poor housing impacts on residents' access to electricity, water, and sanitation; all extremely important resources for the preparation, storage and safe consumption of certain foods (Vorster, 2010).

## **Culture, Social Status, and Eating**

### *Social and Cultural Perceptions of Eating*

Cultural practices, traditions, and beliefs strongly influence what individuals eat (Kruger, Puoane, Senekal, & van der Merwe, 2005). In peri-urban environments, social events often endorse the overconsumption of food. Such food is typically high in fat with minimal nutritional value: fried food, certain meat and animal fats, and soft drinks (Renzaho, 2004). Further cultural perceptions have created strong associations between certain foods, preparation methods, social status, and sophistication (Chopra & Puoane, 2003; Kruger et al., 2005). More specifically, individuals emphasise the desirability of fried foods while stressing that boiled foods are uncivilized and unappetising (Kruger et al., 2005; Renzaho, 2004). Further luxury foods include meat, animal fats, chocolates, biscuits and soft drinks (Renzaho, 2004). Many of these practices in impoverished peri-urban environments are also influenced by economic means and availability of certain foods; they are not necessarily long standing cultural norms. However, robust social traditions and practices increase the difficulty of instilling a long-term behaviour change of healthier eating styles.

### *Awareness of Hypertension Status*

The World Hypertension League recognises that more than 50% of the hypertensive population worldwide are unaware of their condition (Chockalingam, 2008). South Africa is no exception to this, as substantial ignorance of this condition has led to it being known as the 'silent epidemic' in South Africa (Steyn, 2006; Steyn, Jooste, Fourie, Parry, & Rossouw, 1986). Consequently, hypertensive individuals are left untreated and are often oblivious to the need to alter their dietary regime.

### *Low Levels of Education and Lack of Knowledge*

Dietary change requires particular knowledge that emphasises the importance of a healthy eating plan in the prevention and mitigation of hypertension. Low levels of education, associated with a lack of knowledge about the severity of hypertension and the importance of a healthy diet, act as additional change barriers (Bourne et al., 2002; Steyn, 2006; Steyn et al., 1986).

Multiple studies show that South African hypertensive individuals in the public sector have little knowledge regarding the complications of hypertension, the consequences of eating unhealthy foods, are uninformed of healthy dietary practices for

hypertensive individuals, and are unaware of their own blood pressure status (Dennison, Peer, Steyn, Levitt, & Hill, 2007; Nkosi & Wright, 2010). As a consequence, self-monitoring of blood pressure levels in these individuals is poor. Dennison et al. (2007) argue that this insufficient knowledge can partly be attributed to multiple healthcare provider and health system inadequacies as 74% of patients are not informed of their blood pressure levels during visits to the general practitioner.

In addition to individuals' lack of knowledge on hypertension, trusted healthcare providers for the various communities around Cape Town are also ill-informed on the topic. For example, community healthcare workers (CHWs) stationed in Khayelitsha (a township on the outskirts of Cape Town), do not have an accurate understanding of the risk factors associated with the condition (Sengwana & Puoane, 2004). More specifically, they struggle to accept that individuals can still be hypertensive without a family history of high blood pressure, or without being overweight. Furthermore, some CHWs advocate for traditional medicines (i.e. natural herbs, home brewed beer) over western medicine, as the ideal and preferential treatment for hypertension. This preference for treatment comes at the cost of enforcing dietary and western medical interventions for hypertension prevention and mitigation.

Because CHWs relay knowledge and information to their subsequent communities, it is vital for this knowledge and information to be as accurate as possible. A dietary education intervention is necessary for CHWs so that these trusted healthcare providers are able to relay the correct information to community members. This could facilitate community members' perception towards western medicine by eradicating the belief that western medicine leads to health deterioration.

### *The Impact of HIV/AIDS*

Many individuals living in peri-urban areas of Cape Town have reported that care for their own health is limited by illness and death in their family. This is greatly influenced by a high prevalence of HIV/AIDS in these communities. High mortality rates from AIDS results in many orphaned children, placing high physical, emotional, and financial strain on grandparent caregivers (Dennison et al., 2007).

### *High levels of stress*

Further research has identified that multiple stressful life events, experienced by many members of South Africa's peri-urban settlements, significantly predicts increased depression, poor quality of life, and poorer health outcomes for those living in these impoverished areas (Han, Kim, Rose, Dennison, & Hill, 2006).

Although national macro-level interventions are needed to address issues of poverty, the prevalence of HIV/AIDS, and deficiencies in infrastructure development, it is essential for micro-level interventions to address as many of the above barriers as possible in order to develop culturally salient attitude-shifting interventions which may reduce the prevalence of hypertension in peri-urban areas of South Africa (Dennison et al., 2007).

## **The Use of Health Psychology Perspectives to Facilitate Behaviour Change**

Health psychology, a branch of psychology dedicated to the advancement, preservation and promotion of health, and to the prevention and treatment of disease, acknowledges the complex relationship between behaviour and health (Kagee & Naidoo, 2003). Consequently, a variety of health psychology intervention techniques have been developed to elicit behaviour change in individuals suffering from various non-communicable diseases. These interventions are typically more effective than traditional “advice giving” practices of health practitioners (Rollnick, Kinnersley, & Scott, 1993). Motivational Interviewing (MI) and Cognitive Behavioural Therapy (CBT) are two such techniques. These techniques can be applied to changing dietary patterns in peri-urban black South African settlements, in order to reduce the prevalence of hypertension (Linden & Chambers, 1994; Woollard et al., 1995).

### **Motivational Interviewing (MI)**

MI is a relatively novel patient-centred approach that has gained popularity in health settings around the world. It is aimed at increasing the client’s knowledge and their motivation to reduce problematic behaviours (Bundy, 2004; Carey et al., 2000; Rollnick, 1996). This motivation is conceptualised as a state of readiness for change. Importantly, a lack of motivation may not necessarily equate to a resistance to change, but is rather multidimensional and open to alteration (Miller, 1994).

This approach focuses on establishing a collaborative partnership between the counsellor and the individual, where the individual is viewed as being the expert in their own behaviour change process (Britt, Hudson, & Blampied, 2004). The counsellor therefore does not provide the individual with reasons for change, but rather, through the use of specific MI techniques, focuses on encouraging individuals to elicit their own reasons for and against the desired health behaviour change (Resnicow et al., 2002). The counsellor’s role is to facilitate the change process, without directly and intrusively challenging individuals’ thoughts, or persuading individuals in a specific direction (Hettinga, Steele, & Miller, 2005; Miller & Rollnick, 2002). The individual’s internal motivation to change is enhanced by the identification, exploration, and resolution of any ambivalence around the behaviour change which may otherwise have prevented the individual from successfully implementing and maintaining change (Miller, & Rollnick, 2002; Rollnick & Miller, 1995). Due to its non-intrusive, empathic, collaborative and empowering stance, MI defies uneven power relationships between the counsellor and the individual. This is particularly important in working with members of disempowered communities (Resnicow et al., 2002; Rollnick, Miller, & Butler, 2007). MI’s collaborative approach increases the efficacy of the technique as feelings of coercion can lead to increased resistance to the desired behaviour change (Miller & Rollnick, 2002).

### *Using MI as a method to elicit behaviour change*

Many studies highlight the efficacy of using MI for implementing dietary changes to improve long-term treatment outcomes for overweight, obese, and diabetic individuals (Bowen et al., 2002; Resnicow et al., 2004; Resnicow, Taylor, & Baskin 2005; Smith, Heckemeyer, Kratt, & Mason, 1997). Further studies have demonstrated MI's efficacy in managing hypertension (Burke, Arkowitz, & Dunn, 2002; Woollard et al., 1995). Despite this evidence base, MI has yet to be implemented in primary healthcare systems for the prevention and management of hypertension in South Africa's peri-urban settlements.

MI is based on the Stages of Change Model (Prochaska & DiClemente, 1982), which illustrates a cycle of various stages that individuals move through before reaching effective and long-term behaviour change. Stages include: precontemplation (no intention of eliciting behaviour change), contemplation (considering the behaviour change without commitment to it), preparation (mentally committed to the change), action (implementing the behavioural change), and maintenance (maintaining the behaviour change for longer than a six month period) (Bundy, 2004).

Many community members currently exist in the precontemplation stage as most individuals are ignorant to their risk for hypertension, to the status of their condition, or to the impact their dietary choice may have on their blood pressure levels (Dennison et al., 2007; Nkosi & Wright, 2010). Because of this, great emphasis needs to be placed on facilitating knowledge provision strategies during this stage in order to successfully move these individuals through the successive stages of MI. This can be done through educational interventions that inform community members of the various risk factors of hypertension, of the effects of unhealthy dietary regimens on their health, and of facilities where they can have their blood pressure monitored.

Due to its adaptability, MI can easily be used to work with individuals in any of the various stages in the change model. It is thus a consistent and effective technique for assisting all community members with the implementation and maintenance of necessary dietary changes (Britt et al., 2004; Bundy, 2004).

In order to facilitate individuals' movement through each of the above stages, counsellors make use of various core clinical principles upon which MI is based (Bundy, 2004). These principles include demonstrating empathy, refraining from argument, encouraging self-efficacy, going with resistance, and identifying discrepancies (Miller & Rollnick, 1991).

An empathic style is fundamental to MI as the underlying attitude of the interaction between the counsellor and the community member must be one of accepting ambivalence about dietary behaviour change as normal (Britt et al., 2004). This is particularly important in the context of these South African communities, where dietary regimes are strongly associated with socio-cultural systems (Kruger, Puoane, Senekal, & van der Merwe, 2005; Renzaho, 2004). While maintaining this empathic spirit, MI highlights discrepancies between the community members' present unhealthy eating practices, and their future goals of lowering their blood pressure (Appel et al., 1997; Bundy, 2004).



Another firm belief held in this approach is that direct persuasion or argumentation is counterproductive. Argumentation is therefore avoided at all times as it is likely to create defensiveness or resistance within the individual (Britt et al., 2004; Bundy, 2004). Instead, the individual is perceived as a valuable resource in finding solutions to their own problems, and is encouraged to believe in his or her ability to make and maintain the behaviour change (Bundy, 2004; Britt et al., 2004). As a consequence, the collaborative partnership develops self-efficacy in the individual and avoids problematic power struggles (Miller & Rollnick, 2002).

Resistance to change is not opposed in this approach. Instead, it is acknowledged and explored and is viewed as something that is open to alteration which further lessens judgement on the individual (Bundy, 2004; Miller & Rollnick, 2002). Resistance to change can facilitate the behaviour change process for individuals by exploring their reasons for adhering to their dietary regimes.

MI is one behaviour change-related technique that can be delivered in a short period of time with high acceptability among individuals (Martins & McNeil, 2009). In particular, brief motivational interviewing (BMI), which follows the spirit and practice of MI, was designed for use in single 40 minute (or briefer) sessions in primary health care settings (Rollnick, Heather & Bell (1992). The principles of BMI can be adapted for community level use (Hecht et al., 2005). Recent reviews advocate for the importance of using CHWs in the management of hypertension (Ndou, van Zyl, Hlahane, & Goudge, 2013). The readily teachable BMI related strategies, proposed by Rollnick, Mason, and Butler (1999), are particularly suited to circumstances where there is limited time to teach health providers or CHWs the listening skills required for MI, as well as to circumstances where there is limited contact time with individuals. BMI has the potential to optimise the cost efficiency and impact of BMI training and delivery in peri-urban areas (Burke, Dunn, Atkins, & Phelps, 2004). However, it is important to remember that CHWs' own misgivings regarding the required behaviour change may need to be addressed by expert psychologists, counsellors, or MI trainers prior to BMI delivery (Sengwana & Puoane, 2004). This ensures congruence in their delivery of health behaviour change interventions to individuals.

### **Cognitive Behavioural Therapy (CBT)**

CBT is a psychological and educational approach to psychotherapy that has a long history of empirical testing in the treatment of behavioural health issues (Burke et al., 2004; Williams & Garland, 2002a). CBT makes use of primary aims and methodologies comparable to MI, and is one of the most efficient and cost-effective modalities available to health psychologists (Burke et al., 2004). CBT ascribes a central role to conscious thoughts, beliefs, and behaviour in the maintenance of problematic actions (Enright, 1997). Consequently, this form of therapy gives individuals a structured plan for behaviour change that challenges and modifies dysfunctional cognitions and patterns of behaviour (White, 2001). CBT is a short-term, problem-focused psychosocial intervention with its central methods being the assessment of high-risk situations and the teaching of particular

coping skills to maintain a behaviour change (Burke et al., 2004; Williams & Garland, 2002a). These skills aid self-management of long-term cognitive and behavioural coping deficits in daily situations (Cuijpers, van Straten, & Anderson, 2007).

Although CBT therapists and individuals work together to identify problematic patterns of thinking, treatment continues between sessions with homework assignments to monitor and challenge specific thinking patterns that impede the behavioural change (Enright, 1997). White (2001) argues that CBT is best suited for individuals who can identify and distinguish between their emotions and behaviours; and those who understand that they alone are responsible for implementing and maintaining their behaviour change.

### *Using CBT as a method to elicit behaviour change*

This collaborative, but instructive, therapeutic style is highly effective for alleviating depression, panic disorders, generalised anxiety and obsessive-compulsive disorder (Enright, 1997; Williams & Garland, 2002b). Nevertheless, over the years some cognitive-behavioural interventions have been applied to treat health-related issues such as obesity, chronic pain, sleep problems, and hypertension (Cuijpers et al., 2007). Early studies conducted by Johnson and Steptoe (1989) and Linden and Chambers (1994) showed significant risk reduction of hypertension after the implementation of CBT. More recent research demonstrates its efficacy for treating eating disorders (Pike, Walsh, Vitousek, Wilson, & Bauer, 2003). However, research has yet to investigate the use of CBT as an intervention for dietary change for the prevention and mitigation of hypertension in peri-urban areas in South Africa.

Cognitive methods used in CBT allow individuals to thoroughly explore the connections between their thoughts, affect, and behaviour, and compel them to challenge the validity of these thoughts by examining evidence “for” and “against” it (Enright, 1997; Williams & Garland, 2002b). Individuals are also asked to identify alternative explanations for the problematic thought or belief that perpetuates the problematic behaviour (Enright, 1997). As a consequence, individuals learn to identify any dysfunctional assumptions and underlying distortions in their cognitions, and they learn how to challenge negative thoughts through the use of questioning and rationalising techniques (Enright, 1997; White, 2001; Williams & Garland, 2002b). The brief, highly structured, problem orientated and prescriptive nature of the treatment allows individuals to readily apply the theory and techniques long after therapy ceases, thereby making it highly efficient for long term behaviour change (Enright, 1997).

Although there is little difference between the efficacy of CBT and MI interventions, research confirms that MI is more cost-effective as it requires less treatment sessions (Burke et al., 2004). However, Heather, Rollnick, Bell and Richmond (1996) suggest that the coupling of MI with CBT may result in a significant additive effect in eliciting and maintaining a long-term behaviour change. It may therefore be appropriate to administer CBT in conjunction with MI interventions to prevent and manage hypertension in low income peri-urban South African communities. MI would increase awareness, and address

any ambivalence towards the dietary behaviour change and boost motivation to implement this change, while CBT would provide individuals with the necessary skills to maintain this change over long periods of time without further input from CHWs (Heather et al, 1996; Rollnick & Miller, 1995; White, 2001; Williams & Garland, 2002b).

Like MI, CBT techniques are typically implemented by trained psychologists or counsellors (Sheldon, 1995). However, the limited financial resources in peri-urban settlement communities call for alternate delivery of these techniques. The structured nature of CBT lends itself to easy and straightforward training of its core principles and techniques (Rhaman, Malik, Sikander, Roberts, & Creed, 2008). This training would be delivered to CHWs who would subsequently use the technique with individuals and potentially groups in local communities. Although, few programmes have used this approach, Rhaman and his colleagues (2008) successfully developed a teachable CBT intervention programme, taught to village-based primary health workers, to decrease the prevalence of depression in rural Pakistan. Even though the living circumstances in rural Pakistan are comparable to peri-urban areas in South Africa, it is important to consider that cultural differences between the countries may necessitate further modification of the intervention. It is also important to consider that in order for these health psychology-based techniques to successfully elicit a dietary behaviour change in the South African context, the various community specific barriers described above would need to be recognised and accommodated for the behaviour change process.

### **Summary and Conclusion**

Hypertension is a chronic health condition affecting both men and women globally (Kearney et al., 2005). This condition is specifically problematic in peri-urban black South African communities (Bourne et al., 2002; Steyn et al., 1996). A change towards healthier eating habits, inclusive of a diet high in fruit and vegetable intake and low in saturated fat, is necessary to manage blood pressure levels in hypertensive communities (Appel et al., 1997).

Urbanization, long distance commutes, the availability of healthy foods in the community, poverty, lack of awareness, knowledge, and education about hypertension, and cultural perceptions of eating, are all community-specific barriers affecting dietary changes in these communities. Despite the macro-social issues stemming from disadvantage and poverty, training CHWs in highly efficient and cost-effective health behaviour techniques, such as MI and CBT, may be able to assist with behaviour change in disadvantaged communities. However, interventions such as these have yet to be implemented in South Africa, and research has yet to investigate their effectiveness in preventing hypertension in South Africa's peri-urban settlements.

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### Discussion Questions

- 1) What are some of the practical barriers to employing MI or CBT when working with South African peri-urban communities?
- 2) What alterations or adaptations would you make to these techniques for use in your own community?
- 3) What other problematic health behaviours could MI and CBT address in low SES areas, and how could these techniques be used to address them?
- 4) What do you think some of the advantages of using community-involved health workers (such as the CHWs) to employ these techniques, are?
- 5) Come up with examples of situational or contextual variables that might influence an individual's tendency to engage in a behaviour change regarding their eating regimes? How are these different between socioeconomic classes?

- 6) Recall examples of problematic health behaviours in your own life (like overeating, too little exercise, or disrupted sleeping patterns). Discuss what factors are instrumental in the perpetuation of this behaviour despite your knowledge of its harm.
- 7) Why is education and “information bashing” not very effective for instilling behaviour change?
- 8) How could the proposed two health psychology intervention techniques be translated into cross-cultural studies? Propose a concrete study design that tests its efficacy.

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