Perceptions of Mental Health Nurses Regarding Metabolic Syndrome at a Public Tertiary Psychiatric Hospital in Western Cape, South Africa

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Abstract

Mental and physical health should not be regarded as two separate entities. Recognising the periodic co-morbidity between mental and physical health conditions could facilitate an improvement in the observed lack of screening for metabolic syndrome (MetS) in patients with severe mental illness (SMI). The aim of the current study was to investigate the perceptions of mental health nurses about their knowledge, attitudes and practices regarding mental health care users (MCHUs) with MetS in a public tertiary psychiatric hospital. The study was conducted in one of the four public, tertiary psychiatric hospitals in Western Cape, South Africa. A self-administered quantitative descriptive survey design, using an 18-item modified version of the MBACK-Questionnaire was conducted with an all-inclusive sample of 97 mental health nurses. Ethics approval was obtained from the Western Cape Department of Health and the Research Ethics Committee from the University of Western Cape. A response rate of 87.6% ($n = 85$) was attained. The specialised mental health nurses reported perceived higher knowledge scores than the non-specialised mental health nurses, with no significant differences between the responses of their level of agreement for their attitudes and self-reported practices on the topic. The specialised mental health nurses perceived themselves to have better knowledge than the non-specialised mental health nurses, with both categories exhibiting similar positive attitudes towards providing general physical care and active involvement in their practice towards mental health care users (MHCUs) with MetS.

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Introduction

Mental illness is regarded as one of 10 most incapacitating illnesses globally, estimated to contribute approximately 13% of the Global Burden of Disease (Giandinoto and Edward 2015). Metabolic syndrome (MetS) is found to contribute to the mortality and morbidity of psychiatric patients in developed and under-developed countries, escalating the risk of non-communicable diseases (NCDs) which are responsible for approximately 41 million deaths annually (Saklayen 2018). Esmailnasab, Moradi and Delaveri (2012) and Penninx and Lange (2018) deemed that the detection of MetS indicates the degree of NCDs within a population and assists with the identification of high-risk individuals and prevents the progression of some major causes of morbidity and mortality. According to Okafor (2012), MetS in Africans was once regarded as a rare phenomenon however, this situation is changing. The rapid economic changes and urbanisation of the South African population, for example, are attributing to a growing number of modifiable lifestyle diseases, such as dysglycaemia, hypertension and obesity, which are all associated with MetS (Erasmus et al. 2012). In 2016, South Africa's total population was 56 015 000 of which 269 500 deaths were related to NCDs (WHO 2018). This epidemic does not only affect the individual but incurs overwhelming health costs for families and communities and is a risk to health systems (WHO 2018).

A global survey, inclusive of 195 countries, estimated that 604 million adults and 108 million children were obese (Saklayen 2018). In South Africa, the National Department of Health (NDoH 2016) classifies obesity as one of the top five causes of early morbidity. Contributing factors including sedentary lifestyle, unhealthy lifestyle behaviours (smoking, excessive alcohol misuse), biological factors and medication that increases metabolic risk are involved in a diagnosis of MetS in psychiatric patients (Ho et al. 2014; Robson et al. 2013). In this regard, cardiovascular disease (CVD) is regarded as one of the main causes of mortality in psychiatric patients (Maaroganye et al. 2013).

The estimation of MetS being three times more common than diabetes results in a global prevalence rate of one quarter of the world population (over a billion people) possibly affected with MetS (Saklayen 2018). In American and European studies, prevalence rates of 25–60% were established in individuals with a diagnosis of schizophrenia, and between 8–59% in individuals with bipolar disorder (Maaroganye et al. 2013). Studies conducted in Asian populations reported a 20–22% prevalence rate of MetS in patients with schizophrenia (Bressington et al. 2013). Research conducted by Saloojee, Burns and Motala (2016) in South Africa, found that the prevalence of MetS in patients with severe mental illness (SMI) taking antipsychotic medication was about 1 in 5 (23.3%) in comparison to 19.9% in non-SMI individuals.

According to Steinberg et al. (2015), projected health costs for mental health care users (MHCUs) with MetS is estimated to be 1.6 times higher than average, thus affecting workplace productivity. Esmailnasab, Moradi and Delaveri (2012) and Hofman (2014) suggested that the screening for, and management and treatment of MetS is vital to ensure better public health outcomes and economic progress. Despite widespread dissemination of the guidelines and awareness of metabolic risks, reports of metabolic screening practices remain inadequate (De Hert et al. 2011; Mitchell et al. 2011). Faasen et al. (2014) propose that the improvement of physical health outcomes is the dual responsibility of both doctors and nurses. Furthermore, educating patients and co-operation between health care professionals and primary care physicians including the adequate control of psychiatric symptoms are important aspects in achieving long-term treatment success (Happell et al. 2016). To date, no South African study has been carried out to determine the perceptions of mental health nurses about their knowledge, attitudes and practices regarding patients with MetS at a psychiatric hospital. Thus, the current study aimed to investigate the perceptions of mental health nurses regarding their knowledge of, and attitudes and practices towards MHCUs with MetS at a public tertiary psychiatric hospital in Western Cape, South Africa.

Research Method and Design

A survey was conducted with non-specialised mental health nurses and specialised mental health nurses.

Setting

The setting of the study was a public tertiary psychiatric hospital in Western Cape, South Africa.

Population and Sampling Strategy

The population included 117 mental health nurses (58 specialised mental health nurses and 59 non-specialised mental health l nurses), all directly involved in nursing care of the patients in the psychiatric hospital. Specialised mental health nurse refers to those who have a post-basic or postgraduate qualification in psychiatric nursing science. An all-inclusive sampling strategy was employed.

Instrument

The 18-item 5-point Likert scale, MBACK Questionnaire was used with permission (Watkins et al. 2017). Two of the original domains of the questionnaire were used (6 items on perceived knowledge and 6 items on perceived attitude), and the third 6-item domain was developed by the primary researcher. Testing of the adapted questionnaire revealed a reliability score of 0.87.

Data Collection

The primary researcher obtained consent from the hospital CEO to collect data. Potential participants were provided with written information about the study before obtaining their consent to participate in the study. The data was collected from March 2019 to May 2019.

Data Analysis

Statistical analyses were performed using SPSS version 25 (SPSS Inc., Chicago, IL, USA). The effect of demographic variables on knowledge, attitudes and practices scores were tested with non-parametric statistics. Individual items on the perceptions of mental health nurses' knowledge, attitudes and practices were analysed using descriptive statistics. The independent sample t-test and chi-squared (X^2) set at 0.5 for significance ($p = .05$) were used, where appropriate, to measure the differences between the two categories of mental health nurses.

Ethical Considerations

The study was approved by the Biomedical Research Ethics Council of the University of the Western Cape, Department of Health and the Chief Executive Officer of the public tertiary psychiatric hospital.

Results

Of the 97 eligible participants, 81 completed questionnaires (87% response rate). A total of 49 (60.5%) questionnaires were completed by non-specialised mental health nurses, and 32 (39.5%) were completed by specialised mental health nurses.

Perceptions of Mental Health Nurses about Their Knowledge Regarding MetS in MHCUs

Table 1 illustrates the level of agreement of the 81 respondents relating to their perceived knowledge of MetS in MCHUs. The highest level of agreement between the two categories of nurses was found for the item "I have a good knowledge of the signs and symptoms of hypoglycaemia/hyperglycaemia". There was a significant difference between the non-specialised mental health nurses and the specialised mental health nurses for the item "I have good knowledge of MetS". Although over two thirds of responses were positive, the specialised mental health nurses scored themselves significantly higher at 71.4% ($n = 39$; $X^2 = 4.3$; $p = .038^*$). The respondents' lowest score was recorded for the item "I understand how to read pathology reports for lipid and glucose results" at 65.4% ($n = 53$). Comparing the responses to the six items in this domain, a significant difference was found between the two categories of nurses with the non-specialised mental health nurses score (12.8 ± 3.8) ($t = 1.2$; $p = .016^*$) compared to the specialised mental health nurses' score (15.3 ± 3.0).

Table 1: Perceptions of mental health nurses about their knowledge regarding MetS in MHCUs

Knowledge	Level of agreement					
	Total (N = 81)	Non-specialised mental health nurse (*n* = 49)	Specialised mental health nurse (*n* = 32)	Test	*p*-value	M(SD)
I have good knowledge of the signs and symptoms of hypoglycaemia/hyperglycaemia						
	74 (91.4%)	45 (91.8%)	29 (90.6%)	$X^2 = 0.1$	.850	3.4 (0.7)
I have knowledge of two or more risk factors for metabolic syndrome						
	70 (86.4%)	42 (85.7%)	28 (87.5%)	$X^2 = 0.1$	.819	3.1 (0.7)
I have good knowledge of metabolic syndrome						
	64 (79.0%)	39 (71.4%)	29 (90.6%)	$X^2 = 4.3$	.038*	3.0 (0.8)
I understand the metabolic side-effect profiles of different neuroleptic medications						
	57 (70.4%)	32 (65.3%)	25 (78.1%)	$X^2 = 1.5$	.217	2.8 (0.7)
I understand how to screen for metabolic syndrome						
	56 (69.1%)	31 (63.3%)	25 (78.1%)	$X^2 = 2.0$	.157	2.8 (0.8)
I understand how to read pathology reports for lipid and glucose results						
	53 (65.4%)	33 (67.3%)	20 (62.5%)	$X^2 = 0.2$	.654	2.8 (0.7)
Perceptions of mental health nurses about their knowledge regarding MetS in MHCUs						
	14.1 (3.6); 95% CI = 4.6-0.5	**12.8 (3.8)**	**15.3 (3.0)**	**t = 1.2**	**.016***	

Notes:

Chi-squared test (or Fisher's exact test where appropriate); Independent sample *t*-test
*Significant at $p < .05$

Attitudes of Mental Health Nurses towards Providing General Physical Care to MHCUs with MetS

An overall agreement (*n* = 81; 100%) was found with the item "Encouraging patients to increase their level of physical activity is important in my role as a mental health nurse". The lowest reported score for this domain was for the item "My workload **does not** prevent me from doing any physical health promotion with patients" (*n* = 51; 63.0%). On comparison of the two categories of mental health nurses for this construct, no significant difference was found (*t* = 1.3; $p = .650$).

Table 2: Perceived attitudes of mental health nurses towards providing general physical care to MHCUs with MetS

Attitude	Level of agreement					
	Total (N = 81)	Non-specialised mental health nurse (n = 49)	Specialised mental health nurse (n = 32)	Test	p-value	M(SD)
Encouraging patients to increase their level of physical activity is important in my role as a mental health nurse						
	81 (100.0%)	49 (100.0%)	32 (100.0%)	$X^2 = 0.0$	1.000	3.7 (0.5)
Discussing nutritional intake is an important part of my role as a mental health nurse						
	80 (98.8%)	49 (100.0%)	31 (96.9%)	$X^2 = 1.5$	.213	3.7 (0.5)
Informing patients of potential general physical health problems should be part of my role as a mental health nurse						
	80 (98.8%)	48 (98.0%)	32 (100.0%)	$X^2 = 0.7$	1.000	3.6 (0.5)
Helping patients manage their weight should be part of the mental health nurse's role						
	76 (93.8%)	45 (91.8%)	31 (96.9%)	$X^2 = 0.8$	.643	3.4 (0.7)
Giving smoking cessation advice is an important part of my role as a mental health nurse						
	75 (92.6%)	45 (91.8%)	30 (93.8%)	$X^2 = 1.1$	.748	3.4 (0.7)
My workload does not prevent me from doing any physical health promotion with patients						
	51 (63.0%)	31 (63.3%)	20 (62.5%)	$X^2 = 0.0$	1.000	2.7 (0.9)
Perceived attitudes of mental health nurses towards providing general physical care to MHCUs with MetS						
	14.1 (2.0); 95% CI = 1.5–0 .9	**14.1 (1.9)**	**14.2 (2.1)**	**$t = 1.3$**	**.650**	

Notes:

Chi-squared test (or Fisher's exact test where appropriate); Independent sample t-test
*Significant at $p < .05$

Practices of Mental Health Nurses towards Providing General Physical Care to MHCUs with MetS

High scores were recorded for the individual items "I routinely measure blood pressure of patients" (n = 78; 96.3%) and "I routinely weigh patients throughout their contact with our services" (n = 68; 84.4%). Although the overall results of the before-mentioned individual items were scored high, a difference could be seen in the responses when comparing the two categories of mental health nurses. This could be attributed to the specialised mental health nurses' "additional" responsibilities of focusing on advanced psychosocial rehabilitation (PSR) interventions and implementation rather than the provision of basic nursing care. The higher scores for the non-specialised mental health care nurses might be as a result of how they view their place in the professional hierarchy prompting them to do more basic nursing care. The lowest score was recorded

for the item "I routinely measure the body mass index (BMI) of patients" ($n = 31$; 38.3%). Comparing the responses of the two categories of mental health nurses no significant difference was found ($t = 3.4$; $p = .205$). The differences in the number of respondents between the two categories of mental health nurses could also be regarded as a contributing factor when comparing the results of the individual items between the two groups.

Table 3: Self-reported practices of mental health nurses towards providing general physical care to MHCUs with MetS

Practice	Level of agreement					
	Total (N = 81)	Non-specialised mental health nurse (*n* = 49)	Specialised mental health nurse (*n* = 32)	Test	*p*-value	M(SD)
I routinely measure blood pressure of patients						
	78 (96.3%)	49 (100.0%)	29 (90.6%)	$X^2 = 4.7$	.029*	3.5 (0.6)
I routinely weigh patients throughout their contact with our services						
	68 (84.0%)	47 (95.9%)	21 (65.6%)	$X^2 = 13.1$	< .001*	3.1 (0.7)
I routinely test patients for glucose abnormalities (i.e. glucose in urine)						
	63 (77.8%)	42 (85.7%)	21 (65.6%)	$X^2 = 4.5$	.033*	3.1 (0.8)
I share information about the patient's risk for metabolic syndrome with the multi-disciplinary team						
	58 (71.6%)	31 (63.3%)	27 (84.4%)	$X^2 = 4.2$	.039*	2.9 (0.7)
I continuously educate patients about their risk for metabolic syndrome						
	48 (59.3%)	29 (59.2%)	19 (59.4%)	$X^2 = 0.0$	1.000	2.7 (0.7)
I routinely measure the BMI (body mass index) of patients						
	31 (38.3%)	21 (42.9%)	10 (31.3%)	$X^2 = 1.1$	.354	2.2 (0.8)
Self-reported practices of mental health nurses towards providing general physical care to MHCUs with MetS						
	16.8 (2.8); 95% CI = 2.7–0.6	16.3 (2.1)	17.4 (3.4)	$t = 3.4$	.205	

Notes:

Chi-squared test (or Fisher's exact test where appropriate); Independent sample *t*-test
*Significant at $p < .05$

Discussion

South African studies done on MCHUs with MetS have focused predominantly on the prevalence rates and risk factors of the disease. There is a lack of studies about mental health nurses' knowledge, attitudes and practices regarding MCHUs with MetS.

This dearth of research is evident in the scarcity of reported studies in South Africa about the disease. The available South African studies conducted by Erasmus et al. (2012); Kruger and Nell (2017); Maaroganye et al. (2013), Okafor (2012) and Saloojee, Burns and Motala (2016) focused more on the prevalence and risk factors of the disease. Therefore, the findings of the current study are largely discussed in relation to international literature. Generally, all the respondents reported that they perceived their knowledge to be adequate regarding MHCUs with MetS. The higher perceived knowledge scores of the specialised mental health nurses in the study could be attributed to their specialised psychiatric nursing qualification. This was also found in a study conducted in six hospitals in Hong Kong that examined the metabolic knowledge level of registered nurses, and explored their attitudes and perceived barriers towards cardiac preventative care (Sit et al. 2014). The study results showed a statistically significant mean knowledge score for respondents with a higher educational qualification compared to the respondents with a different educational background as reported by Sit et al. (2014). An American study with 154 mental health nurses explored their level of knowledge of MetS and their practices related to MetS, no significant variations were found between the respondents with a higher educational level compared to those with a lower qualification in relation to their knowledge and practices (Bolton, Knight and Kopeski 2016). The difference between the current study and the American study could be attributed to the fact that the current study investigated the perceptions of mental health nurses about their perceived knowledge, whereas in the American study the respondents' actual knowledge was tested. More than half of the respondents in the current study indicated an adequate understanding of the metabolic side-effect profiles of neuroleptics ($n = 57$; 70.4%). The metabolic side-effects and degree of risk ascribed to anti-psychotic medication is well established, as seen in high income countries with more than 80% prescribing second-generation anti-psychotics (De Hert et al. 2011; Papanastasiou 2012).

In the current study, both categories of mental health nurses were found to have positive attitudes towards providing physical care in relation to the promotion of weight management ($n = 76$, 93.8%) and nutrition ($n = 80$, 98.8%) in MHCUs with MetS. It is known that the use of most anti-psychotics causes weight gain (Dayabandara et al. 2017). Subjective distress over weight gain was found to be the prime intermediary on noncompliance with the use anti-psychotics (Dayabandara et al. 2017). The results of the current study could be attributed to the fact that non-compliance ultimately results in re-admissions of patients often resulting in longer hospital stays, thus leading to the mental health nurses' positive attitudes towards weight management and nutrition. Preventative and early intervention strategies are more important than weight reduction

strategies as suggested by Dayabandara et al. (2017). These results largely correlate with international studies that had similar individual items. A Jordanian study with 202 mental health nurses, for example, showed that 64.4% ($n = 130$) of the respondents promoted weight management and 53.5% ($n = 108$) offered nutritional advice (Ganiah, Al-Hussami and Alhadidi 2017) and results from a study in the United Kingdom showed that 79.0% ($n = 460$) of the respondents promoted weight management and 82.6% ($n = 478$) gave nutritional advice (Robson et al. 2013).

Although there was an overall agreement in the current study for the individual item "Giving smoking cessation advice is important in my role" ($n = 75$; 92.6%), a meta-analysis with 6 984 participants, to compare any disparities in receiving smoking cessation advice between individuals with SMI and those without, found that the rates for individuals with SMI were lower (RR = 1.10; 95% CI = 98–1.23) compared to the rates of individuals without SMI (RR = 1.16; 95% CI = 1.04–1.30) (Mitchell et al. 2014). This is a cause for concern if smoking cessation advice is not equally offered to individuals with SMI and those without, given the higher smoking rates in MHCUs (Mitchell et al. 2014). In comparing the responses of the two categories of mental health nurses' self-reported practices on the provision of general physical care to MHCUs, no significant difference was found as the results showed a mean self-reported score of 16.8 ± 2.8 (95% CI = 2.7–0.6). Comparing the current study results with a study conducted with mental health nurses with and without a specialised registration from three Asian countries, a significant difference was found between the groups ($p < 0.001$) (Bressington et al. 2018). The study results showed that the general mental health nurses were remarkably more involved in general physical care (Bressington et al. 2018). The results of the current study in relation to the existing literature on the topic were largely congruent with studies conducted internationally; however, the need to conduct further research on professional nurses' knowledge, attitudes and practices regarding MHCUs with MetS in South Africa should be addressed.

Limitations

Limitations of the study included the small population size (N = 117), which was drawn from one psychiatric hospital, therefore the results cannot be generalised to other psychiatric hospitals. The original MBACK-Questionnaire was developed to evaluate change over time and to evaluate change after training; however, the adapted version thereof used in the current study evaluated professional nurses' perceptions about their knowledge, attitudes and practices regarding MHCUs with MetS without any additional training. A further limitation was the reliance on self-report of practice rather than the actual audit of practice.

Recommendations

Metabolic health is regarded as a key factor in premature mortality among mental health users with SMI. A recommendation to nursing education is to reinforce psychiatric nursing as an extension of basic nursing care and not be treated as an individual entity. This will enable future nursing students to embrace the concept of holistic care from the start ensuring better patient outcomes for the vulnerable psychiatric community. It is therefore recommended that a compulsory course in metabolic health training should be developed, specifically targeting professional nurses working in the psychiatric environment. In clinical practice, in-service training programmes focusing on the screening for, and identification and management of this disease could be the initial step to transform the current health care services. This initiative could in turn strengthen and assist quality improvement in service delivery as well as the promotion of professional development. Progress in this area of clinical practice is imperative for improving the physical health of MHCUs with SMI. It is further recommended that qualitative and quantitative studies be conducted around this topic in a variety of health contexts in order to determine mental health nurses' actual knowledge, attitudes and practices regarding MCHUs with MetS. Research about this disease would enable policy makers either to change current guidelines or implement new ones on how to deal with this NCD in psychiatric facilities.

Conclusion

The reduction in the risk of MetS could be a precautionary innovation in psychiatric mental health nursing where previously the emphasis has always been on mental health care and not necessarily physical health care (Bolton, Knight and Kopeski 2016). Alshehri (2010) purported that since MetS was becoming one of the most significant topics for the 2010s, regular screening and management would greatly improve the quality of life and longevity of MHCUs with MetS (Bolton, Knight and Kopeski 2016).

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