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The relationship between patients' perception of nurse caring behaviors and tuberculosis stigma among patients with drug-resistant tuberculosis in Swaziland

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ABSTRACT

Background: Tuberculosis is major cause of death worldwide and Swaziland is one of the countries with highest rates. The fear of drug resistant tuberculosis among nurses may lead to poor nurse caring behaviors which patient perceive as stigma.
Objectives: To examine (1) the relationship between patients' perceptions of nurse caring and tuberculosis stigma; (2) the predictors of tuberculosis related stigma among patients with drug resistant TB in Swaziland.
Methods: In this descriptive cross-sectional study, 84 patients who had drug resistant tuberculosis completed a demographic data sheet, Lee-Hsieh (2004) Caring behavior measurement and Van Rie at el (2008) Tuberculosis related stigma scale.
Results: Poor perception of nurse caring behaviors frequency ($\bar{x} = 2.52 \pm 0.41$), and a high level of TB related stigma ($\bar{x} = 30.20 \pm 9.31$) was reported by patients. Gender and monthly income variables had a significant mean difference in nurse caring behaviors ($p < .05$). There were no demographic factors associated with TB related stigma. There was a correlation between the perception of nurse caring behaviors and TB stigma ($r = -0.709$, $p < 0.01$). Nurse caring behaviors can predict TB related stigma ($p < 0.01$) with explained variance of 52.8% and with "Sincerity, Empathy & Respect" sub scale being the strongest predictor ($\beta = -0.599$).
Conclusion: Nurse caring behaviors can predict how patients perceive stigma. Therefore, emphases on caring behaviors education on nurses is needed to reduce TB stigma among patients with drug resistant TB which will lead to patients adhering to treatment.

1. Introduction

Tuberculosis (TB) is one of the top infectious diseases worldwide and in 2014 TB caused about 1.5 million deaths (World Health Organization, 2015). World Health Organization estimated that there were 480 000 cases of multidrug-resistant TB to have occurred in 2014 and it poses a major threat to the control of TB worldwide (World Health Organization, 2015). Over 95% of TB deaths occur in low and middle-income countries (World Health Organization, 2015). Swaziland is one of the countries with the highest TB incidence in the world, 1382/100 000 (National TB Control Program, 2014). In 2015 TB was the third leading cause of death in Swaziland (Centers for Disease Control and Prevention, 2015). The country continues to experience an increase in drug resistant TB cases and in 2014 more resources channeled towards controlling the DR-TB epidemic (National TB Control Program, 2014).

Patients with TB are stigmatized in the society (Abebe et al., 2010). This disease labels and isolates individuals in the society because of it transmission nature and its association with HIV (Abebe et al., 2010). Transmission of TB is through inhaling the droplets that contain the bacteria and one of the factors to develop an active disease is the prolong exposure to the bacteria (Centers for Disease Control and Prevention, 2016). The contagiousness and high transmission risk of the disease is the cause of stigmatization which lead to people who are knowledgeable of TB transmission to isolate individuals with TB (Courtwright & Turner, 2010). Drug resistant TB is highly stigmatized

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and feared by most people because its TB bacteria cannot be killed by standard concentration of TB drugs and it takes a longer time to treat (World Health Organization, 2015).

The nurses are also faced with the fear of acquiring the disease at work and transmitting it to their families. It is assumed that the fear of contracting active TB by the nurses may affect the care they render to the patients with TB. Swaziland National TB Control Program reported that the Swaziland health workforce worry about the high risk of getting TB which contributes to poor care (National TB Control Program, 2014). However caring is the core of nursing practice and should manifest every time in the nurse patient relationship through caring behaviors (Lee-Hsieh, Kuo, Tseng, & Turton, 2004). Caring behaviors benefit nurses by increasing their relationships with clients Omari, AbuAIRub, & Ayasreh, 2013). Caring behaviors enhance growth and development and non-caring behaviors make patients feel isolated, afraid and helpless (Omari, AbuAIRub, & Ayasreh, 2013). And one of the key elements to provide companionate nursing care is to know how patients perceive nurse caring behaviors rendered to them (Kimble, 2003).

Patients may internalize the negative behaviors, actions and responses of nurses and others, thus perceiving it as stigma (Kinsler, Wong, Sayles, Davis, & Cunningham, 2007). In qualitative studies, TB patients have highlighted the relationship between caring behaviors and stigma by stating that sometimes they feel stigmatized and discriminated against by health workers through their actions (Baral, Karki, & Newell, 2007; Dodor & Kelly, 2009). Stigma may lead someone with TB to hide symptoms, avoid or delay seeking care, hide a diagnosis, treatment noncompliance and even default from treatment (Abebe et al., 2010; Courtwright & Turner, 2010). Also high levels of perceived stigma are associated with more depressive symptoms (Kinsler et al., 2007).

A considerable amount of literature which explore patients' perception of nurse caring behaviors has been published (Hayes & Tyler-Ball, 2007; He et al., 2013; Lee, Yang, Tsai, Tsai, & Tsai, 2011). Again several attempts have been made to explored stigma in TB patients (Dodor, Kelly, & Neal, 2009; Wynne et al., 2014). Despite the available literature, there has been no quantitative studies which explore relationship between patients' perceptions of nurse caring and tuberculosis stigma among patients with drug resistant TB in Swaziland. Knowing the relationship between caring behaviors and stigma will lead to education of nurses to improve caring behaviors frequency thus reducing perceived TB related stigma in patients with drug resistant TB. With less stigma in patients with TB, TB can be better controlled. Therefore, this study aimed at examining (1) the relationship between patients' perceptions of nurse caring and tuberculosis stigma; (2) the predictors of tuberculosis related stigma among patients with drug resistant TB in Swaziland.

2. Methods

A cross-sectional and correlational descriptive design was used in this study.

A total of 84 patients were recruited from the National Tuberculosis Hospital in Swaziland. Convenience sampling method was used because only the patients on drug resistant TB treatment who were at the hospital at that point in time were accessible. Data were collected from July 2016 to September 2016. The inclusion criteria were; (1) patients diagnosed with drug resistant TB, (2) patients who are being hospitalized at The National TB Hospital at list 3 days or coming for review (been hospitalized for 3 days and discharged within two weeks), (3) above the age of 18 years and (4) patients who can understand English. Patients who refuse to participate, critically ill and disoriented or altered mental status were excluded.

3. Instruments

The questionnaire included a demographic data sheet, Lee-Hsieh et al. (2004) Caring Behavior Measurement (CBM) and Van Rie et al. (2008) Tuberculosis stigma scale. The demographic data sheet was developed by the researcher guided by the reviewed literature included age, gender, marital status, educational level, employment status, income, religion, treatment duration.

Permission to use the caring behavior measurement developed Lee-Hsieh et al. (2004) by was obtained. The CBM contains 28 items and is evaluated on a 4-point Likert-type scale from never (1) to always (4). Eight experts were invited to examine the content and face validity. Exploratory factor analysis (EFA) was used to test the construct validity of the CBM. Based on the criteria of EFA, the tool revealed two factors, the factor 1 "sincerity, empathy and respect" (15 items) and factor 2 is "professional caring behaviors" (13 items). The total explained variance of CBM was 64.958%. Correlated item-to-total correlations ranged from 0.5830 to 0.8544. Cronbach's α was 0.9748.

Again permission to use the TB related stigma tool by Van Rie et al. (2008) was obtained. The original instrument included 2 scales, tuberculosis related stigma scale and the HIV/AIDS stigma scales, however only the tuberculosis related stigma scale was used. The scale has two domains; (1) community perspectives, 11 items (measure how TB patients perceive stigma from the community) and (2) patient perspectives, 12 items (how TB patients perceive stigma in themselves). A total of 23 items with a Likert-type rating scale was designed with grading from strongly disagree (0) to strongly agree (3). The results of confirmatory factor analysis indicated the appropriate of construct validity (TLI = 94, CFI = 0.88 and RMSEA = 0.11). Cronbach's alphas was 0.90 (community perspectives toward tuberculosis) and 0.83 (patient perspectives toward tuberculosis).

4. Data collection procedure and ethical

Permission to conduct the study was obtained from the ethical committee in Swaziland, and from The National TB Hospital. Patients who met the inclusion criteria where identified and approached in wards of the hospital. The purpose of the study was explained and the patients were invited to participate. The participants who agreed to participate in this study were asked to sign the consent form. Patients were then given the questionnaire to fill on their own, however patients who needed help were assisted by the researcher. Patients' numbers and names were not requested to ensure confidentiality and all the filled questionnaires were then put in an envelope, sealed and taken to be placed in a locked desk drawer.

5. Results

In the 84 patients recruited, 49 were female and 35 males. The age ranged from 19 to 58 years with the mean age of 33.31 ± 9.333. More than two thirds (65.5%) of the participants were 35 years. The majority of the participants reported being single (75%), high school as their highest educational level (59.5%), unemployed before they were hospitalized (45.2%), had an income of less than $ 73.3 USD per month (75%), being Christians from the Conference and Council of Churches (59.5%). Treatment duration of the sample ranged from 1 to 26 months with the mean of 7.38 ± 5.929 months on treatment. Majority of the patients were on TB treatment between 1 and 8 months (69%).

The patients' perception of nurse caring behaviors frequency was measured with the Caring Behavior Measurement. The nurse caring behavior sub scale "Sincerity, Empathy and Respect" had a mean score of 2.57 ± 0.41. Nurse caring behaviors sub scale "Professional caring behaviors" had a slightly lower mean 2.47 ± 0.47. The mean score of the overall nurse caring behavior scale was 2.52 ± 0.41.

The patients' perceived TB related stigma was measured with Tuberculosis related Stigma. All the scores of the participants were

Table 1
The Nurse Caring Behavior Scale and Demographic Variables.

Variables	SER		PCB		NCB	
	Mean ± SD	t/F	Mean ± SD	t/F	Mean ± SD	t/F
Age		−0.155		−0.627		−0.402
Youth (18–40)	2.56 ± 0.40		2.46 ± 0.49		2.51 ± 0.41	
Middle Life (40–60)	2.58 ± 0.49		2.53 ± 0.40		2.56 ± 0.43	
Gender		1.25		2.35*		1.887
Male	2.63 ± 0.49		2.62 ± 0.53		2.62 ± 0.47	
Female	2.52 ± 0.35		2.37 ± 0.39		2.45 ± 0.35	
Marital status		0.411		0.233		0.304
Single	2.56 ± 0.42		2.48 ± 0.51		2.52 ± 0.43	
Divorced	2.46 ± 0.35		2.35 ± 0.29		2.40 ± 0.30	
Married	2.62 ± 0.42		2.48 ± 0.39		2.55 ± 0.38	
Highest education		1.94		0.86		1.54
Primary school or less	2.51 ± 0.38		2.44 ± 0.46		2.48 ± 0.38	
High School	2.55 ± 0.39		2.45 ± 0.43		2.51 ± 0.38	
College or University	2.81 ± 0.57		2.67 ± 0.70		2.74 ± 0.61	
Employment status		2.38		3.03		3.03
Unemployed	2.67 ± 0.45		2.61 ± 0.50		2.64 ± 0.44	
Not working due to illness	2.45 ± 0.39		2.35 ± 44		2.40 ± 0.38	
Working	2.57 ± 0.33		2.38 ± 0.39		2.48 ± 0.33	
Income per month		3.43*		1.472		2.71
Less than E1000	2.56 ± 0.41		2.47 ± 0.49		2.51 ± 0.41	
E1000 to E5000	2.44 ± 0.33		2.37 ± 0.41		2.41 ± 0.34	
Above E5000	2.92 ± 0.51		2.73 ± 0.32		2.84 ± 0.41	
Religion		0.66		0.86		0.17
League of African Churches (Christians)	2.50 ± 0.44		2.58 ± 0.54		2.54 ± 0.45	
Council and Conference of Churches (Christians)	2.57 ± 0.41		2.43 ± 0.44		2.50 ± 0.40	
Non-Christians	2.67 ± 0.39		2.46 ± 0.45		2.58 ± 0.40	
Duration of treatment		1.40		1.65		1.64
1–8 Months	2.53 ± 0.39		2.42 ± 0.46		2.48 ± 0.40	
Above 8 Months	2.66 ± 0.46		2.60 ± 0.46		2.63 ± 0.43	

Note: $^{*}p < 0.05$, $^{**}p < 0.001$, SER = Sincerity, Empathy and Respect sub scale, PCB = Professional Caring Behaviors sub scale, NCB = Nurse Caring Behavior full scale.

standardized to 50 as instructed by the author of the tool. In the first sub scale "community perspective", the mean was 31.04 ± 9.73. The second sub scale "patient perspective", had a lower means score of 29.43 ± 10.11. The mean score of the overall on the TB related stigma was 30.20 ± 9.31.

Income and gender were the only two patients' demographic factors associated with nurse caring behaviors. Income shown a significant difference on the "Sincerity, Empathy and Respect" sub scale ($F = 3.431$, $p < 0.05$) with participants earning above $366.6 USD per month reporting a higher mean. Gender recorded a significant difference on "professional caring behaviors" sub scale ($t = 2.348$, $p < 0.05$) with females having a lower mean (Table 1). There were no demographic factors associated with perceived TB related stigma ($p > 0.05$) among patients with drug resistant TB (Table 2).

A negative correlation between the perception of nurse caring behaviors and TB stigma among patients with drug resistant TB was presented ($r = -0.709$, $p < 0.01$). The correlations of all the sub scales of nurse caring behavior and TB stigma were also significant ($p < 0.01$), ranged from ($r = -0.536$) to ($r = 0.946$). Age and treatment duration did not show any significant correlation with caring behaviors and TB stigma (Table 3).

A hierarchical multiple regression analysis was used to assess the predictors of TB related stigma. The two sub scales of caring behaviors combined predicted TB related stigma ($F = 42.24$, $p < 0.01$) with explained variance of 52.8%. The nurse caring behavior sub scale 'Sincerity, Empathy & Respect' had the highest beta ($\beta = -0.599$, $p < 0.001$). Therefore from the above analysis, the results shows the nurse caring behavior sub scale "Sincerity, Empathy & Respect" is the strongest and important predictor of TB related stigma (Table 4).

6. Discussion

The results revealed that the majority of the patients with drug resistant TB were 35 years and younger with overall means age of 33.31 ± 9.333. There was an agreement between the sample's age mean of this study and other studies which studied patients with drug resistant TB in the Sub-Sahara region in Africa (Harding, Defilippi, & Cameron, 2016; Kapata et al., 2015).

The patients with drug resistant TB in Swaziland had a poor perception of nurse caring behaviors frequency with a mean score of (2.52) falling between seldom and usually frequency. In comparison, patients from a study done by Lee-Hsieh at el (2004) had a higher mean (3.36) on the caring behavior measurement (Lee-Hsieh et al., 2004). Also patients from other studies reported a higher perception of nurse caring behaviors frequency than patients from this study (Azizi-Fini, Mousavi, Mazroui-Sabdani, & Adib-Hajbaghery, 2012; Hayes & Tyler-Ball, 2007).

The reason for the lower perception of nurse caring behaviors by patients with drug resistant TB may be due to nurses having fear of contracting TB when caring for patients with TB and that may lead to rendering poor caring behaviors frequency to their patients. TB is regarded as highly communicable leading to nurses keeping a certain distance from patients (Rodrigues, Motta, & Ferreira, 2016). Moreover nurses fear drug resistant TB more than normal TB because it takes a longer time to be treated.

Patients who have lower economic status perceived nurse caring behaviors less frequently than patients with higher economic status. This is supported by Arpey, Gaglioti, and Rosenbaum (2017) in their study. Culturally in Swaziland, people who are wealthy are respected more than those who are poor. That may cause nurse to pay more respect to patients with higher economic status than those with lower economic status.

Females perceived professional caring behaviors less frequent than

Table 2
The Tuberculosis Stigma scale and Demographic variables.

Variables	CP		PP		TRS	
	Mean ± SD	t/F	Mean ± SD	t/F	MeanSD	t/F
Age		−0.30		0.89		0.35
Youth (18–40)	30.88 ± 10.28		29.94 ± 10.05		30.39 ± 9.69	
Middle Life (40–60)	20.66 ± 7.60		27.55 ± 10.37		29.50 ± 7.98	
Gender		−1.07		−1.30		−1.28
Male	29.70 ± 8.83		27.74 ± 10.90		28.67 ± 9.34	
Female	32.00 ± 10.31		30.64 ± 9.43		31.29 ± 9.23	
Marital status		0.23		0.41		0.30
Single	31.47 ± 9.82		30.11 ± 10.09		30.76 ± 9.27	
Divorced	31.57 ± 12.17		27.08 ± 11.38		29.23 ± 11.34	
Married	29.82 ± 9.18		28.35 ± 10.11		29.05 ± 9.20	
Highest education		0.91		0.16		0.33
Primary school or less	33.21 ± 8.76		29.83 ± 10.11		31.45 ± 8.76	
High School	30.24 ± 9.89		28.97 ± 9.78		29.58 ± 9.31	
College or University	29.46 ± 11.44		30.86 ± 12.76		30.19 ± 11.48	
Employment status		2.17		0.84		1.36
Unemployed	28.71 ± 10.50		28.07 ± 10.78		28.38 ± 9.85	
Not working due to illness	32.50 ± 9.42		31.23 ± 10.08		31.84 ± 9.46	
Working	33.94 ± 7.17		29.17 ± 8.28		31.45 ± 7.01	
Income per month		1.03		0.94		1.02
Less than E1000	30.78 ± 10.29		29.67 ± 10.48		30.20 ± 9.74	
E1000 to E5000	22.36 ± 5.72		30.75 ± 7.12		32.25 ± 5.69	
Above E5000	33.87 ± 10.63		24.60 ± 11.67		26.09 ± 10.98	
Religion		1.23		0.40		0.67
League of African Churches (Christians)	28.51 ± 10.20		27.97 ± 11.18		28.23 ± 10.49	
Council and Conference of Churches(Christians)	31.54 ± 8.88		30.22 ± 9.94		30.86 ± 8.66	
Non-Christians	33.59 ± 11.98		28.82 ± 9.18		31.10 ± 9.98	
Duration of treatment		1.70		1.40		1.65
1–8 Months	32.24 ± 10.16		30.46 ± 10.20		31.31 ± 9.72	
Above 8 Months	28.38 ± 8.27		27.14 ± 9.69		27.73 ± 7.96	

Note: $^{*}p < 0.05$, $^{**}p < 0.001$, CP = Community perspective sub scale, PP = Patient perspective sub scale, TRS = Tuberculosis related stigma full scale.

males. However these results are different from the results from a study done by Hayes and Tyler-Ball (2007). Perhaps females receive caring behaviors less frequently because the Swazi culture is characterized by male dominance and promotes males to be well taken care of than females.

There is a high level of perceived TB related stigma among patients with TB. These results are in agreement with other studies which were done on TB population (Moya, Biswas, Chavez Baray, Martinez, & Lomeli, 2014; Van Rie et al., 2008). TB is thought to be highly contagious, which is the reason patients with TB are stigmatized.

On the factors associated with perceived TB related stigma, the results in this study did not find any significant difference among the demographic variables. However other studies revealed an association younger age with lower stigma (Moya et al., 2014) and an association of lower educational level with high stigma (Kipp et al., 2011). Low statistical power due to smaller sample size might be an explanation of this difference.

Patients' perception of nurse caring behaviors is significantly related to patients' perceived TB stigma. The study revealed a strong negative correlation between the perception of nurse caring behaviors and perceived TB stigma by patients with drug resistant TB ($r = -0.709$, $p < 0.01$). Also caring behaviors with more of sincerity, empathy and respect are the strongest and important predictor of perceived stigma among patients with drug resistant TB. This implies that once nurses increase the frequency of caring behaviors with more of sincerity, empathy, the level of perceived TB related stigma in patients with drug resistant TB will decrease. The reason why sincerity, empathy and respect was a strongest predictor of perceived stigma than professional caring behaviors is because sincerity, empathy and respect add value to patients thus reducing stigma (Dickert & Kass, 2009). These results are consistent to the results from a qualitative study done on patients with TB in Nepal where it was found that some patients felt they were discriminated against by health workers through their actions (Baral et al., 2007). Also in another qualitative study it was found that behaviors of health professionals towards patients with TB lead to the stigmatization of patients with TB (Dodor & Kelly, 2009).

Table 3
Intercorrelations for Nurse Caring Behavior and TB related Stigma sub scales.

Variable	SER	PCB	CBFS	CP	PP	TSFS	A	TD
Sincerity, Empathy and Respect (SER)	1							
Professional caring behaviors (PCB)	0.744**	1						
Caring behaviors full scale (CBFS)	0.935**	0.932**	1					
Community perspective (CP)	−0.592**	−0.536**	−0.604**	1				
Patient perspective (PP)	−0.745**	−0.595**	−0.719**	0.759**	1			
TB stigma full scale (TSFS)	−0.718**	−0.605**	−0.709**	0.930**	0.946**	1		
Age (A)	0.014	0.024	0.020	0.073	−0.038	0.015	1	
Treatment Duration (TD)	0.129	0.106	0.126	−0.039	−0.036	−0.04	−0.083	1

Note: $^{*}p < 0.05$, $^{**}p < 0.001$. SER – Sincerity, Empathy and Respect, PCB – Professional caring behaviors, CBFS – Caring behaviors full scale, CP – Community perspective, PP – Patient perspective, TSFS – TB stigma full scale, A – Age, TD – Treatment Duration.

Table 4
Hierarchical Multiple Regression Analysis Summary for the Predictors of Tuberculosis related Stigma full scale.

Variable	Unstandardized coefficient (Beta)	SE	Standardized Coefficient (β)	R^2	ΔR^2	ΔF
Step 1				0.023	0.023	0.97
Age	0.067	0.116	0.067			
Gender	3.029	2.181	0.161			
Constant	26.200	4.555				
Step 2				0.528	0.51	42.24**
Age	0.035	0.082	0.035			
Gender	0.537	1.601	0.029			
Sincerity, Empathy & Respect	−13.450	2.608	−0.599**			
Professional caring behaviors	−3.061	2.371	−0.154			
Constant	70.817	5.852				

Note: $^{*}p < 0.05$, $^{**}p < 0.001$.

7. Conclusion

This study contribute to the body of knowledge in the nursing discipline by providing evidence that there is a correlation of perception of nurse caring behaviors and perceived TB related stigma among patients with drug resistant TB. Also caring behaviors with more of sincerity, empathy and respect are the strongest and important predictor of perceived stigma. Moreover there is poor perception of nurse caring behaviors among patients with drug resistant TB. Patients with TB continue to have a high level of perceived TB related stigma. Therefore there is a need for improvement of caring among nurses in TB department which will help reduce perceived stigma among patients with TB. Educational programs with sensitive caring behaviors among nurses are needed. Simplification of the caring concept into caring behaviors and more exposure to care for patients with communicable diseases like TB during practical is needed in nursing education. Moreover, a study which will explore and compare the important caring behaviors in both nurses who work in TB department and patients with TB is recommended. A cross sectional design and convenient sampling was used in this study thus these results cannot be generalized to the whole of Swaziland.

Conflict of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijans.2018.11.004.

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