

RESEARCH ARTICLE

Influence of social capital on mental health of men who have sex with men: The chain mediating effects of perceived stress and psychological resilience

Xiaoyue Zhang, Ying Zhou, Kaili Zhang*

Abstract

Objective: To probe the influence of social capital on the mental health of men who have sex with men.

Method: The study was conducted at the School of Nursing, Xuzhou Medical University, Xizhou, China, from January to December 2023, and comprised men who have sex with men. Data was collected online using the Social Capital Questionnaire, Perceived Stress Scale, Connor-Davidson Resilience Scale and Self-Rating Mental Health Scale. Data was analysed using SPSS 24.

Results: Of the 624 questionnaires distributed, 546(87.5%) men returned them fully filled. The mean age of the respondent was 27.77 ± 7.77 years. Social capital, perceived stress, psychological resilience and mental health were significantly correlated with each other ($p < 0.001$). Perceived stress and resilience possessed a significant mediating effect in social capital along with mental health, with effect sizes being 60.32% and 17.41%, respectively. Perceived stress-psychological resilience harboured a significant chain mediating effect in social capital along with mental health, with the effect size being 6.48%.

Conclusion: Social capital could affect the mental health of men who have sex with men not only through the independent mediating influence of perceived stress and psychological resilience, but also through the chain mediating influence of perceived stress-psychological resilience.

Keywords: Men who have sex with men, Social capital, Mental health, Perceived stress, Psychological resilience.

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Introduction

Men who have sex with men (MSM)¹ are men who have had sex with men, containing gay men, bisexual men, transsexual men and heterosexual men. Compared to heterosexual men, gay and bisexual men are more likely to experience depression and anxiety, and indulge in substance use disorders (SUDs)² and even to attempt suicide.³ Additionally, MSM have high risk of contracting the human immunodeficiency virus (HIV), and 80% of people living with HIV are likely to suffer from depression.⁴ Recently, many studies have focussed on the influence of social capital on mental health. Social capital refers not only to the network of social relations or the social resources embedded in it, but also to the ability and opportunity of individuals and organisations to mobilise resources from the social network.⁵ Social capital can affect health through psychological ways, such as enhancing self-esteem, social ability, self-confidence and sense of identity.⁶ Further, social capital intervention can effectively improve subjective social support, psychological resilience, sense of community as well as quality of life (QOL), thereby reducing depression.⁷ Studies have found⁸ that social capital is a protective factor for depression symptoms in HIV-infected MSM patients, and the lower the social capital, the more

serious are the adverse effects of depression on HIV inhibition. Also, social capital can improve mental health by providing psychosocial support and reducing HIV-related stress.⁹ Therefore, exploring the influence and mechanism of social capital on MSM's mental health is of great significance for promoting MSM's mental health as well as for acquired immunodeficiency syndrome (AIDS) intervention and prevention from the perspective of mental health.

Perceived stress refers to the subjective feelings of individuals on internal and external stress events.¹⁰ Meyer's stress model of sexual minorities¹¹ believes that various factors in the social environment can cause stress, which, in turn, influences an individual's mental health. Social capital can influence health by promoting the ability to combat the negative effects of stress.¹² Studies have shown¹³ that more and higher quality social resources can alleviate mental health problems in particularly stressful situations. Although MSMs are prone to many health problems, a considerable number of MSMs do not have adverse outcomes, which may be the result of psychological resilience.¹⁴ Psychological resilience is the ability to actively adapt to adverse environments.¹⁵ Social capital is considered a social resource embedded in social networks, and psychological resilience may be related to social and personal resources in a specific research context. A study¹⁶ highlighted the importance of considering social

School of Nursing, Xuzhou Medical University, Xuzhou, Jiangsu 221000, China.

Correspondence: Kaili Zhang, e-mail: luekiil1886@163.com

ORCID: 0009-0005-9806-4866

resources and trust in social networks when measuring health, and the need for a degree of mental resilience in order to be able to make the most of perceived and actual available resources. The relation in perceived stress and psychological resilience is also important. Psychological resilience is considered to be the result of adaptive responses to stressors, enabling individuals to cope with stressful environments.¹⁷ In the face of everyday or chronic stressors, psychological resilience can act as a buffer against perceived stress.

The current study was planned to explore the influence of social capital on MSM’s mental health, and to understand the underlying mechanism.

Subjects and Methods

The study was conducted at the School of Nursing, Xuzhou Medical University, Xizhou, China, from January to December 2023, and comprised MSMs. The sample was raised using convenience sampling and snowball sampling methods. Through sexual minority volunteer organisations and same-sex online social networking platforms, recruitment information was gathered to recruit eligible subjects. Those included were men aged >18 years who had sex with men in the preceding 6 months, and were able to talk, read and write normally. Those who did not meet the inclusion criteria or were not willing to participate were excluded. After furnishing informed consent, the subjects answered online using their mobile phones, which were only allowed to fill out the questionnaire once through background control. Data was collected using the Social Capital Questionnaire (SCQ),¹⁸ Perceived Stress Scale (PSS),¹⁹ Connor-Davidson Resilience Scale (CD-RISC)²⁰ and the 20-item Self-Rating Questionnaire (SRQ-20).²¹

SCQ,¹⁸ with Cronbach alpha (α) coefficient 0.650, was divided into 3 dimensions: social network, social participation and values. PSS was adapted to assess people’s capacity to feel excessive pressure about their situation in life.¹⁹ Having Cronbach α coefficient 0.734, the scale contained 14 items and was scored on a 5-point Likert 5 scale, in which items 4-10 and 13 were scored in reverse. CD-RISC,²⁰ with Cronbach α coefficient 0.938, consisted of 25 items and was scored on a 5-point Likert scale. The score ranged 0-100. SRQ-20,²¹ with Cronbach α coefficient 0.868, had 20 items with a maximum score of 20.

Data was analysed using SPSS 24 and SPSS macro programme PROCESS v3.3. Measurement data was exhibited as mean±standard deviation, and t-test was used for comparison. Statistical data was presented as frequencies and percentages, and chi-square test was used for comparison. Exploratory analysis was done using Harman’s univariate test with a cut-off value of 40%.

Correlation between variables was analysed using Pearson correlation analysis, and the chain mediation was analysed using the Bootstrap method repeated 5,000 times to calculate 95% confidence interval (CI). P<0.05 was considered statistically significant.

Results

Of the 624 questionnaires distributed, 546(87.5%) men returned them fully filled. The mean age of the respondent was 27.77±7.77 years (Table 1).

Exploratory analysis displayed that the characteristic root of 16 factors was >1, and the variation explanation rate of the first factor was 21.17%, which was below the 40% cut-off, which implied that there was no apparent bias in the data, and the relationship between each variable was credible.

Social capital had a negative correlation with mental health score (p<0.001). Perceived stress had a positive correlation with mental health scores (p<0.001). Psychological resilience had a negative correlation with mental health score (p<0.001) (Table 2).

Chain-mediated effect suggested that education level, monthly income, sexual orientation and work status were control variables, social capital was independent variable, mental health was the dependent variable, and perceived

Table-1: Basic characteristics of the respondents.

Items	Respondents (n=546)
Mean age (years)	27.77±7.77
Educational level	
Bachelor degree	288
Junior college and below	258
Working condition	
On job	345
Out of work	201
Monthly income (yuan)	
<3000	181
3000-5000	197
>5000	168
Sexual preference	
Homosexual	277
Bisexual	204
Heterosexual	65

Table-2: Descriptive statistics and correlation analysis of social capital, perceived stress, psychological resilience and mental health.

Variables	Mean±SD	Social capital	Perceived stress	Mental elasticity	Mental health
Social capital	18.59±2.62	—			
Perceived stress	26.91±6.44	-0.356***	—		
Mental elasticity	54.22±18.39	0.438***	-0.446***	—	
Mental health	7.48±5.13	-0.289***	0.556***	-0.359***	—

***p<0.001, M: Mean, SD: Standard deviation.

Table-3: Regression analysis of the chain mediation model for perceived stress and psychological resilience.

Predictive variables	Outcome variable (Perceived stress)			Outcome variable (Mental elasticity)			Outcome variable (Mental health)		
	β	SE	t-test	β	SE	t-test	β	SE	t-test
Education level	-0.129	0.049	-2.623**	0.010	0.044	0.218	-0.102	0.043	-2.351*
Working status	0.117	0.091	1.280	-0.372	0.081	-4.600***	-0.058	0.081	-0.719
Monthly income	-0.116	0.056	-2.077*	0.014	0.050	-0.287	0.016	0.049	0.329
Sexual orientation	-0.270	0.038	-0.707	-0.116	0.034	-3.423***	0.084	0.034	2.494*
Social capital	0.321	0.041	-7.734***	0.272	0.039	7.031***	-0.039	0.040	-0.966
Perceived stress				-0.316	0.038	-8.276***	0.464	0.040	11.612***
Mental elasticity							-0.158	0.042	-3.719***
R ²		0.154			0.336			0.355	
F		19.718***			45.395***			42.255***	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, β : Beta, SE: Standard error.

Table-4: Mediating effects of psychological resilience and perceived stress.

Paths	Effect value	Boot SE	Boot 95% CI		Effect size
			LL	UL	
Path 1: Social capital → perceived stress → mental health (a1b1)	-0.149	0.023	-0.194	-0.027	60.32%
Path 2: Social capital → psychological resilience → mental health (a2b2)	-0.043	0.013	-0.071	-0.019	17.41%
Path 3: Social capital → perceived stress → psychological resilience → mental health (a1a3b2)	-0.016	0.005	-0.028	-0.007	6.48%
Total mediating effect	-0.208	0.027	-0.264	-0.157	84.21%
Direct effect	-0.039	0.040	-0.117	0.040	15.79%
Total effect	-0.247	0.042	-0.330	-0.163	-

SE: Standard error, CI: Confidence interval, LL: Lower level, UL: Upper level.

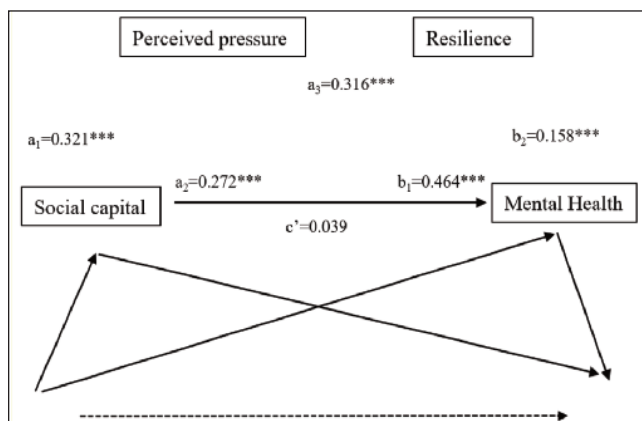


Figure: Chain-mediated model of social capital and mental health among men who have sex with men (MSM).

stress together with psychological resilience were the mediating variables (Table 3).

Social capital could significantly predict mental health, with higher level of social capital representing better mental health ($\beta = -0.246$, standard error [SE] = 0.042, $t = -5.812$, $p < 0.001$, lower limit of confidence level [LLCL] = 0.330, and upper limit of confidence level [ULCL] = 0.163). Psychological resilience could significantly predict mental health, with higher level of resilience representing better mental health. Perceived stress significantly predicted mental health, with higher perceived stress being associated with poorer mental

health. However, after adding psychological resilience and perceived stress, social capital could not significantly predict mental health, and the direct effect was not significant ($c' = -0.039$, SE = 0.040, $t = -0.966$, $p = 0.334$, LLCL = -0.117, and ULCL = 0.040) (Figure).

Mediation analysis unveiled that the impact of social capital on mental health was through three paths. Path 1 was “social capital → perceived stress → mental health”, and the 95% CI of indirect effect did not include 0, implying that psychological resilience had a significant mediating function between social capital and mental health, accounting for 60.32% of the total effect. Path 2 was “social capital → psychological resilience → mental health”, and the 95% CI of indirect effect did not include 0, implying that perceived stress had a significant mediating function between social capital and mental health, accounting for 17.41% of the total effect. The third indirect effect path was “social capital → perceived stress → psychological resilience → mental health”, and the 95% CI of the indirect effect did not include 0, implying that perceived stress together with psychological resilience had a significant chain mediating influence between social capital and mental health, accounting for 6.48% of the total effect. Perceived stress and resilience could not only mediate the relation between social capital and mental health, but also played a chain mediating role through perceived stress- psychological resilience (Table 4).

Discussion

The current study showed that perceived stress was a mediating variable for social capital and psychological wellbeing. Sexual minorities suffer from prejudice, stigma and other pressures due to their sexual identity. Social capital could influence perceived stress in MSMs. Although there are few studies on social capital and perceived stress among MSMs, studies in other populations have confirmed that social capital can buffer the influence of stress by providing social support, improving personal coping ability, and reducing stressful events and psychological demands.^{22,23} More social resources of higher quality can help alleviate mental health problems under stressful circumstances. People who invest more in social capital have stronger social capital and perceive less stress.²⁴ On the other hand, perceived stress could significantly predict MSMs' mental health, with less perceived stress indicating better mental health. Perceived stress is a dynamic process, which is common in life. However, if it cannot be effectively regulated and handled, it will have a significant negative influence on people's mental health.²⁵ Studies have confirmed²⁶ that high perceived stress is associated not only with physical health, but also with mood disorders, containing anxiety, depression and post-traumatic stress disorder (PTSD). Effective modulation and control of perceived stress in MSMs can relieve anxiety, depression and other negative emotions in this population. Consistent with the findings, Zhang et al. suggested that MSMs had poorer mental health, and perceived stress was a crucial factor influencing mental health.²⁷

The current study showed that social capital could indirectly influence mental health through psychological resilience. Social capital is a key resource that can promote the psychological resilience of HIV patients when financial resources are limited.²⁸ Psychological resilience could significantly predict MSMs' mental health in the current study, which was also consistent with previous studies, the more serious the loneliness and depression of MSM, the worse their psychological resilience was, and they were more likely to have adverse development outcomes.²⁹ In addition, homosexuals with good psychological resilience have more positive psychological qualities, introspective cognitive styles, and rational and effective coping styles than those with poor psychological resilience.³⁰ The essence of psychological resilience is a "protective factor," which can reduce the pressure and pain caused by injury to maintain one's mental health, and is a type of the important symbols of mental health.¹⁵ This suggests that relevant researchers can focus on the psychological resilience of MSMs, which may be beneficial to improve their QOL, and promote mental health. Similarly, Karatepe et al. indicated that social capital had the mediating role on

psychological resilience.³¹

The current study tested the research hypothesis that perceived stress together with psychological resilience had a chain mediating function in social capital and mental health. At present, many studies have confirmed that psychological resilience is not only related to work-related stress and stressful life events, but also to the health consequences of coping with stress.³² When individuals are confronted with stressful life events, positive reactions together with attitudes are crucial adaptive abilities in life, and psychological resilience indicates this ability.³³ Psychological resilience can protect individuals in risk factors by changing their cognition of risk factors, reducing the negative chain reaction of negative events, improving their psychological ability, and providing opportunities for individuals to obtain more resources.³⁴ Specifically, MSMs with higher social capital will have less impact on individual subjective feelings when facing stressful events, lower perceived stress level, higher psychological resilience level, less negative impact on mental health, and better mental health, which was similar to previous reports.^{35,36} In the process of mental health intervention for MSMs, it is necessary to consider not only the different social capital status of MSMs, but also how to reduce the perceived stress of MSMs and improve the level of psychological resilience.

The current study has limitations because the sample size was not calculated which could have influenced the power of the study and the validity of the findings.

Conclusion

Social capital could influence MSM's mental health not only through the separate influences of perceived stress along with psychological resilience, but also through the chain mediating influence of perceived stress-psychological resilience.

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