

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_709_23

# Link between individual resilience and aggressiveness in dental students and the mediating effect of spirituality: A path analysis

Shamim Anjum, Gaurav Mishra<sup>1</sup>, Nishita Kankane<sup>1</sup>, Jitendra Khetan<sup>2</sup>,  
Namrata Mahajan<sup>2</sup>, Aditi Patel<sup>2</sup>, Kumar G. Chhabra<sup>3,4</sup>

Department of Conservative Dentistry and Endodontics, Indira Gandhi Government College and Hospital, Jammu and Kashmir, India, <sup>1</sup>Department of Public Health Dentistry, Faculty of Dental Sciences, King George's Medical University, Lucknow, Uttar Pradesh, India, <sup>2</sup>Department of Prosthodontics, Crown and Bridge and Implantology, NIMS Dental College and Hospital, NIMS University, Jaipur, Rajasthan, India, <sup>3</sup>Department of Public Health Dentistry, NIMS Dental College and Hospital, NIMS University, Jaipur, Rajasthan, India, <sup>4</sup>Research and Developmental Cell, Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha, Maharashtra, India

## Address for correspondence:

Dr. Gaurav Mishra,  
Department of Public Health Dentistry,  
Faculty of Dental Sciences, King George's Medical University,  
Lucknow - 226 003,  
Uttar Pradesh, India.  
E-mail: gauravmishra@kgmcindia.edu

Received: 22-05-2023  
Accepted: 21-07-2023  
Published: 07-02-2024

## Abstract:

**BACKGROUND:** The role of spirituality in people's lives, particularly the lives of health professionals, as well as its impact on mental health issues like anger and aggressiveness and resilience, are particularly significant. Therefore, the purpose of this study was to examine the link between the propensity for violence and personal resilience in dental students by taking into account the function of spirituality as a mediator.

**MATERIALS AND METHODS:** In this cross-sectional questionnaire survey, 211 volunteer dentistry students participated from a government institute in Jammu and Kashmir, India using a stratified sample procedure. The Spiritual Orientation Scale, Buss and Perry Aggression Questionnaire, and Connor-Davidson Resilience Scale were used to gather the data. SPSS version 20.0 was used for conducting a bivariate analysis to ascertain the directionality connection between the research variables. In addition; structural equation modelling analysis was conducted by Smart PLS.

**RESULTS:** According to the findings, resilience and spirituality have a substantial and positive link ( $r = 0.468$ ,  $r = 0.023$ ). Aggressiveness and resilience revealed a statistically significant inverse link ( $r = 0.325$ ,  $P = 0.04$ ), but aggression and spirituality had no significant correlation. Spirituality played a substantial mediation influence in the indirect pathway of violence on resilience ( $P = 0.001$ ).

**CONCLUSION:** According to the study's findings, spirituality can help pupils become more resilient as individuals and can act as a helpful intermediary between aggressiveness and resilience.

## Keywords:

Aggression, resilience, spirituality, structural equation model

## Introduction

Spirituality includes the search for purpose in life and is characterised by a feeling of connectedness to a higher power.<sup>[1,2]</sup> It assists in realising one's full potential, purpose in life, and internal fulfilment. Through self-evolution, self-actualisation, and transcendence, one can achieve this condition of existence.<sup>[3]</sup> People who are in a condition of spiritual health are able to live their everyday lives in a way that helps them realise their full

potential, the meaning of life, and their inner contentment.<sup>[3]</sup> According to the World Health Organisation, spiritual health is a crucial aspect and the fourth dimension of overall health. This has an impact on their physical, mental, and social health<sup>[4,5]</sup> and also on an individual's behaviour.<sup>[6]</sup> People who are spiritual feel more connected to life and are happier.<sup>[1]</sup> Researchers have demonstrated that spirituality and associated ideas (including religion, beliefs, and religious activities) have a favourable association with human health in recent

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow\_reprints@wolterskluwer.com

**How to cite this article:** Anjum S, Mishra G, Kankane N, Khetan J, Mahajan N, Patel A, *et al.* Link between individual resilience and aggressiveness in dental students and the mediating effect of spirituality: A path analysis. J Edu Health Promot 2024;13:10.

findings from meta-analysis studies. For instance, it discovered that suicide, antisocial behaviour, and low levels of sadness have all been linked to spirituality.<sup>[7,8]</sup>

Resilience is one of the aspects of spirituality that may be studied, according to a recent research.<sup>[9]</sup> The ability to adapt successfully in the face of difficulty, trauma, tragedy, danger, or severe causes of stress is known as resilience.<sup>[10]</sup> Resilience refers to a person's capacity to bounce back from adversity or maintain their previous state.<sup>[11]</sup> Because resilience is dynamic, its level of intensity changes throughout time.<sup>[12]</sup> Recent research by clinical psychologists has examined how people cope with pain, disability, tragedy, melancholy, and antagonism. The findings of this research demonstrate the beneficial, constructive, and protective roles that resilience plays in effective coping and expanding adaption to demanding living circumstances.<sup>[13]</sup> In their research on South African families, Greeff and Loubser<sup>[14]</sup> highlight the importance of spirituality as a quality and resilience. Anger with aggression was reliable signs of mental health that are connected to spirituality.<sup>[15]</sup> Any verbal or nonverbal behaviour that is directly or indirectly meant to hurt another person's bodily or mental well-being is aggression.<sup>[16]</sup> Aggression may also be defined as any behaviour that is meant to cause harm to others.<sup>[17]</sup> As a result, those who are more spiritual and connected to God tend to be in better mental health.<sup>[18,19]</sup>

Many studies have proven that dentists face a greater amount of stress in their profession than any other job. Just a few of the stresses that dental students typically encounter include Admission into dental school, competitive training to develop clinical skills, coping with ingrained feelings related to the doctor-patient relationship, intense work pressure, exam stress, limited free time, and stress resulting from meeting clinical requirements. These stressors might result in fatigue, health issues, and the emergence of bad behaviours. They must thus be able to manage their stress.<sup>[5,20,21]</sup> Spiritual well-being improves a person's coping mechanisms, which can aid dentistry students in overcoming difficult circumstances as future healthcare workers.<sup>[5]</sup> Students who have high levels of resilience are happier and more content with their lives, claim Aboalshamat *et al.*<sup>[22]</sup>

Psychologists and other mental health specialists are paying more and more attention to people's spirituality levels. The role of spirituality in people's lives, particularly that of health professionals, and its effects on resiliency in facing difficulties in life, as well as various elements of mental health like rage and aggressiveness, are particularly significant. The ability to use religious resources to address difficulties in one's life is part of one's spirituality, which also influences how they behave in public. Therefore, purpose of this study was

to examine the correlation between the propensity for violence and personal resilience in dentistry students by taking into account the function of spirituality as a mediator. This is, as far as we are aware, the first study to look at all three factors simultaneously among dentistry students.

## Materials and Methods

### Study design and setting

A cross-sectional research using a questionnaire and the structural equation modelling (SEM) was done from April 2022 to June 2022.

### Study participants and sampling

Study participants were undergraduate and postgraduate students from various academic years at a government dental institution in India, A median sample size of about 200 cases is considered for the SEM method based on reviews of various as explained by Keline.<sup>[23]</sup> To participate in the study, 230 students in total were contacted. Stratified random sampling was used to select the participants from different academic years in the study.

### Ethical consideration

The research was questionnaire study with no risk to the participants and was approved by the Institutional Ethical Committee. All research participants received signed informed permission after being informed of the study's objectives and receiving assurances about the confidentiality of their data. It was optional to take part in the study.

### Data collection tools

A pretested, predesigned, structured questionnaire was used to collect the data. The demographic information on the questionnaire, including name, age, sex, and academic year, was the first section. The next sections were as follows:

- Spiritual orientation scale (SOS) was developed by Kasapoped (2016) to assess individuals' spirituality.<sup>[24]</sup> There are 16 items on this 7-point Likert scale, with 1 being the strongest disagreement and 7 being the strongest agreement, such as "Prayer/meditation is an important aspect of my spiritual life." The entire scale has a minimum and highest potential score of 16 and 112, respectively. The level of spiritual orientation increases with increasing score on the scale. Cronbach's alpha for the scale in the current study was 0.92.
- Buss and Perry Aggression Questionnaire (AQ)<sup>[25]</sup> is a self-reported instrument that consists of 29 phrases and 4 subscales, which include physical aggression, verbal aggression, anger, and hostility (9, 5, 7, and 8 items, respectively). On a five-point scale with 1

being the most out of character for me and 5 being the best response, participants assessed their responses to each AQ item (extremely characteristic of me). The sum of the subscales' scores is used to get the overall score for aggressiveness. In the current study, Cronbach's alpha for AQ was 0.90.

- Connor and Davidson Resilience Scale (CD-RIS) given in 2003, which comprises 25 items, to gauge how resilient various people are. The response spectrum is a 5° Likert scale, with 0 being completely false and 4 being quite right. Summation of all item scores yields the CD RIS's overall score, which ranges from 0 to 100. A higher score indicated that people were more resilient. For CD RIS, 50 is the cutoff. Scores over 50 suggest resiliency in those who have faced difficulty.<sup>[26]</sup> Cronbach's alpha for this area was 0.94.

### Statistical analysis

Bivariate analysis with SPSS version 20.0 was utilised in this study to ascertain the directionality connection between the studied variables (IBM Corp., Armonk, NY, USA). After that, the research model was subjected to a route analysis. Software called Smart PLS (GmbH Boenningstedt, Hamburg, Germany) was used for the path analysis and SEM. Several indicators that are often used in SEM analysis were employed to evaluate the model fit. Only after the model meets the advised Goodness-of-Fit (GOF) metrics was it deemed feasible for the analysis. When the model is suitable, the Chi-squared fit statistic (2/df), RMSEA, GOF index (GFI), normed fit index (NFI), and comparative fit index (CFI) should all be near to or better than the suggested levels.<sup>[27]</sup> The suggested GOF were employed in this study to compare models.

## Results

A total of 211 out of 230 research participants answered, with a response rate of 91.7%. Of these, 125 women (59.24%) and 86 men (40.76%) responded [Table 1].

The total aggression mean scores in participants was  $83.16 \pm 21.27$ . The mean spirituality level and resiliency in students were  $99.84 \pm 8.62$  and  $62.55 \pm 11.73$ , respectively [Table 2].

According to correlation analysis, spirituality and resilience among study participants were statistically significantly positively correlated ( $r = 0.468$ ,  $P = 0.023$ ), whereas aggression and resilience were statistically significantly negatively correlated ( $r = 0.325$ ,  $P = 0.04$ ), and there was no statistically significant correlation between spirituality and aggression [Table 3].

We employed the structural equation modelling approach to explore the link between aggressiveness

**Table 1: Distribution of the study subjects according to demographic variables**

Variables		Number	Percentage
Gender	Male	86	40.76
	Female	125	59.24
Academic position	Undergraduate	136	64.46
	Postgraduate	75	35.54
Marital status	Single	183	86.73
	Married	28	13.27
Type of residence	Hosteller	145	68.72
	Day scholar	66	31.27
Total		211	100

**Table 2: Mean and standard deviation of aggression, spirituality, and resilient dimensions**

Variable		Mean±SD	Minimum–maximum
Aggression	Physical aggression	23.81±6.98	9-40
	Verbal aggression	12.64±5.42	5-20
	Anger	22.27±6.08	7-30
	Hostility	24.44±6.35	8-35
	Total score	83.16±21.27	29-120
Spirituality		99.84±8.62	74-108
Resilient		62.55±11.73	1-100

**Table 3: Pearson's correlation between aggression, spirituality, and resilient dimensions**

Variable		Spirituality	Aggression	Resilient
Spirituality	Pearson's correlation	-		
	P	-		
Aggression	Pearson's correlation	0.062	-	
	P	0.841	-	
Resilient	Pearson's correlation	0.468	-0.325	-
	P	0.023*	0.04*	-

and resilience with the mediating effect of spirituality. Good fitness indices were found in this model's study, all of which were either near to or better than the required fit (RMSEA = 0.067, GFI = 0.930, CFI = 0.92, NFI = 0.985, and  $\chi^2/df = 0.7$ ).

Significant results were found for the direct effects of aggression on spirituality (standardised coefficient =  $-0.026$ ,  $P 0.001$ ), aggressiveness on resilience (standardised coefficient =  $-0.113$ ,  $P 0.001$ ), and spirituality on resilience (standardised coefficient =  $0.514$ ,  $P 0.001$ ). Additionally, there was a strong indirect relationship between aggressiveness and resilience with spirituality serving as the mediating factor (standardised coefficient =  $-0.115$ ,  $P 0.001$ ) [Figure 1].

## Discussion

High spiritual orientation was observed amongst dental students in the present study. Similar findings were

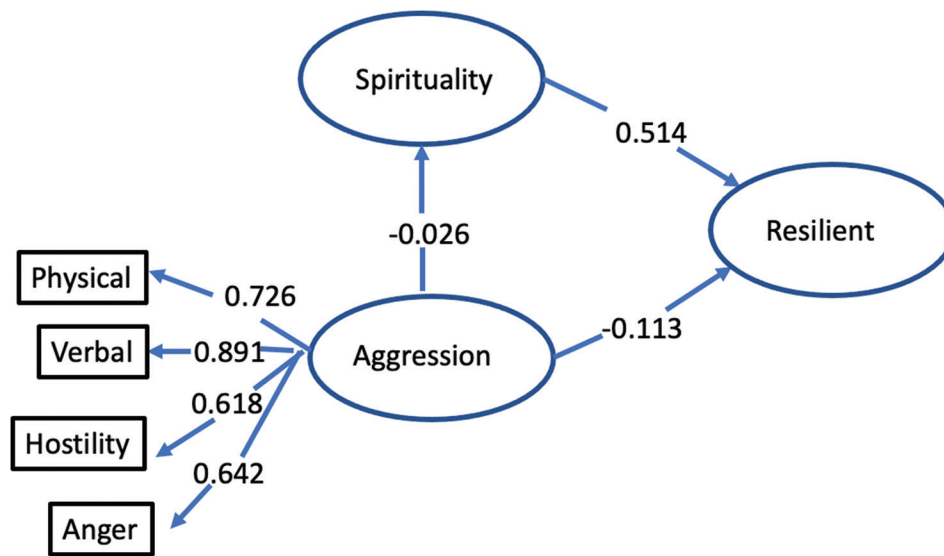


Figure 1: SEM analysis with the path coefficients of aggression, and the mediating role of spirituality on resilience

seen in studies conducted in Iran and India,<sup>[2,28]</sup> whereas medium level spirituality was found in other similar studies.<sup>[5,29]</sup>

In current study, mean resilience score of dental students was high which was in line with study conducted by Hatami S. and Shekarchizadeh H.<sup>[2]</sup> However contrasting results were seen in study conducted by Aboalshamat.<sup>[22]</sup>

According to the findings, there was a strong inverse relationship between aggressiveness and personal resilience. Similar results were seen in a research by Sadeghifard *et al.*<sup>[8]</sup> as well. Therefore, increasing resilience as a protective mechanism that alters a person's behaviour in dangerous situations is one of the biggest advocates for lowering violence in people. Additionally, significant positive association between spirituality and resilience was seen in study participants who were in accord to previous study.<sup>[2]</sup> So it stands to reason that spirituality has a significant impact on how resilient a person is. Spiritual experiences influence the experiences and environment of life in the same way as they are successful in resilient growth.

In the present study, we found a direct association between aggressiveness and resilience, a direct relationship between spirituality and resilience, and an indirect relationship between aggression and resilience with a mediation role for spirituality. Other researchers have shown that students' spiritual well-being and their ability for resilience in our study are strongly correlated.<sup>[2,29,30]</sup>

### Limitations and recommendation

The generalizability of this study was first limited by the inclusion of only one dental institute, which may not be indicative of other dental institutes in India. In

addition, inherent limitations of questionnaire study and self-reported data to give socially acceptable answers should also be considered while viewing the results. We utilised participants' anonymity<sup>[31]</sup> to get around this constraint. Additionally, using three questionnaires to collect data may have reduced the students' desire to participate. We made an effort to get around this restriction by emphasising to the students the significance of the study. A cautious and rigorous assessment of causal relationships is also warranted given the cross-sectional study methodology. Because of the aforementioned limitations, it is suggested that in future cohort studies and other longitudinal research are required including more colleges private practitioners and larger sample size to identify the causal relationships between the variables.

### Conclusion

According to the study's findings, spirituality can help pupils become more resilient as individuals and can act as a helpful intermediary between aggressiveness and resilience. Overall, the findings of the present study support the notion that spirituality and individual resilience have a negative and significant influence on the tendency for violence. In order to reduce aggressiveness, schools should thus make plans to help children develop their spirituality and personal resilience. These plans can also assist significant organisations in preventing and promptly responding to social injuries.

### Acknowledgment

The authors would like to express their gratitude acknowledgments to all the participants who took part in the study as well as the reviewers as their valuable comments improved the paper.

### Ethical considerations

The participation was anonymous and voluntary, and all participants have participated after giving signed informed consent in the study.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

## References

- Sharma S, Sharma O. Spirituality leads to happiness: A correlative study. *Int J Indian Psychol* 2016;3:50-4.
- Hatami S, Shekarchizadeh H. Relationship between spiritual health, resilience, and happiness among a group of dental students: A cross-sectional study with structural equation modeling method. *BMC Med Educ* 2022;22:184. doi: 10.1186/s12909-022-03243-8.
- Dhar N, Chaturvedi SK, Nandan D. Spiritual health, the fourth dimension: A public health perspective. *WHO South East Asia J Public Health* 2013;2:3-5.
- World Health Organization. (1998). *The World health report: 1998: Life in the 21<sup>st</sup> century: A vision for all: Report of the Director-General*. World Health Organization. <https://apps.who.int/iris/handle/10665/42065>.
- Dhama K, Gupta R, Singla A, Patthi B, Ali I, Niraj LK, et al. An insight into spiritual health and coping tactics among dental students; A gain or blight: A cross-sectional study. *J Clin Diagn Res* 2017;11:ZC33-8. doi: 10.7860/JCDR/2017/25358.10371.
- Ghaderi A, Tabatabaei SM, Nedjat S, Javadi M, Larijani B. Explanatory definition of the concept of spiritual health: A qualitative study in Iran. *J Med Ethics Hist Med* 2018;11:3.
- MacDonald DA, Holland D. Spirituality and boredom proneness. *Pers Individ Differ* 2002; 32(6):11139 Available at <https://www.sciencedirect.com/science/article/abs/pii/S0191886901001143>.
- Sadeghifard YZ, Veisani Y, Mohamadian F, Azizifar A, Naghipour S, Aibod S. Relationship between aggression and individual resilience with the mediating role of spirituality in academic students-A path analysis. *J Educ Health Promot* 2020;9:2.
- Hashemi L, Jowkar B. Study of relationship between spiritual transcendence and resilience. *J Educ Psychol. Stud.* 2011;8(13):12342.
- American Psychological Association (2014). *The Road to Resilience*. Washington DC: American Psychological Association. <http://www.apa.org/helpcenter/road-resilience.aspx>.
- Isobe A, Izumi M, Akifusa S. Relationship between resilience and self-rated health in dental hygiene students and registered dental hygienists. *J Dent Educ* 2018;82:1343-50.
- Waller MA. Resilience in ecosystemic context: Evolution of the concept. *Am J Orthopsychiatry* 2001;71:290-7.
- Hamid N, Babamiri M, Dehghani M. The relationship between mental health, spiritual intelligence with resiliency in student of Kermanshah University of Medical Sciences. *Jentashapir J Health Res* 2012; 3:3318 Available at [magiran.com/p1009978](http://magiran.com/p1009978).
- Greeff AP, Loubser K. Spirituality as a resiliency quality in Xhosa-speaking families in South Africa. *J Relig Health* 2008;47:288-301.
- Black JM. *Medical Surgical Nursing: Clinical Management for Positive Outcomes*. 6<sup>th</sup> edition Winingham: Saunders Elsevier; 2001.
- Maddux JE. Selfefficacy: The power of believing you can. *Handbook of Positive Psychology*. New York: Oxford University Press; 2002. p. 27787.
- Smith B. *Spiritual Intelligence: Definitions and Measurements*. Course Paper for. 2013.
- Yang KP, Wu XJ. Spiritual intelligence of nurses in two Chinese social systems: A cross-sectional comparison study. *J Nurs Res* 2009;17:189-98.
- Johnson SJ, Batey M, Holdsworth L. Personality and health: The mediating role of trait emotional intelligence and work locus of control. *Pers Individ Differ* 2009;47:4705.
- Montero-Marin J, Piva Demarzo MM, Pereira JP, Olea M, García-Campayo J. Reassessment of the psychometric characteristics and factor structure of the 'Perceived stress questionnaire' (PSQ): Analysis in a sample of dental students. *PLoS One* 2014;9:e87071.
- Deolia SG, Rizhana A, George J, Ingle H, Bonde R. Effects of yoga as a therapy for physical and psychological hazards indentists in Wardha region. *Yoga Mimamsa* 2017;49:68-75.
- Aboalshamat KT, Alsiyud AO, Al-Sayed RA, Alreddadi RS, Faqiehi SS, Almeahmadi SA. The relationship between resilience, happiness, and life satisfaction in dental and medical students in Jeddah, Saudi Arabia. *Niger J Clin Pract* 2018;21:1038-43.
- Kline RB. *Principles and Practice of Structural Equation Modelling*, 4<sup>th</sup> edn. New York. NY: The Guilford Press. 2016.
- Kasapoğlu F. The relationship among spirituality, self-efficacy, COVID-19 anxiety, and hopelessness during the COVID-19 process in Turkey: A path analysis. *J Relig Health* 2022;61:767-85. doi: 10.1007/s10943-021-01472-7.
- Buss AH, Perry M. The aggression questionnaire. *J Pers Soc Psychol* 1992;63:452-9.
- Connor KM, Davidson JR. Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depress Anxiety* 2003;18:76-82.
- Qin Y, Zhang R, Yuan B, Xu T, Chen H, Yang Y, et al. Structural equation modelling for associated factors with dental caries among 3-5-year-old children: A cross-sectional study. *BMC Oral Health* 2019;19:102.
- Sen S, Pal D, Hazra S, Pandey GK. Spiritual health of students in government medical colleges of Kolkata and their coping skills in a crisis situation. *Indian J Public Health* 2015;59:196-03.
- Moghadam SR, Madmoli M, Nikpay S. An investigation of the relationship between spiritual health and depression, anxiety, and stress among students of Ilam University of Medical Sciences. *J Res Med Dent Sci.* 2018; 6(3):294-300.
- Pathekar MJ, Chhabra KG, Madhu PP, Reche A, Dadgal KV, Tikar NN. Spiritual dimension in oral health. *JPRI* 2021;33:447-53.
- Joneghani NA, Sajaian I. The mediating role of perceived stress in the relationship between neuroticism and death anxiety among women in Isfahan during the coronavirus pandemic. *J Educ Health Promot* 2023;12:78.