Examining toxic supervision in higher education in India

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Abstract

Purpose – With issues like increasing student dropout rates, low productivity and compromised quality, research in higher education is faced with a number of paralyzing challenges in India. This study aims to locate the role of toxic academic supervision in relation to decreased quality of research.

Design/methodology/approach – Following a sequential mixed method design, the research begins with a quantitative analysis, which is then followed by an in-depth qualitative exploration.

Findings – The results of mediation analysis in this study reveal that students who experience toxic research supervision have a weak sense of identification and are also poor at self-disclosure, which results in increased distress and reduced engagement and productivity. Moreover, identification and self-disclosure have also been found to partially mediate the relationship between toxic supervision and distress. Furthermore, a thematic analysis of this study provides a detailed behavioral profile of toxic academic supervisors and highlights the consequences of such supervision with regard to students' well-being and productivity.

Research limitations/implications – In terms of theoretical contributions, the study provides evidence that the concept of toxic leadership has applicability outside of the organizational context; in the educational sphere as well and that the toxic leadership scale can be successfully used to assess the severity of toxic supervision within the academic domain, and corrective actions can be taken to mitigate the effect of such supervisory style on students.

Practical implications – The study not only highlights the repercussions of toxicity in academia and higher education but also provides a detailed and in-depth description of the personality traits and behavioral idiosyncrasies of toxic supervisors, which can help in the early identification of toxic tendencies and can enable us to mitigate and prevent toxicity from the academic space and to ensure a conducive environment for students in higher education. Overall, the present research has important implications for researchers, academicians as well as policymakers.

Originality/value – The study is the first of its kind in terms of both, objective and methodology.

Keywords Research, Higher education, Toxic supervision

Paper type Research paper

> Good teachers are costly, but bad teachers cost more.
>
> Bob Talbert

1. Introduction

More than being educationists, teachers are leaders who are expected to set goals, inspire and motivate students toward the achievement of those goals and most importantly, lead by example. Culturally, in India, teachers have been assigned a position of great repute. India has a rich history of *"Guru-Shishya Parampara"* (mentor–mentee tradition), which ascribes a prestigious stature to the Guru (mentor), and the relationship between the two is marked by

Sneh (affection) and Sharddha (deference) (Sinha, 2008). The reverence for Guru reflects in many Hindu scriptures and folklores. Whether it is the epic tale of Mahabharata where Eklavya cuts off his thumb and offers it to his archery teacher Dronacharya as "*Gurudakshana*" (a token of gratitude for his teachings) or a couplet by the famous Hindi saint poet Kabir describing a teacher as being more worthy of respect than God, the role of a teacher has been glorified throughout Indian history. Despite this cultural significance, Indian higher education is currently grappling with the issue of poor academic leadership (Sheikh, 2017). However, this is not to say that incompetent or flawed educational leadership is a localized phenomenon. Cases of poor leadership in academia, causing PhD dropouts, academic burnout and poor quality research, etc. are reported in almost all the countries, implying that this is a globally ubiquitous issue with implications far and wide (Myrick, 2020). Problems associated with academic leadership have largely been studied from an administrative or policy-making perspective (Saroyan *et al.*, 2011; Shahmandi *et al.*, 2011); however, there is a dearth of literature available on the role of toxic/negative research supervisory behavior on students' learning and research outcomes. Against this backdrop, the present research attempts to explore what traits/behaviors characterize poor academic supervisors and further seeks to identify the consequences of poor academic supervision on students' well-being and productivity.

1.1 Toxic supervision in higher education

The different supervisory styles adopted by research supervisors, and the enormous influence they have on their students as well as on the research process, has not received enough attention from researchers. This lack of attention comes as a surprise given the preponderance of stress-related conditions among academic researchers (Levecque *et al.*, 2017) and the alarmingly high dropout rates (Wollast *et al.*, 2018). Most of the studies exploring the antecedents of mental health issues and dropouts, particularly among doctoral researchers, have found supervision style to be a crucial contributing factor (Woolston, 2017; Levecque *et al.*, 2017). Therefore, a deeper understanding of how academic supervision can turn destructive and debilitating needs to be developed.

In the current research, we focus one such style of academic supervision, i.e. toxic supervisory style, a concept that has its roots in the corporate leadership literature but is now being studied in other domains as well. This supervisory style captures the destructive, self-absorbed and apathetic side of a leader (or research supervisor in the academic context). The term was coined by Whicker (1996) who defined this kind of leadership as one where leader's behavior is more dangerous than his/her actions. She described such leaders as "... *maladjusted, malcontent, and often malevolent, even malicious. They succeed by tearing others down ...*" (p. 12). According to Whicker, toxic leaders are characterized by "*a deep-seated but well disguised sense of personal inadequacy, a focus on selfish values, and a cleverness at deception.*" As for the consequences of their toxicity, these types of leaders negatively impact not only their subordinates but the entire organization, and these organization-level consequences are so severe that they perpetuate organizational downfall and detriment long even after the toxic leader has made an exit (Whicker, 1996).

Like many psychological constructs, toxic leadership does not have a single agreed-upon definition, but various researchers have come up with their own descriptions, most of which are more similar than dissimilar. These include Lipman-Blumen's (2010) definition that describes toxic leaders as, "... *Leaders who engage in numerous destructive behavior and who exhibit certain dysfunctional personal characteristics. To count as toxic, these behaviors and qualities of character must inflict some reasonably serious and enduring harm on their followers and their organizations. The intent to harm others or to enhance the self at the expense of others distinguishes seriously toxic leaders from the careless or unintentional toxic leaders, who also cause negative effects*" (p. 18).

Similarly, Wilson Starks (2003) defined toxic leadership as *". . . an approach that harms people and, eventually, the company as well, through the poisoning of enthusiasm, creativity, autonomy, and innovative expression. Toxic leaders disseminate their poison through over-control. [Toxic leaders] define leadership as being in control"* (p. 2).

Reed (2014), on the other hand, offered a more detailed description of toxicity in supervision by stating that, *". . . it is not one specific behavior that deems one toxic; it is the cumulative effect of de-motivational behavior on unit morale and climate over time that tells the tale . . .. Three key elements of the toxic leader syndrome are: 1. An apparent lack of concern for the wellbeing of subordinates 2. A personality or interpersonal technique that negatively affects organizational climate, and 3. A conviction by subordinates that the leader is motivated primarily by self-interest"* (p. 67).

Flynn (1999) paints a more realistic picture and describes what it is like working with a toxic leader. In Flynn's words, a toxic leader is, *"The manager who bullies, threatens, yells. The manager whose mood swings determine the climate of the office on any given workday. Who forces employees to whisper in sympathy in cubicles and hallways. The backbiting, belittling boss from hell"* (p. 1).

Such leaders can be found in any field, including academia. Within the academic landscape, toxic research supervisors are described as people who will "*criticize your work mercilessly, humiliate you in public, never provide any support, leave you completely on your own, and go out of the way to undermine your confidence and progress*" (Kearns interview by Smith, 2018, pp. 14–15).

Available literature suggests that not having a supportive research supervisor is one of the important reasons for dropping out of PhD and other research-oriented higher education programs (Rooij *et al.*, 2019). Supervisors who are unsupportive, overly critical and verbally or emotionally acerbic and abusive toward their students not only sabotage their students' well-being (Levecque *et al.*, 2017) but also severely disrupt the process of research (Ives and Rowley, 2005). Students working under such academic supervisors experience decline in motivation and commitment, which ultimately reduces their productivity (Baloyi, 2020). Research journey becomes even more distressful when the research mentor practices a negative style of supervision (Levecque *et al.*, 2017). Many students may not be able to cope with such unhealthy supervision and consequent distress, which would result in quitting (Rooij *et al.*, 2019), or poor quality of work (Levecque *et al.*, 2017).

The current research, thus, attempts to explore the negative effects of toxic supervision on students' well-being and productivity. More specifically, we look at the impact of toxic supervision on students' engagement, perceived productivity and distress. Supervisory relationship has been found to be one of the strongest determinants of students' engagement with their research work (Mainhard *et al.*, 2009). Similarly, students' distress (Levecque *et al.*, 2017) and productivity (Danna and Griffin, 1999) are also significantly predicted by the supervision style of their research guide. In the light of these findings, we hypothesize that:

H1. Toxic supervision will significantly predict students' engagement.

H2. Toxic supervision will significantly predict students' productivity.

H3. Toxic supervision will significantly predict students' distress.

Furthermore, like other psychological constructs, toxic leadership does not function in a vacuum, but a number of factors are important for toxic leaders to sustain and thrive (Padilla *et al.*, 2007). Acknowledging the complexity of the supervisor–supervisee relationship, we also attempt to understand some plausible mediating pathways through which toxic supervision affects students' work and health-related outcomes. Review of existing researches indicates that conflicts or frictions within the scholarly community can threaten students' well-being and their productivity (Pyhältö *et al.*, 2012a). A strong sense

of belongingness or identification, on the other hand, can enhance their self-concept, perceived sense of satisfaction and thereby, their study progress (Rooij *et al.*, 2019). It is a human tendency to seek social support in times of crisis, and identification with other in-group members is one way of increasing people's perceived social support (Sani *et al.*, 2012). However, among other factors, in-group identification requires self-stereotyping, in-group homogeneity and satisfaction (Leach *et al.*, 2008). Put simply, we develop a stronger sense of in-group identification when we perceive ourselves as being similar to prototypical members of the group, believe that all members share certain common aspects and are satisfied with the group membership. Since students working with toxic supervisors are subjected to atypical experiences, which their peers may not relate to, they may have a weak sense of identification with the larger student community. Moreover, the sense of dissatisfaction stemming from the experiences of toxicity may further weaken their sense of in-group identification. Hence, we argue that the more toxicity in supervision will be perceived, the less strongly students will identify with their peers. In the light of these evidence-based arguments, we propose the following:

H4. Toxicity in supervision will significantly predict group identification.

H5. Group identification will significantly predict engagement, productivity and distress.

H6. The relationship between toxic supervision and engagement, productivity and distress will be significantly mediated by group identification.

Likewise, disclosure or the ability to share distressful experiences with others (family, peers, etc.) has also been included as a mediating variable in the proposed model. Research evidence shows that self-disclosure increases social support (Trepte *et al.*, 2018) and coping and reduces the risk of depression (Kahn and Garrison, 2009). Therefore, students who share their experiences of toxic supervision are expected to receive more social support (advice, empathy, etc.), which, in turn, is likely to facilitate productivity and engagement and lessen students' distress.

Based on this premise, we hypothesize that:

H7. Toxicity in supervision will significantly predict disclosure.

H8. Disclosure will significantly predict engagement, productivity and distress.

H9. The relationship between toxic supervision and engagement, productivity and distress will be significantly mediated by disclosure.

Lastly, we look at the possible mediating role of fatalistic beliefs between toxic supervision and students' productivity, engagement and distress. Fatalism has been defined as the conviction that one's life outcomes are predetermined or purposed by a higher power and are not within the individual's control (Franklin *et al.*, 2007). Fatalistic people are characterized by a passive, resigned and uncritical attitude toward people and life in general (Diaz *et al.*, 2015). According to Diaz *et al.* (2015), pre-determination, lack of internal locus of control and pessimism/hopelessness are the key components of fatalism. Lack of internal locus of control would arguably make these people more susceptible to be influenced by toxic supervision (Padilla *et al.*, 2007). Hence, we propose that students with more fatalistic beliefs will be more severely affected by toxic supervision, and therefore, their performance outcomes (as measured by engagement and productivity) will plummet and distress will escalate. Accordingly, the following hypotheses have been proposed:

H10. Toxicity in supervision will significantly predict fatalism.

H11. Fatalism will significantly predict engagement, productivity and distress.

H12. The relationship between toxic supervision and engagement, productivity and distress will be significantly mediated by fatalism.

2. Methods

2.1 Design and analytical plan

The current study employed a sequential mixed method design (Creswell, 2012) as it began with a quantitative investigation, which was then followed by a qualitative exploration. Moreover, the factor structure and psychometric properties of the toxic leadership scale (Schmidt, 2008) were also assessed in the quantitative phase. Quantitative exploration began with confirmatory bi-factor analysis (CBA), which was employed to test the applicability of the above-mentioned measure in the Indian academic setup. This was followed by a mediation analysis that tested the theoretically developed model (Figure 1) and explained the role of three psychological constructs (identification, disclosure and fatalism) in mediating the relationship between toxic supervision and its outcomes (productivity, engagement and distress). Afterward, in the qualitative phase, a thematic analysis of first-hand interview data was carried out to explore the most consistently reported traits and characteristics of toxic academic leaders.

In this phase of the study, transcripts of the audio-recorded interviews were analyzed using the six-step method proposed by Braun and Clarke (2006), which includes the following steps:

2.1.1 Data familiarization. To begin with, each audio recording was heard repeatedly at the time of transcription to ensure accuracy. Afterward, these transcribed responses were read repeatedly so as to gain a thorough understanding.

2.1.2 Generating initial codes. After multiple careful readings of these transcripts, each remark/statement was analyzed, both, separately and in the wider context of a response, and important keywords (initial codes) were jotted down. Similar and inter-related keywords were then clustered to create subthemes. According to Braun and Clarke (2013), *"a sub theme shares a central organizing concept with a theme but highlights one particular aspect of it."* So, the next step was to identify broader themes that could encompass all emergent subthemes.

2.1.3 Search for themes. At this stage, similar or interrelated subthemes were grouped together to create wider, overarching themes. *"A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set"* (Braun and Clarke, 2013). Theme identification is the highest level of abstraction in thematic analysis as these themes provide a *bird's eye view* of the data. This stage of analysis resulted in three major themes, namely, *characteristics of the supervisor, students' experiences and proposed solutions.*

2.1.4 Reviewing themes. After the major themes were identified, all the initial keywords and subthemes were checked again for possible inclusion. Moreover, at this stage, certain
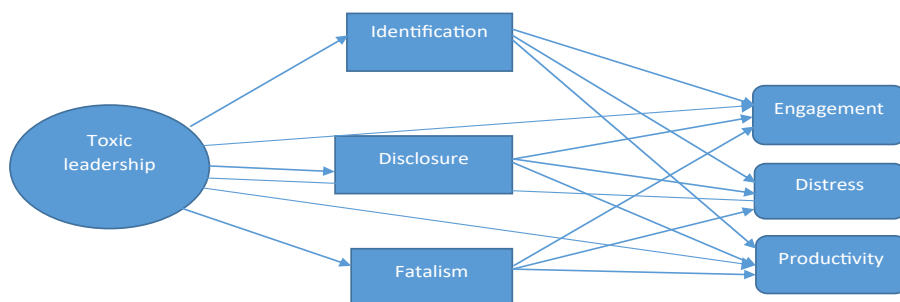
Figure 1.
Figure depicting the proposed model to be tested

subthemes were dropped from the final list either because they did not appear consistently in all the responses or because they could not fit in any of the surfacing themes.

2.1.5 Defining themes. Once all the major themes were identified and reviewed, they were operationally defined in terms of their relationship with their constituent subthemes.

2.1.6 Discussion. The last stage involved a detailed discussion of all the emergent themes in light of existing research and theoretical frameworks.

In addition, the frequencies of emergent keywords, across interviews, were computed to establish the strength and consistency of themes and subthemes.

2.2 Sample

To ascertain minimum sample size requirement for the quantitative investigation, Soper's (2021) *a priori* sample size calculator for structural equation modeling was used. The results indicated that a minimum sample size of 100 was required for the analysis. The details of parameters used in sample size determination are appended in Appendix 1. In accordance with the recommendations made by Soper's sample-size calculator, data were collected from 145 students using purposive sampling technique. These students were either engaged in a research-based program that required one-on-one interaction with their research guide at the time of data collection or had completed the same within the past five years. The sample comprised of 36 master's final year students (doing dissertation work), ten MPhil students and 99 PhD scholars from around ten different colleges and universities in India. Overall, there were 102 female and 43 male respondents, out of these 57 were working under female supervisors, while 88 were with male research guides. Lastly, 80 of them were currently doing their research, while 65 had already completed it within the past five years. Furthermore, ten participants from the same sample were selected for the qualitative investigation. Since the purpose of the qualitative study was to understand the complex nature of toxic academic supervision from the students' perspective, it was important to have participants who had personally experienced toxic supervision. For this purpose, the total scores on the toxic supervision scale were worked out for the sample that participated in the quantitative study ($N = 145$). Participants with the top ten highest scores were shortlisted and contacted. Out of these, eight people agreed to partake in the qualitative investigation. After they were briefed about the purpose of the study and their informed consent was taken, these participants were interviewed. Table 1 provides the relevant demographic details of the research participants.

2.3 Tools

For the assessment of toxic supervision, toxic leadership scale by Schmidt (2008) was employed. The tool has 30 items that measure five dimensions of toxic leadership, namely, abusive supervision, authoritarian leadership, narcissism, self-promotion and unpredictability. Some sample items include "*My supervisor ridicules Ph.D./Mphil/MA*

Participant number	Gender	Age	Course	Research status*	Supervisor's gender
1	Male	Mid 30s	PhD	Completed	Male
2	Female	Early 30s	MPhil	Completed	Female
3	Female	Mid 30s	PhD	Ongoing	Male
4	Female	Early 30s	PhD	Ongoing	Male
5	Female	Early 20s	MA dissertation	Completed	Male
6	Female	Mid 20s	PhD	Ongoing	Male
7	Female	Mid 20s	MPhil	Ongoing	Male
8	Female	Early 30s	MA dissertation	Completed	Male
Note(s): *At the time of data collection					

Table 1.
Table representing participants' demographic details

researchers," "My supervisor has explosive outbursts." It uses a six-point Likert scale ranging from strongly disagree (1) to strongly agree (6) where higher scores indicate more toxicity. The scale is reported to have satisfactory reliability and validity (Schmidt, 2008).

A shorter, four-item version of the social identification Scale (Doosje *et al.*, 1995) was used to measure participants' sense of identification with the group. Some items include *"I see myself as a member of the larger group of Ph.D./Mphil/MA researchers," "I feel strong ties with other PhD/Mphil/Masters researchers."* It follows a seven-point response scale ranging from strongly disagree (1) to strongly agree (7). Higher scores on this scale imply greater social identification. The tool has been widely used in social and organizational setups and has shown consistently high psychometric properties (Haslam, 2001).

Disclosure was measured using two items from the disclosure/concealment scale (Jones *et al.*, 2012). These items are *"I find it hard to tell people (friends/family etc.) about the problems I may have with my supervisor"* and *"I can conceal the problems I may have with my supervisor from other people (friends/family etc.),"* which are to be rated on a seven-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (7). High scores on the scale indicate lower self-disclosure. The reliability and validity of these items have been found to be satisfactory (Jones *et al.*, 2012).

To measure fatalistic beliefs, two items (with the highest factor loadings) from the multi-dimensional fatalism scale (Esparza *et al.*, 2015) were used. These items are as follows: *"If bad things happen, it is because they were meant to happen," "I have learned that what is going to happen will happen."* The scale uses a five-point response method (1 = strongly disagree and 5 = strongly agree), with higher scores indicating greater fatalism. The reliability and validity of the tool have been reported to be satisfactory (Esparza *et al.*, 2015).

Students' engagement with their research work was measured using three items from the Utrecht Work Engagement Scale short version (Schaufeli *et al.*, 2006). The scale assesses three dimensions of engagement, namely, vigor, dedication and absorption. We used the most characteristic item (Schaufeli *et al.*, 2006) for each of these dimensions. These items include *"At my work, I feel bursting with energy," "I am enthusiastic about my job"* and *"I am immersed in my work."* Responses are recorded using a seven-point scale ranging from 0 (never) to 6 (everyday) wherein higher scores connote greater engagement. The tool exhibits satisfactory psychometric characteristics (Schaufeli *et al.*, 2006).

Distress was measured with the help of Kessler psychological distress scale (K10) by Kessler *et al.* (2003). The ten items are rated on a five-point scale. Some sample items include *"In the past 4 weeks, about how often did you feel nervous?"* and *"In the past 4 weeks, about how often did you feel worthless?"* Higher scores on the scale indicate higher levels of distress. The reliability and validity of the scale have been found to be satisfactory (Kessler *et al.*, 2003).

Students' perceived productivity was tapped using a single item (*"How productive have you been in your work role (research/publication/attending conferences etc.")*, as prescribed by Zelenski *et al.* (2007). Responses had to be indicated on a five-point Likert scale, with 1 signifying low productivity and 5 denoting high productivity.

Lastly, in the qualitative phase, data were collected using a self-developed semi-structured interview schedule (Appendix 2). To develop this tool, literature pertaining to toxic academic leadership was reviewed extensively, and a series of open ended items were generated. These items were then reviewed by experts in the field, and in the light of their feedback, appropriate modifications were made before finalizing the schedule that consisted of ten items. In addition, a few more probing questions were asked to the respondents as and when needed.

3. Results
3.1 Tool validation
Toxic leadership is an emerging phenomenon, and toxicity in academia and higher education is even more sparsely researched. As a result, finding a context specific tool to measure the

construct was an onerous task. Therefore, the researchers decided to employ an existing tool, namely, the toxic leadership scale by Schmidt (2008), which was originally developed for organizational setups. Given that the tool is meant to tap leadership toxicity at the workplace, it was deemed necessary to test its psychometric rigor in the academic context.

For this purpose, a CBA was run on the original five-dimension model using MPlus. CBA has the added advantage of testing dimensionality along with factor structure and model fitness. Obtained fit indices indicated satisfactory model-fitness (Table 2). The results further revealed that toxicity is better measured using a single, higher-order factor structure rather than the five-factor model. The assessment of dimensionality was done using explained common variance (ECV) values (Reise, 2012). The ECV for the five dimensions, namely, abusive supervision, authoritarian leadership, narcissism, self-promotion and unpredictability, came out be 0.83, 0.81, 0.71, 0.92 and 0.89, respectively. These values, being closer to 1, indicate that there is substantial common variance between toxic leadership as a general higher-order construct and each of these dimensions. In simpler terms, it implies that toxic leadership as a general construct better accounts for the variance in item scores as compared to the five dimensions of toxic leadership. Therefore, in the current study, toxic leadership is measured with a single cumulative score.

Lastly, the tool was tested for internal consistency, using Cronbach's alpha. The obtained value came out to be 0.978, which is indicative of excellent reliability.

3.2 Model testing

After confirming the factor structure and reliability of the toxic leadership scale, the proposed model was tested in SmartPLS (2.0). As can be seen in Figure 2, the bootstrapped (with 5,000 iterations), t-value for toxic supervision and fatalism (0.669) is coming out to be smaller than 1.96, which suggests that this regression coefficient is non-significant (Hair *et al.*, 2009). Moreover, arrows connecting fatalism with the three endogenous variables (productivity, engagement and distress) indicate weak regressive association (< 1.96), which imply that fatalism is neither significantly predicted by toxic supervision nor does it significantly predicting the outcome variables. This led to the rejection of H10, H11 and H12.

Therefore, fatalism was removed from the model before the second round of analysis. An improvement in the remaining path coefficients was observed after its deletion (Figure 3).

As can be seen in Figure 3, the path coefficient between toxic supervision and identification is significant ($\beta = -0.210$, $t = 2.154$, $p < 0.05$). The negative sign indicates that increase in toxic supervision significantly decreases students' sense of identification with their peers. Hence, H4 has been accepted. Moreover, identification can be seen predicting engagement ($\beta = 0.366$, $t = 5.336$, $p < 0.01$) and productivity ($\beta = 0.416$, $t = 5.191$, $p < 0.01$) significantly in a positive direction, while distress is being negatively predicted by it ($\beta = -0.255$, $t = 3.780$, $p < 0.01$), which led to the acceptance of H5. The results imply that students who have a stronger sense of identification with their peers are more engaged, productive and less distressed as compared to their counterparts with a weaker sense of identification.

Model	χ^2	Df	P	$\chi^2/$df	CFI	TLI	SRMR	RMSEA	Cronbach's alpha
Sample (N = 145) CBA	571.8	375	<0.001	1.52	0.0.93	0.92	0.03	0.06	0.978

Note(s): CFI = Comparative fit index; TLI = Tucker–Lewis index; SRMR = Standardized root mean square residual; RMSEA = Root mean square error of approximation

Table 2.
Table indicating values
of model fit parameters
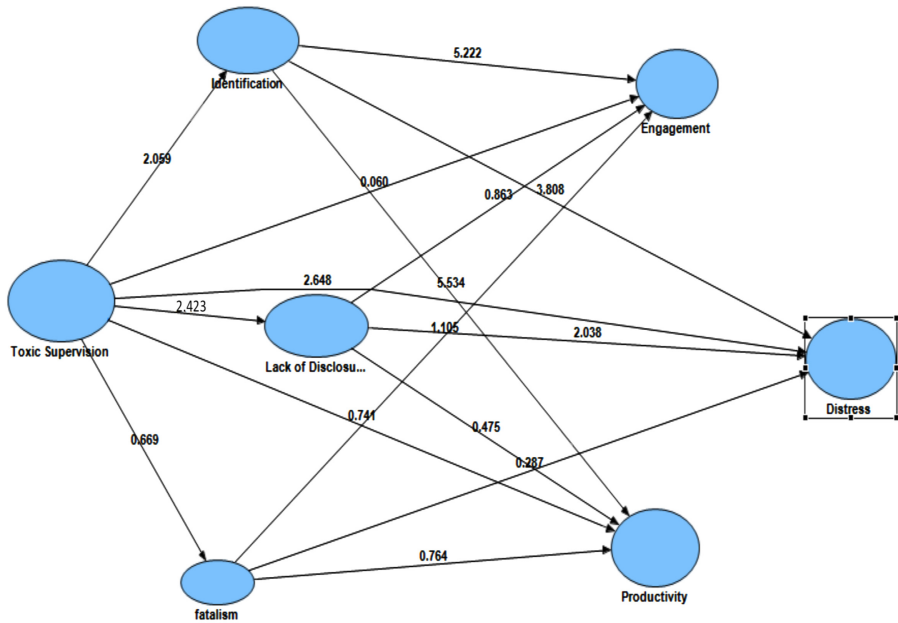
Note(s): *$t \geq 1.96$; **$t \geq 2.58$

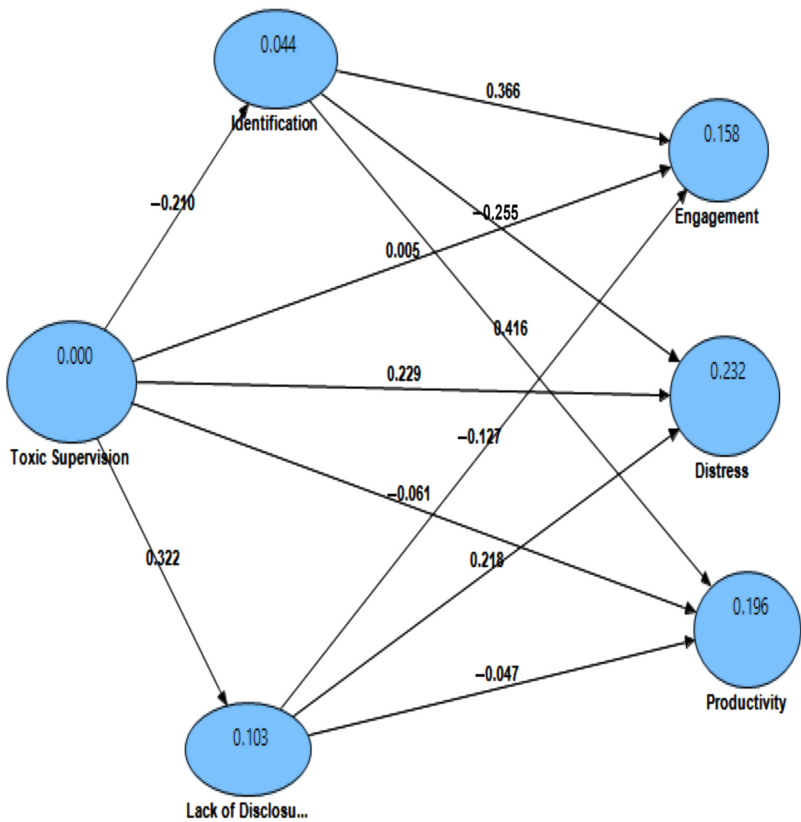Moreover, toxic supervision and lack of disclosure share a positive and significant regressive association ($\beta = 0.322$, $t = 2.560$, $p < 0.05$), which indicates that higher levels of toxicity in supervision make self-disclosure more difficult for students. This provides support for the acceptance of H7. On the other hand, low self-disclosure is found to share an insignificant predictive relationship with engagement ($\beta = -0.127$, $t = 0.784$, $p > 0.05$) and productivity ($\beta = -0.047$, $t = 0.383$, $p > 0.05$). Lastly, in relation to distress, it has emerged as a positive and significant predictor ($\beta = 0.218$, $t = 2.115$, $p < 0.05$). Consequently, H8 has been partially accepted (Figure 4).

Looking at the indirect effects, it was found that toxic supervision has an insignificant effect on engagement ($\beta = 0.005$, $t = 0.055$, $p > 0.05$), as well as productivity ($\beta = -0.061$, $t = 0.758$, $p > 0.05$) in the presence of the two mediators. However, in case of distress, the indirect effect of toxic supervision is positive and significant ($\beta = 0.229$, $t = 2.520$, $p < 0.05$) in the presence of the two mediators.

To test mediation effect, the indirect and direct effects of toxic supervision on the three endogenous variables, namely, engagement, productivity and distress, were compared (Figures 5–7). Put simply, the effect of toxic supervision on engagement, productivity and distress was tested directly as well as in the presence of the mediating variables (namely, disclosure and identification). Mediation can be full or partial (Baron and Kenny, 1986). If the effect of exogenous variable (toxic supervision) on the endogenous variable (engagement, productivity and distress) disappears completely (becomes insignificant from being significant) in the presence of mediator, it implies full mediation, and if the effect becomes weak, it indicates partial mediation (Baron and Kenny, 1986).

Figure 5 shows that the direct relationship between toxic supervision and engagement is insignificant ($\beta = -0.192$, $t = 0.879$, $p > 0.05$), and therefore, H1 stands rejected. Since both the direct and indirect effects have come out to be insignificant, we conclude that there is no mediation in this case.

In Figure 6, we can observe that the direct effect of toxic supervision on distress is positive and significant ($\beta = 0.366$, $t = 5.560$, $p < 0.01$), which leads us to accept H3. At the same time, the indirect effect via mediators is also significant ($t = 2.520$) but at a lower threshold of 0.05. Hence, we conclude that the relationship between toxic supervision and distress is partially mediated by the two mediators.

Finally, with no significant direct effect between toxic supervision and productivity ($\beta = -0.189$, $t = 1.457$, $p > 0.05$), H2 is rejected. Moreover, we did not find any significant mediation effect of identification and disclosure between toxic supervision and productivity as both direct as well as indirect ($\beta = -0.061$, $t = 0.758$, $p > 0.05$) effects came out to be insignificant.

Overall, only one mediated path coefficient was found to be statistically significant, which led to the partial acceptance of H6 and H9.

3.3 Qualitative analysis

In an attempt to understand toxic supervision in higher education in greater detail, a qualitative investigation was carried out employing thematic analysis. The objective of this phase of the research was to identify the behavioral characteristics of toxic supervisors in the light of students' first-hand experiential accounts.

Thematic analysis of responses provided in-depth information that can be useful for identifying toxic academic supervisors. Moreover, the results also highlighted the commonly
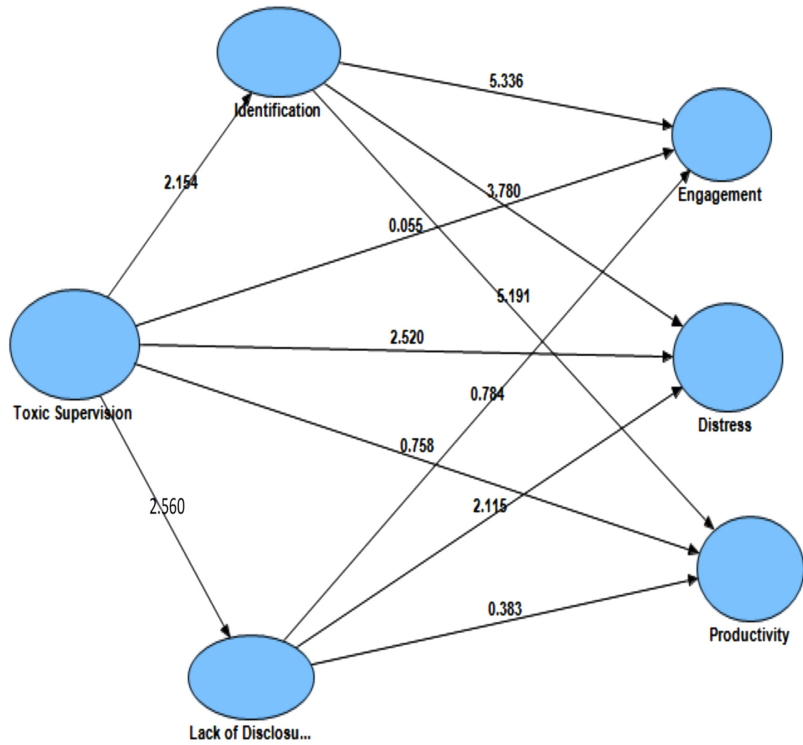
Figure 4.
Figure indicating
bootstrapped
t-statistics in the
updated model with
two mediators

Note(s): $*t \geq 1.96$; $**t \geq 2.58$

Path coefficient

Bootstrapped *t* statistic
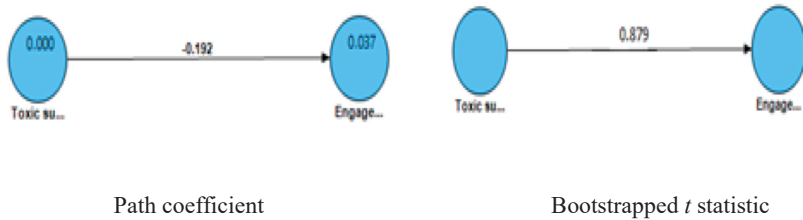
Figure 5.
Figure depicting the
direct effect of toxic
supervision on
engagement (path
coefficient on the left
and bootstrapped *t*-
statistics on the right)

Note(s): $*t \geq 1.96$; $**t \geq 2.58$

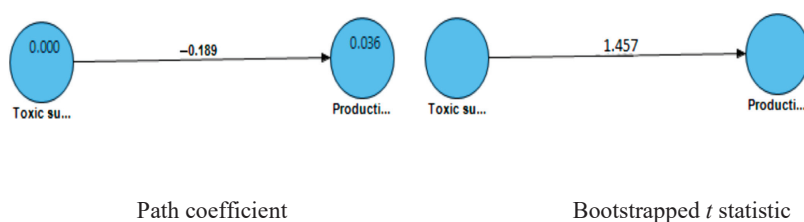Path coefficient

Bootstrapped *t* statistic

Figure 6.
Figure depicting the
direct effect of toxic
supervision on distress
(path coefficient on the
left and bootstrapped *t*-
statistics on the right)

Note(s): $*t \geq 1.96$; $**t \geq 2.58$

reported health- and work-related effects of toxic supervision and the strategies that students adopt to counter these effects. Lastly, certain proposed remediation measures are also outlined in the results. Table 3 summarizes the emergent themes and subthemes along with their frequencies.

A careful analysis of the data corpus revealed that students' description of toxic supervisors generally revolved around a few central traits and behavioral patterns. Additionally, some other ancillary characteristics were also reported fairly consistently. Based on how frequently these descriptions were used, we have taxonomized traits and behavioral patterns that characterize toxic academic supervisors into two categories, namely, primary and secondary.

Primary traits and behavioral patterns of toxic supervisors included *negative personality, abusive supervision, abuse of power, poor mentoring* and *unstable mood.* All the participants described their supervisors' personality as predominantly negative. Majority of them were convinced that their supervisors were excessively narcissistic and self-absorbed. As per the students' description, such supervisors seem to have an inflated sense of self, and want to feel important (*"he expects respect from everybody"* – Participant 1). Moreover, apathy was another trait that was consistently associated with their personality (*"All these supervisors are so inhumane that they even forget the other person (student) is a human being too"* – Participant 2). Some students even believed that their supervisors derive some sort of

Path coefficient   Bootstrapped t statistic

Note(s): *$t \geq 1.96$; **$t \geq 2.58$

Figure 7.
Figure depicting the direct effect of toxic supervision on productivity (path coefficient on the left and bootstrapped t-statistics on the right)

Themes	Subthemes	Codes		Frequency (%)
Characteristics of supervisor	Primary	1.	Negative personality	100
		2.	Abusive supervision	100
		3.	Abuse of power	87.5
		3.	Poor mentoring	75
		4.	Unstable mood	50
	Secondary	1.	Poor interpersonal relationships	37.5
		2.	Professional incompetence	37.5
		3.	Biased	25
Students' experiences	Effects on students	1.	Psychological effects	100
		2.	Negative effect on students' work	75
		3.	Physical effects	25
	Coping mechanisms	1.	Collective sense of identity	62.5
		2.	Family support in coping	50
		3.	Self-assurance	12.5
	Factors that keep them going	1.	Continuance commitment	12.5
		2.	Normative commitment	12.5
Proposed solutions	Affirmative measures	1.	Individual-level measures	25
		2.	Policy-level measures	25

Table 3.
Table representing emergent themes

satisfaction out of students' misery and plight. This epicaricacy, students reported, is also accompanied by a heightened sense of entitlement and feeling of dominance (*"He used to feel powerful by making us dance to his tunes"* – Participant 1). Moreover, such supervisors were described as overly critical (*"He would always pick holes in your work"* – Participant 1), manipulative (*"I think as a person he is manipulative"* – Participant 7), self-centered (*"I felt that he was more into himself* – Participant 8), opportunist (*"If he wants his work done he would be nice to you"* – Participant 4) and inflexible (*"So I guess that rigidity was there"* – Participant 5). They are said to be agitated and rude most of the time and tend to magnify trivial issues disproportionately (*"I have seen him getting really agitated and shouting at the top of his lungs"* – Participant 6).

The next central characteristic that has appeared recurrently is their abusive style of supervision. Almost all the students reported having been frequently subjected to verbal abuse, and constant threatening that induced a sense of fear in them (*". . . she would say that . . . I will tarnish your name. Nobody will hire you"* – Participant 2). Moreover, a lot of them complained of having suffered mental torture and harassment at the hands of their research guide (*"It [working with him] was absolute mental torture"* – Participant 1). Condescension was another commonly reported behavioral characteristic. Participants disclosed that their supervisors are disrespectful towards them, and deliberately humiliate them in the presence of others (*"He personally attacks people and he would comment on their personalities"* – Participant 7). Such supervisors, responses reveal, deny latitude to their students and take important decisions without consulting them (*"He would want us to work on topics of his choice which are far from our research areas"* – Participant 3). Moreover, toxic supervisors are also known for intruding their students' privacy and personal space (*"he would constantly ask me what I do with my fellowship money"* – Participant 4) and for overburdening students above and beyond their physical and mental capacity (*"wants us to do many things simultaneously"* – Participant 3). Lastly, responses reveal that these supervisors do not value their students' time. They make their students wait and delay their work unnecessarily (*"He would call us at a particular time and then would not turn up"* – Participant 1).

Abuse of power was the third central characteristic that majority of the respondents spoke about. One key factor pertaining to this theme was the inappropriate show of power, which such supervisors frequently engage in. While describing toxic supervisors, all the respondents mentioned that such supervisors are insatiably power hungry and flaunt their authority all the time (*"He would flaunt his authority a lot"* – Participant 8). They are also said to be authoritarian, in that they seek absolute submission and conformity and do not like to be questioned (*"I felt he never expected that anyone could question him and when I did he felt intimidated"* – Participant 8). Such supervisors abuse and misuse their official power by assigning personal work to their students (*"sometimes we have to clean and declutter his cupboard and if there is something wrong with the computer, we are supposed to fix it"* – Participant 3). Most typically, students are asked to take classes, evaluate answer scripts and prepare presentations on behalf of these teachers (*"He makes me do his work like making reports or PPTs that are unrelated to my research"* – Participant 6).

Overall, students believed that toxic supervisors do not possess any of the qualities of a good mentor. They are said to be lacking leadership skills and professionalism. Most of the respondents find such supervisors as being absolutely unconcerned about their mentoring responsibilities and the quality of research (*"he never shows interest in checking our work"* – Participant 3). They are not at all involved in students' research work and fail to provide any useful input (*"I do not get any constructive feedback from him"* – Participant 6), which hampers students' learning and research progress. Furthermore, toxic academic supervisors are reportedly not open to any feedback and discourage new ideas (*"My supervisor is not very open to new ideas"* – Participant 5). Lastly, students do not find them easily approachable (*"we used to be there early in the morning and would wait there for hours. "* – Participant 1).

The last emergent central characteristic of toxic supervisors was their unstable mood. Majority of the participants had noticed sudden and unexpected fluctuations in their supervisors' mood, which would conspicuously manifest in their overt behavior. Such supervisors are said to have unexplained anger outbursts very frequently ("*Our interaction depended solely on his mood. It kept changing every few minutes*" – Participant 1). As a result, participants felt a constant pressure to correctly gauge their supervisors' emotional state and act accordingly.

Apart from these central characteristics, toxic supervisors are believed to possess certain secondary traits too. These include poor interpersonal relationship issues, professional incompetence and biasedness. A sizable proportion of the sample reported that these toxic supervisors fail to establish healthy interpersonal relationships with their colleagues, and that they regularly engage in unhealthy inter-personal practices such as backbiting and spreading rumors about their professional peers ("*passing comments on your female colleagues in front of your students is not something called for*" – Participant 5). Not only this, students also found such supervisors to be professionally incompetent. They are said to be lacking sufficient knowledge of their discipline, are not updated about the current developments in their respective fields and do not seem to be conversant with the nitty-gritties of research ("*he has no knowledge and does not deserve to be a teacher in my opinion*" – Participant 4). Lastly, biasedness emerged as another key characteristic that dominates their personality. Toxic supervisors are described as being bluntly biased in that they unjustly favor some students over others based on their personal liking and the degree of compliance exhibited by the student.

Apart from highlighting the personality characteristics of their supervisors, participants also spoke about how toxic supervision affects them. All the students reported experiencing some form of psychological crisis such as tension, overthinking, irritability, frustration or negative affect ("*I feel angry and very frustrated*" – Participant 7) as a result of toxic supervision. With a lot of students having reported serious psychological issues, including depression, anxiety, stress, suicidal ideations, etc. ("*I really reached a point where I wanted to jump off from the university terrace*" – Participant 4), debilitating mental health was found to be alarmingly common. A few students recounted having one or more episodes of emotional meltdown, while others felt broken and tired. A lot them described themselves as feeling agonized, restricted and discriminated against. Furthermore, all of them viewed their PhD journey as an emotionally exhausting experience ("*So the whole process was emotionally tiring for me*" – Participant 5). When asked to recall the positive and negative experiences working with their supervisors, students shared numerous accounts of negative experiences but could not recall even a single positive memory. Because of these bitter and toxic experiences, students had reportedly developed feelings of helplessness, hopelessness, worthlessness and incompetence. Majority of them believed that their self-esteem and confidence had reduced since they began working with toxic supervisors, and consequently, they felt less motivated and enthusiastic than before. In terms of students' reaction to toxic supervision, three prominent factors surfaced during the course of analysis. The most common reaction was anger and resentment. Students revealed having a lot of pent up negative emotions and an inner urge to retaliate. Since retaliation was difficult due to the power dynamics of the mentor–mentee relationship, most of them ended up with passive aggression, generalized anger or an aversion toward such supervisors. Some of the students developed a sense of fear, which persisted even after they had completed their research. Their responses suggest that these students continued having anxiety and even nightmares much after they finished their research. Such students had also developed a generalized fear of supervisors and were skeptical of getting into any other research program that requires working under a research guide. Lastly, a few students reacted to toxic supervision with a sense of regret. They regretted getting into a research program, felt "stuck" perpetually and had considered

quitting their research on multiple occasions. Along with psychological difficulties, a number of students also experienced negative effects on their physical health. Most of them were made to wait for long hours, which intervened with their daily routine, particularly eating patterns, causing physical ailments. Others reported having palpitations due to the anxiety-evoking atmosphere. Moreover, toxic supervision was found to be detrimental for not only students' well-being but their quality of research too. Students felt that the lack of involvement on the part of their supervisor hampered their learning and reduced the quality of their work. A lot of their time got wasted due to the low approachability of their supervisors, and students strongly believed that they could have easily achieved their set goals and would not have been as directionless as they were if their supervisors were a little more involved. Most of them felt that they had lost all motivation, and as a result, they were less focused and productive. Many students reportedly engaged in procrastination behavior, which resulted in more time wastage and a profound sense of guilt. Few of them also felt that they were getting dragged into unhealthy workplace politics because of their affiliation with a particular supervisor and that also adversely affected their research work.

Students' descriptions of the strategies to cope with toxicity and its negative effects were considerably consistent. Interestingly enough, most of them believed that being able to share their experiences with other students working with the same toxic supervisor provided them a strong sense of collective identity. They bonded over their common experiences of toxic supervision and developed strong inter-personal ties. They also felt understood and supported as a result of this collective sense of identity. Moreover, family support was also described as a great source of strength. And lastly, intermittent self-assurance was also reported as a facilitator of effective coping.

Describing the factors that kept them going despite all the negativity, students spoke about family and societal expectations, financial reasons and other career-related factors. A lot of respondents felt an implicit pressure to complete their research and tried to make peace with the situation because quitting would supposedly bring shame and condescension ("*And then you also do not want to quit due to societal expectations*" – Participant 3). Similarly, some students described financial instability as the only reason for not quitting their PhD ("*Half of the people stayed and did not quit only because they could not afford to return their stipend otherwise they would have left*" - Participant 2), while others felt that quitting will sabotage their career ("*You cannot even quit because then your employer would ask you why did you leave*" – Participant 4) and hence continued their research.

Lastly, students proposed some affirmative measures that can be taken to reduce toxicity in higher education. Broadly, these can be divided into individual- and policy-level measures. In terms of individual contributions, students said that they would make it a point to practice healthy style of supervision when they would enter the profession to break the vicious cycle of toxicity ("*I will become anything but would not be like my supervisor*" – Participant 2). Moreover, students recommended some policy-level reforms that can do away with academic toxicity. These include increasing transparency in research, making the process of research more structured, increasing accountability of supervisors with respect to research progress and providing appropriate trainings to research guides.

4. Discussion
The findings of the quantitative investigation suggest that toxic supervision significantly decreases students' identification with their peers, which is crucial for reducing distress and enhancing productivity as well as engagement (Rooij *et al.*, 2019; Pyhältö *et al.*, 2012a). Therefore, students working with toxic supervisors fail to identify with their peers, which decreases their perceived social support and puts them at a greater risk of having distress. Moreover, such students are also more likely to become disengaged and unproductive

because of the cumulative impact of toxicity and poor sense of identification. (Pyhältö *et al.*, 2012a, b). As per our findings, toxicity in supervision also directly increases students' distress, which is consistent with previous research findings (Levecque *et al.*, 2017; Williams *et al.*, 2018).

There is, so far, no empirical support as to how toxic supervision obstructs students' sense of identification, as has been found in the present research. However, Leach *et al.*'s (2008) model of in-group identification provides a useful explanation. As per the model, group identification is strengthened when all individuals view themselves as being similar to the rest of their group members (self-stereotyping), believe that all group members share common experiences (in-group homogeneity) and have a strong sense of satisfaction with their group membership (satisfaction). Since students who are subjected to toxic supervision have more atypical experiences that they do not share with other members of their fraternity and are also less satisfied with their group membership (Lovitts, 2001), they end up developing a weak sense of in-group identification.

Furthermore, the findings indicate that supervisor's toxic behavior increases lack of self-disclosure among students. With respect to the role of toxic supervision in poor self-disclosure, there is no existing research hitherto. However, extant research studies on self-disclosure provide some possible explanations. For instance, Craig *et al.* (2007) found that self-disclosure increases when one perceives more inter-personal similarities. Likewise, Derlega *et al.* (1993) proposed that self-disclosure is more likely to happen when there is no fear of being ridiculed. In the light of these findings, we argue that part of the reason students working with toxic supervisors are poor at self-disclosure is that they fail to identify with their peers (working with non-toxic supervisors) and feel that they will be mocked at if they shared their experiences of exploitation.

With respect to mediation effect, we found that identification and lack of self-disclosure partially mediated the relationship between toxic supervision and distress. This is in line with previous research studies that suggest low identification (Pyhältö *et al.*, 2012a, b) and poor self-disclosure (Berndt and Hanna, 1995) can hamper coping and increase distress.

Moreover, the results of the qualitative analysis corroborate the research findings obtained by Schmidt (2008) who discovered that some of the predominant characteristics of toxic leaders include *abusive supervision, unpredictability of mood and behavior, authoritarianism, narcissism and lack of professionalism*. Furthermore, Box (2012) also highlighted a similar set of traits that characterize toxic leaders. He categorized such leaders into three categories, namely, the micromanager, the pretender and the egomaniac. Micromanagers are known for invading their subordinates' privacy, while pretenders are generally involved in unethical activities, are not open to feedback and lack active listening skills. Such leaders create a climate of dysfunction within the workplace (p. 8). And lastly, the egomaniacs tend to mistreat subordinates, are insecure and do not like be competed against. The present study also provides evidence in support of Box's characterization of toxic leaders. Similarly, the findings are also consistent with Lipman-Blumen's (2010) description of toxic leaders that highlights features like maliciousness, need for absolute compliance, scapegoating and professional incompetence. Furthermore, the current results also lend support to Green's (2014) thesis that describes toxic leaders with features like egotism, ethical failure, incompetence and neuroticism.

Therefore, the current findings reveal that toxic academic supervisors possess the same set of traits and other behavioral characteristics that other non-academic toxic leaders are known for. Furthermore, the results also indicate that toxicity in academic supervision can increase students' susceptibility to a myriad of psychological and physical ailments, and can also reduce the overall quality of research. As far as retention is concerned, the results indicate that students typically refrain from opting out despite the suffering and abuse either due to societal norms or as a result of lack better alternatives. These findings resonate with

concepts of normative and continuance commitment. Additionally, the present narratives indicate that apart from self-affirmations, and family support, having a strong sense of peer identification grounded in shared experiences of toxicity can be a great enabler of coping and resilience among students subjected to toxic research supervision.

Therefore, in line with our findings, we propose that the impact of toxic supervision can be reduced if students can confide in others, share their experiences of toxicity and develop a reliable support system. Moreover, having a strong sense of identity with other peers can also help combat the negative health- and performance-related repercussions of toxic academic supervision.

5. Conclusion

The current research sought to explore the effects of toxic academic supervision on students' engagement, productivity and distress. To understand the dynamics better, the possible mediating role of identification and self-disclosure were also investigated. The results revealed that students who experience toxic research supervision have unique and atypical experiences with their research guides, which makes it difficult for them to connect with other students (working with non-toxic supervisors) and develop a healthy sense of identification with the larger students' community. This poor sense of identification consequently results in reduced engagement and productivity and increases students' distress. Similarly, self-disclosure has been found to be negatively predicted by toxic supervision, implying that students working with toxic supervisors are unable to share their experiences with others. Reduced self-disclosure, results reveal, is also responsible for lowered productivity and engagement and heightened distress. Lastly, mediation analysis showed that identification and self-disclosure partially mediate the relationship between toxic supervision and distress. Moreover, thematic analysis also supplemented the same findings and provided a detailed behavioral profile of toxic academic supervisors. A juxtaposition of quantitative and qualitative findings offers an interesting paradox. It reveals that the unique experiences of toxic supervision impede identification with the rest of the student community on the one hand, and form a foundation for strong inter-personal identification with other students facing toxicity, on the other hand.

Meta-conclusions drawn from the present study indicate that toxic academic supervisors exhibit a number of socially undesirable traits that affect students' well-being and research work adversely. The study not only highlights the repercussions of toxicity in academia and higher education but also provides a detailed and in-depth description of the personality traits and behavioral idiosyncrasies of toxic supervisors, which can help in the early identification of toxic tendencies and can enable us to mitigate and prevent toxicity from the academic space and to ensure a conducive environment for students in higher education. In terms of theoretical contributions, the study provides evidence that the concept of toxic leadership has applicability outside of the organizational context; in the educational sphere as well and that the toxic leadership scale can be successfully used to assess the severity of toxic supervision within the academic domain, and the corrective actions can be taken to mitigate the effect of such supervisory style on students.

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Appendix 1
Output of Soper's test for sample size determination for structural equation modeling

Parameters recommendations	Anticipated effect size	Desired statistical power	Number of latent variables	Number of observed variables	Probability level
Minimum sample size to detect effect	0.5	0.8	6	30	0.05
	40				
Minimum sample size for model structure	100				
Recommended minimum sample size	100				

Appendix 2
Semi-structured interview schedule

Sr. No.	Items
1	How would you describe your supervisor as a research mentor?
2	How would you describe your supervisor as a person?
3	How was your daily interaction with him?
4	What was it like working with him/her?
5	How did it make you feel when he was around?
6	How would you describe his role in your research?
7	Talk about some of the positive memories you have of him/her
8	Talk about some of the negative memories you have of him/her
9	What was the most negative experience you had had with your supervisor? (How did it affect you?)
10	What are some of the short-term/long-term effects of his/her supervision?

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