Health Sciences Teaching Staff’s Perception about Quality of Work Life in Saudi Universities: Reliability and Validity of the Questionnaire Instrument

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Abstract

Purpose: This study aimed to develop a valid quality of work life (QoWL) questionnaire for measuring the QoWL of health sciences teaching staff working in Saudi universities. Materials and Methods: A total of 300 teaching staff belonging to health sciences colleges at four Saudi government universities were randomly selected and given with QoWL tool. This tool consists of 24 Likert scale items and five different subscales i.e., (i) working conditions, (ii) psychosocial factors in the workplace, (iii) opportunities for training and development, (iv) compensation and rewards and (v) job satisfaction and job security. Two-hundred and ninety completed questionnaires were received, demonstrating a 97% response rate. Responses were subjected to statistical analysis to measure the reliability and validity of the tool. P < 0.05 was considered as ‘statistically significant’. Results: Factor analysis extracted five factors which jointly explained 93.31% of the variance in health sciences teaching staff attitude toward the QoWL at selected Saudi universities. The overall Cronbach’s alpha coefficient was measured at 0.928 for internal consistency reliability. This study demonstrates that the five critical factors consisting of working conditions, psychosocial factors in the workplace, opportunity for training and development, compensation and rewards and job satisfaction and job security are important determinants of QoWL among the health sciences teaching staff working at the higher education institutions in Saudi Arabia. Conclusion: This study provides a reliable and valid tool for capturing the QoWL perceptions of health sciences teaching staff at Saudi universities and may be considered for possible use at comparable institutions elsewhere.

Keywords: Health sciences teaching staff, quality of work life questionnaire, reliability, Saudi universities, validity

Introduction

The higher education sector in Saudi Arabia has been witnessing rapid growth, thanks to an increasing number of students opting for post-secondary education. In view of the increase in enrolment numbers in universities, particularly at the bachelor’s level, the teaching load of academics has also seen a significant increase. At present, there are 24 public universities accommodating 669,271 students.[1] The Ministry of Education also supervises 18 teachers’ colleges for men and 80 teachers’ colleges for women. Besides, there are a few specialised institutes and colleges for military and security education.[2] Further, there are a few technical colleges (n = 12) and institutes for health (n = 37).[1,3,4] These data make it clear that in addition to the number of institutions increasing, the requirements for a highly skilled workforce are increasing rapidly as well.

One recent trend, however, is that there is a significant drift in the nation’s best academics to highly paid industry positions because of inadequate and/or inappropriate incentives and reward systems within the Saudi university sector.[5] As a result, the higher education sector in Saudi Arabia is facing challenges posed by the shortage of skilled teaching staff, especially in health sciences discipline. It is the paramount need of institutions to attract and retain highly skilled faculty and academic staff to fulfil current and projected future requirements. Administrators and educational policy planners

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in Saudi Arabian institutions need to clearly understand the quality of work life (QoWL) that teaching staff experience so that they can take appropriate measures to retain the best and most efficient teacher workforce. To achieve this, a reliable and valid QoWL tool is required to assess the QoWL of teaching staff in higher education institutions (HEIs). Here, our study focused on QoWL of teaching staff belonging to health sciences colleges at selected public universities at Saudi Arabia since these academics play a vital role in training physicians, dentists, nurses and other healthcare professionals to address the health needs of the community. Unlike other faculties, these health sciences teaching staffs have dual responsibilities that include imparting education to future healthcare professionals and at the same time to provide professional healthcare services to patient community. Such shifting framework of accountability in clinical care poses real challenges to those teaching staff employed at the academic medical centres. As a result, these healthcare professions are inherently more stressful than others and specifically those in teaching are among the first six most stressful ones. Furthermore, students trained by these academics would hold an effective role in the health system of a nation. Therefore, our study intended to develop a reliable and valid QoWL scale for teaching staff of health sciences colleges at Saudi universities and it covers all aspects of employees’ economic, social, psychosocial and organisational work life. Unless a high QoWL is provided to employees, they cannot be motivated positively toward work.

The relevant research literature was explored, and several questionnaire tools were found to be utilised to gather the opinions of the faculty and academic staff about QoWL in HEIs.

**Constructs of quality of work life questionnaire**

The constructs of QoWL explored in this study are based on the guidelines of Richard Watson’s theoretical framework on QoWL and the European foundation for the improvement of living and working condition described by Oeji and Wiezer. Typically, constructs which are thought to influence QoWL perceptions of the teaching staff were explored through brainstorming sessions with senior faculty members, educational psychologists and human resource personnel at the university. These constructs include (i) working conditions, (ii) psychosocial factors in the workplace, (iii) opportunities for training and development, (iv) compensation and rewards and (v) job satisfaction and job security.

Working conditions refer to the physical and psychological aspects of an individual in any working environment.

Work-related psychosocial factors are defined as ‘perceptions or belief of workers about the way their work environment is organised’. In the higher education sector, such perceptions include monotonous work, job pressure, work variation, control and autonomy at work, work organisation and social support.

Based on psychologist Maslow’s hierarchy of human needs, prior research showed that QoWL is an outcome of employee satisfaction with two sets of major needs i.e., lower- and higher-order needs.

Sirgy et al also discussed employee satisfaction as emerging from the fulfilment of basic needs. Lower-order needs comprise health/safety needs and economic/family needs. Higher-order needs include social needs, esteem needs, self-actualisation needs, knowledge needs and aesthetic needs. Recently, Rastogi et al utilised a 16-item need-based QoWL scale for public and private sector employees incorporating the above-mentioned factors.

Walton proposed eight major conceptual categories relating to QoWL, including factors such as adequate and fair compensation, safe and healthy working conditions, immediate opportunity to use and develop human capabilities, opportunity for continued growth and security, social integration in the work organisation, constitutionalism in the work organisation, work and total life space and social relevance of work life. Several studies have measured the QoWL of faculty members of university using a questionnaire based on Walton’s factors.

Hans et al utilised a questionnaire having ten factors to measure QoWL among business management lecturers in private colleges in Oman.

In the Saudi Arabian context, Alqarni used Walton’s QoWL scale consisting of eight dimensions to measure the faculty’s perception about their QoWL at a university. However, Saudi universities comprise both Saudi and non-Saudi faculties, and hence, Walton’s dimensions may need to be modified. Most of the teaching faculties are non-Saudis, who are recruited from various countries and they have to adapt to work in the Saudi academic environment. Moreover, while the perceptions of Saudi nationals may vary, it is also essential to assess them. In general, Saudi universities provide good opportunities for training and career development, attractive benefits, rewards and safe working conditions. Nevertheless, the social dimensions used in Walton’s model need to be adapted to account for psychosocial factors in the Saudi university work environment.

Connell and Hannif believe that key concepts that need to be included in QoWL include job security, reward systems, pay and opportunity for growth. Two issues that have gained further attention in research on the QoWL of teaching staff include the opportunity provided for further training and the level of compensation offered to them.

Keeping in mind all of the above factors and variables discussed, it would be more accurate and comprehensive to have a questionnaire that is customised to measure QoWL of teaching staff working in health sciences colleges at all Saudi universities rather than the one used by Alqarni based on Walton’s model and studied the QoWL of all teaching faculties within a single university in Saudi Arabia. However, no previous studies have found a reliable and valid QoWL instrument for health sciences clusters’ teaching staff in Saudi
Arabian context. Therefore, our study develops a valid QoWL questionnaire for measuring all the attributes influencing the QoWL of teaching staff working in health sciences colleges at Saudi universities.

**Materials and Methods**

**Participants**

All teaching staff belonging to health sciences colleges of selected government universities (n = 4) located at four different geographical zones in Saudi Arabia were the focus of this study. A stratified random sampling approach was adopted to select the samples from four health sciences colleges of each university i.e., College of Medicine, College of Dentistry, College of Nursing and College of Applied Medical Sciences. A total of 300 teaching staff from these four health sciences colleges were randomly selected and were given the QoWL tool. Utmost care had been taken to get a wide representation of samples from all the four colleges (i.e., 75 samples from each college). An ethical approval (IRB-2014-22-226) was obtained from the Institutional Review Board, Deanship of Scientific Research, Imam Abdulrahman Bin Faisal University (IAU) [formerly University of Dammam (UOD)]. Two-hundred and ninety completed questionnaires were received, demonstrating a 97% response rate.

**Instrument**

The instrument consists of 32 items, in which the first part of the questionnaire was designed in such a way as to capture the biographical information of the samples (8 items). The next 23 items were designed to capture four different subscales, namely (i) working conditions (7 items), (ii) psychosocial factors in the workplace (5 items), (iii) opportunities for training and development (2 items), (iv) compensation and rewards (5 items) and (v) job satisfaction and job security (4 items). The 24th item was a global one designed to capture the overall satisfaction of the health sciences teaching staff about QoWL prevailing in their respective institutions. The respondents were asked to rate their level of agreement on each statement from ‘1’ meaning ‘strongly disagree’ to ‘5’ meaning ‘strongly agree’. The responses were subjected to statistical analysis using appropriate statistical tools.

**Statistical analysis**

The evaluation of the reliability-internal consistency of the questionnaire was done using the Cronbach’s alpha reliability test. Here, a confirmatory factor analysis (CFA) was conducted to assess the dimensionality of the QoWL scale. The researchers utilised principal axis analysis in SPSS version 20.0, IBM Corp., Armonk, New York, USA. Based on the relatively high correlations among the majority of items (>0.3), an oblique rotation was performed using varimax. To determine the number of factors to be retained, the following three criteria from Green and Salkind were applied, namely (i) the absolute values of the eigenvalues, (ii) the relative values of the eigenvalues and (iii) the relative interpretability of the rotated solutions. In addition, a scree plot and variance explained by the factor solution were also considered in making decisions to retain or exclude factors. Then, a principal component analysis with varimax rotation which produces the dimension of differentiation was used to confirm the scale construct validity. Two statistical tests were applied to determine whether the subscales were suitable for factor analysis. First, Bartlett’s test of sphericity was used to examine the inter-independence of the subscales of the scale, followed by the criterion Kaiser-Meyer-Olkin (KMO) (KMO

**Table 1: Mean score and standard deviation of the participants’ response to various Likert scale items in the quality of work life questionnaire tool**

| Item numbers in the Questionnaire | Mean (SD)         |
|-----------------------------------|-------------------|
| Q9                                | 4.19 (0.727)      |
| Q10                               | 4.12 (0.764)      |
| Q11                               | 4.18 (0.753)      |
| Q12                               | 3.82 (0.880)      |
| Q13                               | 3.66 (0.796)      |
| Q14                               | 4.06 (0.828)      |
| Q15                               | 4.12 (0.764)      |
| Q16                               | 3.70 (0.764)      |
| Q17                               | 3.99 (0.869)      |
| Q18                               | 4.17 (0.773)      |
| Q19                               | 3.82 (0.858)      |
| Q20                               | 3.68 (0.764)      |
| Q21                               | 4.08 (0.841)      |
| Q22                               | 4.10 (0.810)      |
| Q23                               | 3.72 (0.753)      |
| Q24                               | 4.09 (0.819)      |
| Q25                               | 4.10 (0.792)      |
| Q26                               | 3.83 (0.851)      |
| Q27                               | 3.75 (0.724)      |
| Q28                               | 4.16 (0.772)      |
| Q29                               | 4.08 (0.850)      |
| Q30                               | 4.13 (0.833)      |
| Q31                               | 3.78 (0.904)      |
| Q32                               | 3.99 (0.797)      |

SD: Standard deviation

**Table 2: Reliability statistics**

| Cronbach’s alpha | Cronbach’s alpha based on standardised items | Number of items |
|------------------|---------------------------------------------|-----------------|
| 0.928            | 0.928                                       | 23              |

**Table 3: Internal consistency of the subscales of quality of work life questionnaire**

| Factor | Subscales                              | Items | Cronbach’s alpha |
|--------|----------------------------------------|-------|------------------|
| 1      | Working condition/environment          | 7     | 0.756            |
| 2      | Psychosocial factors at workplace      | 5     | 0.692            |
| 3      | Opportunity for training and development programmes | 2 | 0.961 |
| 4      | Compensation and rewards               | 5     | 0.686            |
| 5      | Job satisfaction and job security      | 4     | 0.704            |
Table 4: Correlation between subscales of quality of work life questionnaire

| Subscales                              | Working condition/environment | Psychosocial factors at workplace | Opportunity for training and development programmes | Compensation and rewards |
|----------------------------------------|-------------------------------|----------------------------------|---------------------------------------------------|--------------------------|
| Psychosocial factors at workplace      | 0.676*                        | 0.319*                           |                                                   |                          |
| Opportunity for training and development programmes | 0.667*                        | 0.922*                           | 0.335*                                            | 0.604*                   |
| Compensation and rewards               | 0.661*                        | 0.587*                           | 0.412*                                            |                          |
| Job satisfaction and job security      | 0.711*                        | 0.894*                           | 0.952*                                            | 0.928*                   |

*Significant at 0.05 level

Table 5: Common communalities of quality of work life questionnaire

| Questions                                                                 | Initial | Extraction |
|---------------------------------------------------------------------------|---------|------------|
| My Department Chair/superior is supportive of my ideas and ways of getting things done | 1.000   | 0.916      |
| The assignment of responsibility is fair which is commensurate with my ability | 1.000   | 0.917      |
| Our university provides the resources I need (equipment, materials, information etc) to do my Job effectively | 1.000   | 0.926      |
| Adequate support is provided for conducting research and my research skills are appropriately recognized and rewarded | 1.000   | 0.927      |
| There is transparency about how the decisions are made at the levels of Department/College | 1.000   | 0.971      |
| I has been given due consideration to participate in the decision making process at my department level | 1.000   | 0.893      |
| Our university provided an excellent working environment so that I am not exposed to any occupational health problems during my tenure of employment | 1.000   | 0.885      |
| I am able to voice opinions and influence changes in my own area of work | 1.000   | 0.928      |
| I am pressured to work very fast due to time pressure for the assigned tasks | 1.000   | 0.907      |
| I always getting help and support from my colleagues and my colleagues are always willing to listen to my work related problems | 1.000   | 0.961      |
| I am able to achieve a healthy balance between my work and home life | 1.000   | 0.962      |
| My Job requires a great deal of concentration to keep eyes on lot of things while I am working | 1.000   | 0.963      |
| Our university is conducting regular and periodic training program as per the needs of the Employees (i.e. both academic and professional development programs / workshops etc) | 1.000   | 0.918      |
| Our Department Chair provides Full support & Motivation to me to attend the Training programs | 1.000   | 0.952      |
| Whether your contributions in teaching are recognized and rewarded | 1.000   | 0.894      |
| I am fairly compensated for the work I do as a teaching staff at my College | 1.000   | 0.974      |
| A fair and transparent methodology is adopted for academic promotions in my College | 1.000   | 0.896      |
| There is no discrepancy in compensation and all the staff are treated equally in my College | 1.000   | 0.952      |
| My university offers fringe benefits (Free housing, Medical assistance & Transportation) that are valuable to me | 1.000   | 0.862      |
| I feel secure in my Job and I want to stay with this organization for the foreseeable future | 1.000   | 0.935      |
| I have complete autonomy to plan and design my work schedules | 1.000   | 0.981      |
| I believe the work I am assigned to do makes good use of knowledge and skills | 1.000   | 0.962      |
| I am satisfied with the authority and responsibilities provided to me as teaching staff in my College | 1.000   | 0.977      

measure of sampling adequacy), which was applied to examine sample sufficiency.[27] The criterion of eigenvalue or characteristic root (eigenvalue) ≥1 was used to define the number of factors that were kept.[28] Model acceptance was based on two criteria: (a) to be included in the variable cluster of a factor, each variable must have loaded to it a value >0.5 and (b) other factors with values <0.4. Moreover, each factor must have more than two variables. In addition, it was considered that on the basis of common variable communalities, variables with high communality (h2) imply substantial contribution to the factorial model.[29]

Results

The descriptive statistics, which show a mean score and standard deviation of the participants’ response to various Likert scale items in the questionnaire tool, are presented in Table 1.

Instrument reliability

The reliability of the instrument means that its results are characterised by receptiveness and these results are not connected with measurement errors.[30] The evaluation of the internal consistency of a questionnaire was made possible by Cronbach’s α.[31] This index is considered the most important reliability measure and is based on the number of the variables/items of the questionnaire, as well as on correlations between the variables.[32] George and Mallery[33] explain the value of Cronbach’s alpha coefficient as α >0.9 – ‘excellent’, α >0.8 – ‘good’, α >0.7 – ‘acceptable’, α >0.6 – ‘questionable’, α >0.5 – ‘poor’ and α <0.5 – ‘unacceptable’. Our study showed that the overall Cronbach’s alpha of the QoWL questionnaire was 0.928 (Table 2), where the variables that measured the concept of this questionnaire can be rated ‘excellent’. Therefore, the questionnaire is a reliable one. The scale statistics described
the mean and standard deviation of QoWL of faculty members as 91.33 and 11.52, respectively. Cronbach’s alpha value of individual subscales of QoWL questionnaire was observed as follows: working conditions (0.756), psychosocial factors in the workplace (0.692), opportunities for training and development (0.961), compensation and rewards (0.686) and job satisfaction and job security (0.704) [Table 3].

In addition, the integrity of the instrument as a whole has been demonstrated by invariably positive and significant interfactor correlations [Table 4]. It is demonstrated that a correlation coefficient larger than 0.7 generally represents a strong correlation, whereas a coefficient between 0.3 and 0.7 represents a moderate correlation and a coefficient smaller than 0.3 represents low correlation. Our study observed a strong positive correlation between ‘working conditions’ and ‘job satisfaction and job security’. A moderate positive correlation was found between the ‘working conditions’ and ‘psychosocial factors at the workplace’, ‘opportunity for training and development programmes’ provided for the faculty and ‘compensation and rewards’. Likewise, ‘psychosocial factors at workplace’ showed a moderate positive correlation with ‘opportunity for training and development programmes’ and ‘job satisfaction and job security’. Further, ‘opportunity for training and development programmes’ also showed a moderate positive correlation with ‘compensation and rewards’ and ‘job satisfaction and job security’. Finally, a moderate positive correlation was observed between ‘compensation and rewards’ and ‘job satisfaction and job security’.

**Table 6: Factor loading for the quality of work life questionnaire**

| Questions                                                                 | 1   | 2   | 3   | 4   | 5   |
|---------------------------------------------------------------------------|-----|-----|-----|-----|-----|
| My Department Chair/superior is supportive of my ideas and ways of getting things done | 0.730 |     |     |     |     |
| The assignment of responsibility is fair which is commensurate with my ability | 0.746 |     |     |     |     |
| Our university provides the resources I need (equipment, materials, information etc) to do my Job effectively | 0.574 |     |     |     |     |
| Adequate support is provided for conducting research and my research skills are appropriately recognized and rewarded | 0.564 |     |     |     |     |
| There is transparency about how the decisions are made at the levels of Department/College | 0.563 |     |     |     |     |
| I have been given due consideration to participate in the decision making process at my department level |     |     |     |     |     |
| Our university provided an excellent working environment so that I am not exposed to any occupational health problems during my tenure of employment |     |     |     |     |     |
| I am able to voice opinions and influence changes in my own area of work | 0.528 |     |     |     |     |
| I am pressured to work very fast due to time pressure for the assigned tasks | 0.600 |     |     |     |     |
| I always getting help and support from my colleagues and my colleagues are always willing to listen to my work related problems | 0.772 |     |     |     |     |
| I am able to achieve a healthy balance between my work and home life | 0.561 |     |     |     |     |
| My Job requires a great deal of concentration to keep eyes on lot of things while I am working | 0.565 |     |     |     |     |
| Our university is conducting regular and periodic training program as per the needs of the Employees (i.e. both academic and professional development programs / workshops etc) | 0.580 |     |     |     |     |
| Our Department Chair provides Full support & Motivation to me to attend the Training programs | 0.604 |     |     |     |     |
| Whether your contributions in teaching are recognized and rewarded | 0.536 |     |     |     |     |
| I am fairly compensated for the work I do as a teaching staff at my College | 0.620 |     |     |     |     |
| A fair and transparent methodology is adopted for academic promotions in my College | 0.723 |     |     |     |     |
| There is no discrepancy in compensation and all the staff are treated equally in in my College | 0.557 |     |     |     |     |
| My university offers fringe benefits (Free housing, Medical assistance & Transportation) that are valuable to me | 0.570 |     |     |     |     |
| I feel secure in my Job and I want to stay with this organization for the foreseeable future | 0.749 |     |     |     |     |
| I have complete autonomy to plan and design my work schedules | 0.616 |     |     |     |     |
| I believe the work I am assigned to do makes good use of knowledge and skills | 0.775 |     |     |     |     |
| I am satisfied with the authority and responsibilities provided to me as teaching staff in my College | 0.578 |     |     |     |     |
| Eigenvalue                                                                 | 9.032 | 4.301 | 3.721 | 2.498 | 1.930 |
| Variance explained (%)                                                      | 39.268 | 18.699 | 16.179 | 10.774 | 8.393 |
| Total variance explained (%)                                                | 93.314 |     |     |     |     |
demonstrated that the raw data were suitable for the application of factor analysis. Further, Table 5 showed the common communalities of QoWL questionnaire. Results showed that all the questions had a value higher than 0.80, which indicated that the quality of the measurements is satisfactory. Factor analysis was performed for assessing the construct validity of QoWL questionnaire. From the original 23 questions used in the factor analysis, five factors were derived using the Kaiser criterion and varimax rotation. The overall rate of variation of the initial data indicated that five factors taken in common amounted to 93.31%. Factor analysis extracted five factors which conjointly explained 93.31% of the variance in health sciences colleges teaching staff attitude toward the QoWL at selected Saudi universities [Table 6].

**Discussion**

Through this research study, the researchers validated the newly developed QoWL scale for capturing the opinion of the health sciences colleges teaching staff working at selected Saudi universities. The internal consistency and reliability of the extracted factors were confirmed by high Cronbach’s alpha coefficients. These coefficients are considered to be the most important reliability indices and are based on the number of variables/items in the questionnaire, as well as on the correlation between the variables. The overall Cronbach’s alpha value of QoWL questionnaire was observed as 0.928, which is considered ‘excellent’. The range of Cronbach’s alpha coefficients for subscales of QoWL varies from 0.686 to 0.961. A previous study done by Gable and Wolf also indicated that the Cronbach’s alpha of 0.70 is considered as an acceptable measure of internal consistency. Considering an accepted Cronbach’s alpha of 0.70, the proposed QoWL questionnaire used in this study is believed to be reliable and valid based on the extracted factors (0.928). Further, the initial face validity and content validity were confirmed through CFA. The extracted five factors in this research accounted for a total of 93.31% of the variance. The explained variance of 93.31% is more than the variance observed by García-Peña et al. at 44% and Soo Hoo and Ramer at 68%. Our within-factor alpha coefficients ranging from 0.686 to 0.961 were intermediate among 25 other studies in which the range reported was from 0.43 to 0.90. A recent study by Sirin and Sokmen found a reliable and valid QoWL instrument for Turkish nurses with five factors explained 42.33% of total variance. Further, Almarshad developed and validated a QoWL scale using the employees from different private and public organisations in the northern border region of Saudi Arabia. The results reported a four-factor outcome explaining 70.67% of variance. Moreover, our study reported the variance as high as 93.31%

Further, psychometric testing is needed to determine the construct, concurrent, discriminate and predictive validity of the QoWL scale. Furthermore, this newly developed questionnaire scale can be used in future research by translating it into Arabic to study cross-cultural adaptation. Since most instruments are developed in English, it is essential for the researchers to translate it and culturally adapt the English instrument to fit the Arabic language.

**Conclusion**

This research article validates the QoWL scale that measures the perception of health sciences colleges teaching staff about the QoWL prevailing in their respective universities. The three attributes make this QoWL scale highly suited for investigating the QoWL in HEIs in Saudi Arabia. The five attributes make this QoWL scale highly suitable for investigating the QoWL in HEIs in Saudi Arabia. These five factors explained a variance of 93.31% in factor analysis. Further, the overall Cronbach’s alpha coefficient of 0.928 is observed for internal consistency reliability, which is invariably positive and showed significant interfactor correlations. Here, five critical factors identified are considered as important determinants of QoWL among the health sciences colleges teaching staff working at the HEIs in Saudi Arabia. The study may be considered for adaptation at comparable institutions elsewhere.

It is noteworthy to mention that a significant proportion of teaching staff in Saudi universities might be of expatriate community from all over the world, which insists the importance of culturally sensitive aspect of work life. Therefore, in future research, cultural aspects can also be included in QoWL instrument and validated with health sciences teaching staff across all Saudi universities, which would aid the generalisation of the proposed instrument.

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**Conflicts of interest**

There are no conflicts of interest.

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