Hospital Physician Engagement
A Scoping Review

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Background: Literature on health system transformation highlights the importance of physician engagement, suggesting that it is a critical factor for lowering costs while improving efficiency, quality of care, patient safety, physician satisfaction and retention. "Engagement" in health care is often defined as a positive, fulfilling work-related state of mind, which is characterized by vigor, dedication and absorption. The aim of this scoping review is to identify factors associated with, and tools used to measure physician engagement.

Methods: MEDLINE, Embase, Cochrane Central Register of Controlled Trials, and gray literature were searched. Supplementary articles were obtained by searching article references. All quantitative and qualitative study designs were eligible that described factors associated with, and tools used to measure, hospital physician engagement. Quantitative and qualitative analyses were conducted. Groupings and clustering were conducted to determine dominant groups or cluster of characteristics. Conceptual mapping was then conducted to identify patterns.

Results: A total of 15 studies fulfilled the eligibility criteria. All were published between 2012 and 2017. Studies were predominantly conducted in Germany (n = 8). Factors associated with physician engagement were synthesized into individual characteristics (n = 7), work environment characteristics (n = 7), and work outcomes (n = 5). The Utrecht Work Engagement Scale was the most commonly used tool (n = 14).

Conclusions: This scoping review provides a strong evidence-based platform to further advance knowledge in the area of physician engagement. The identification of environmental factors assists hospital administrative leaders in understanding how they might intervene to affect engagement, while the identification of individual characteristics enable identification of vulnerable physicians, permitting identification of the most pertinent targeted areas for focus.

Key Words: hospital, physician, engagement, scoping review

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BACKGROUND

Historically, psychology focused on disease, damage, disorder, and disability. Over the past century, however, there has been an increasing focus on the term "positive psychology," the scientific study of human strength and optimal functioning.[1] This focus drew the attention of organizational psychologists, who called for "the study of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace".[2] As a result, one of the positive states that arose was the term "engagement." The term "engagement" in health care is often defined as a positive, fulfilling work-related state of mind, which is characterized by vigor, dedication, and absorption. Vigor denotes high energy, mental resilience, persistence, and a willingness to invest effort in one's work. Dedication reflects a sense of pride, significance, enthusiasm, inspiration, and challenge. Finally, absorption refers to deep engrossment in one's work, full concentration, and difficulty detaching oneself from work whereby time passes quickly.[3]

Physician engagement is of interest to health care institutions around the globe. Literature on health system transformation highlights the importance of physician engagement,[4] suggesting that it is a critical factor for improving physician satisfaction and retention,[5] quality of care, patient safety, efficiency, and lowering costs.[5–7] Despite the staggering prevalence and increased organizational awareness of the value of physician engagement, many organizations have failed to take action commensurate with the risk to the organization.[8]

The term "physician engagement" has become widely used,[9] referring to a plethora of work attitudes and behaviors, such as appropriate and effective use of hospital services; implementation of best practices; accountability; physician performance measurement; physician leadership development; enhanced communication; values alignment;[7] policy advocacy; participation in research;[10] or involvement in strategy, decision making, and care direction.[9] This makes it difficult for researchers, hospital leadership, and frontline physicians to identify associations between physician engagement and important work outcomes that benefit patients. Enhancing physician engagement requires an enhanced understanding of the underlying characteristics and values of engaged physicians.[4]

The aim of this scoping review is to identify factors associated with, and tools used to measure, physician engagement as it is currently used in the literature. The specific research questions are:

1. What factors are associated with physician engagement?
2. What tools identified in the literature measure physician engagement?

METHODS

The full scoping review protocol is available and is published in *BMJ Open*.[11] The protocol[11] was formulated using the Arksey and O'Malley framework.[12] This method involves five stages that include identification of the research question, identification of relevant studies, study selection, charting the data, and finally collating, summarizing and reporting the results. The methods are described below. The PRISMA Statement was used to help guide our reporting, although we acknowledge that it has not been modified for scoping reviews.[13]

Data Sources and Search

An experienced information specialist (L.P.) conducted searches in the following electronic databases from inception onwards: MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials. The MEDLINE search strategy is available in the published protocol[11] and the search strategies from the other literature databases are available from the corresponding author upon request. Search results were imported and stored in a RefWorks (refworks.com) by an information specialist for reference management. Gray literature was also searched via the websites of relevant agencies such as the National Institutes of Health, the Canadian Medical Association, GreyNet International, and Agency for Healthcare Research and Quality. Conferences and abstracts were also viewed. If only conferences were available, the authors were contacted to determine if full papers were published. Supplementary articles were obtained by searching references of relevant review articles and contacting experts in the field.

No limitations were put on the searches with regard to year or language. Targeted searches were also conducted to identify relevant studies (eg, after identifying an author doing extensive work in this area).

Study Selection: Inclusion Criteria

The results of the search were uploaded to Covidence, a Cochrane technology platform to improve the production and use of systematic reviews for health (https://www.covidence.org/). This tool was used for study selection (ie, title/abstract screening and full-text article screening) using the eligibility criteria outlined above. Differences in responses were flagged for reviewers, discussed, and a final decision was agreed upon. Any conflicts were resolved by a third reviewer. Subsequently, all levels of screening and data abstraction were conducted by two reviewers, independently.

Studies eligible for the review included physicians with hospital privileges working fulltime or parttime. There were no restrictions on hospital type, unit, specialty, or subspecialty, however, studies examining trainees (eg, residents or fellows) were excluded. Only studies in which physicians made up $>50\%$ of the population of hospital staff were eligible for inclusion in this review. All aspects of engagement were included, as described above by Schaufeli, et al,[3] which include a positive, fulfilling work-related state of mind, characterized by vigor, dedication, and absorption. Studies were eligible that identified factors associated with, and tools used to measure, hospital physician engagement. Papers developing theory or frameworks were excluded. All qualitative or quantitative methodologies were eligible for inclusion. There were no time period, setting or country restrictions.

In the first round, two reviewers independently screened all titles and abstracts. In the second round, two reviewers independently examined all full-text articles. Differences in responses were identified, discussed, and a final decision was agreed upon.

Data Abstraction

Each full-text article was reviewed by two independent researchers and relevant data were extracted including country, factors associated with and tools used to measure physician engagement. Differences were resolved by discussion. A standardized Excel form was used for data abstraction. A training exercise was conducted first among the investigators using a random sample of 10 included studies. Conflicts were discussed among reviewers until a final decision was agreed upon. Subsequently, two reviewers abstracted data independently, with conflicts resolved by discussion or a third reviewer if required.

Analysis

Quantitative (frequencies) and qualitative analysis (generation of descriptives) were conducted. The process of narrative synthesis was conducted following the guidance of Arai et al,[14] and Rodgers and Sowden.[15] Two reviewers performed tabulation, textual description, grouping and clustering, and conceptual mapping. Differences were resolved by discussion. Tabulation involved extracting data from the primary studies in tabular form. Data were extracted on participants, interventions, study design, factors associated with, and tools used to measure, hospital physician engagement. Textual descriptions described study interventions in more depth. Groupings and clustering involved examination of the data abstraction table to determine the presence of dominant groups or cluster of characteristics, by which the subsequent synthesis could be organized. Conceptual mapping was then conducted whereby variation or patterns were identified from the previous tables. Meta-analysis was not be performed. As this was a scoping review, and not a systematic review, no attempt was made to appraise or to grade the level of evidence that was included in this review.[12]

RESULTS

Literature Search

A total of 2668 titles and abstracts, plus 359 full-text articles were assessed for eligibility. Reasons for exclusion are identified in Figure 1. Studies in languages other than English that could be translated were included.[16,17] One study was not included as it could not be translated due to resource limitations.[18]

Characteristics of Included Articles

In total, 15 studies fulfilled the eligibility criteria and were included. All studies were published between 2012 and 2017. The majority of the studies on hospital physician engagement were conducted in Europe, specifically Germany[16,19–25] and

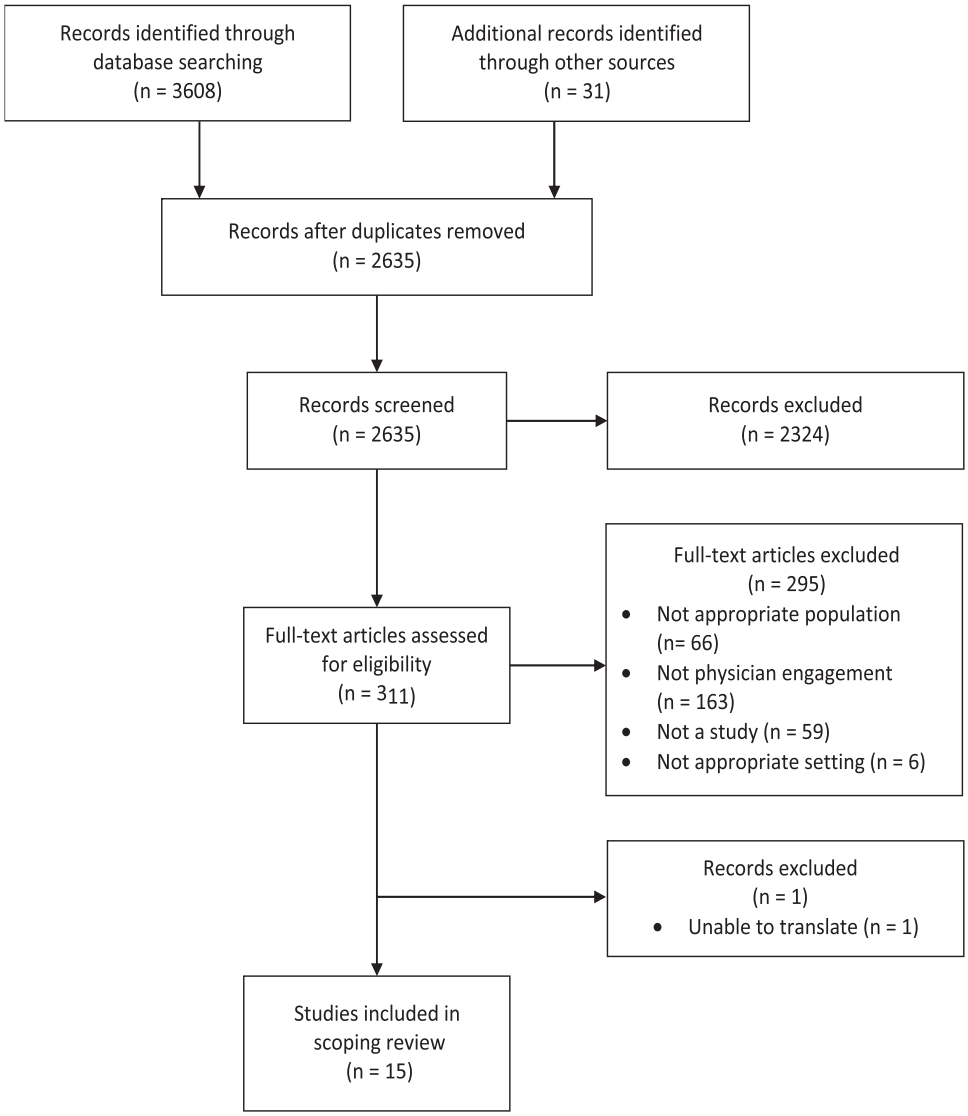

FIGURE 1. Study flow diagram.

the Netherlands.[26,27] Two studies were contributed by Italy;[28,29] Sweden[30], Japan,[17] and Greece[31] each contributed one study. Most of the study methodologies were quantitative[16,17,19–26,28,29,31] with a cross-sectional design.[16,17,19–22,24,26,28,29,31] One study had a mixed methodology[27] and one study was purely qualitative.[30] There were only 2 randomized controlled trials (RCTs),[23,25] one of which was a pilot.[23] These data are summarized in Table 1. Unfortunately for specific "hospital type," these data were not consistently recorded or reported. For example, although some authors identified hospital type as state and private,[32] or midsize public,[30] many were not recorded at all.[16,17,19,23,24,29] Similarly, for "physician specialty," data were often combined, identifying large lists of specialties and subspecialties.[16,27]

Factors Associated With Physician Engagement

These data have been synthesized into individual characteristics, work environment characteristics, and work outcomes. These data are described narratively below, summarized in Table 2, and presented pictorially in Figure 2. Only significant relationships are included in the discussion below, $P < 0.05$.

Individual Characteristics

Several individual characteristics were positively and significantly associated with engagement including age,[21,22] sex,[21,22,24] experience,[21] marital status,[21,22] and the presence or absence of children.[24] Although younger physicians, in the age group "26–35" reported the highest engagement scores compared with their older colleagues,[21,22] years of experience was also significantly and positively associated with engagement, such that the more experience a physician had, the higher their engagement.[21] Male psychiatrists were more highly engaged than their female colleagues.[21,22] Male physicians with children perceived higher levels of engagement than their female colleagues, however, for physicians without children, no sex difference was found.[24] Single physicians were more engaged than married physicians.[21,22]

TABLE 1. Summary of Study Characteristics

Study Characteristics	No. Studies (N = 15) [n (%)]*	Studies
Year of publication		
2012–2014	8 (53)	16, 19–21, 26, 27, 29, 30
2015–2017	7 (47)	17, 22–25, 28, 31
Country		
Germany	8 (53)	16, 19–25
Netherlands	2 (13)	26, 27
Italy	2 (13)	28, 29
Sweden	1 (7)	30
Japan	1 (7)	17
Greece	1 (7)	31
Study methodology		
Quantitative	13 (87)	16, 17, 19–26, 28, 29, 31
Qualitative	1 (7)	30
Mixed	1 (7)	27
Study design		
Cross-sectional (survey)	11 (73)	16, 17, 19–22, 24, 26, 28, 29, 31
Semistructured interview	1 (7)	30
Cross-sectional survey and interview	1 (7)	27
Randomized controlled trial	2 (13)	23, 25
Pilot	1	23

*Percentages in this column are rounded.

One study by Mache et al,[24] identified a significant negative association between work-family conflict and engagement, therefore the higher a physician's work-family conflict, the lower their engagement was and vice versa.

Personal attributes positively and significantly associated with engagement included resiliency, self-efficacy, and optimism,[21,32] agreeableness,[16] neuroticism,[16] and affectivity, an emotion-based trait dimension that determines a cognitive bias through which individuals address the experiences and may influence how they live and evaluate their jobs.[28] A significant negative association was identified between pessimism and engagement,[20,22] thus the more pessimistic a physician was, the lower their engagement.

TABLE 2. Factors Associated With Engagement of Physicians Working in the Hospital Setting

Factors	No. Studies (N = 15) [n (%)]*	Studies
Individual characteristics		
Age	2 (13)	21, 22
Sex	3 (20)	21, 22, 24
Experience	1 (7)	21
Marital status	2 (13)	21, 22
Children	1 (7)	24
Work-family conflict	1 (7)	24
Personal attributes	6 (40)	16, 20–22, 28, 32
Work environment characteristics/work-related factors		
Quality of work life	1 (7)	20
Task combinations	1 (7)	27
Perceived job stress	1 (7)	24
Job resources	6 (40)	17, 20, 21, 24, 26, 30
Job demands	1 (7)	24
Work outcomes		
Job satisfaction	2 (13)	20, 24
Ability to work	2 (13)	19, 22
Medical errors	1 (7)	31

*Note the number of studies column will not total 15 since several studies identify multiple factors. Percentages in this column are rounded.

Work Environment Characteristics/Work-related factors

Work environment characteristics positively and significantly associated with engagement included quality of life.[20] Task combinations (ie, the combination or teaching, research, and patient care) were shown to be negatively associated with engagement.[27] For example, respondents with only teaching responsibilities demonstrated higher engagement than respondents who combined teaching and research, teaching and patient care, or all three.[27] A significant negative association was also identified between perceived job stress and engagement.[24] Additional negative associations were identified between job demands and engagement, specifically the quantity of work, emotional demands, and requirement for overtime.[24]

Job resources were also associated with engagement. Job resources refer to those physical, psychological, social, or institutional aspects of the job that either reduce job demands and the associated physiological and psychosocial costs, are functional in achieving work goals, or stimulate personal growth, learning, and development.[33] Two studies identified that the following job resources had a significant positive association with engagement: influence at work; possibilities for development; degree of freedom at work; sense of community; feedback; quality of leadership; and social support.[20,21] Influence at work refers to the amount of influence one has concerning their work, such as the amount of work assigned to them or influence with regard to the tasks one performs.[34] A third study identified that making patients healthy and happy was also positively and significantly associated with engagement.[26] A fourth study identified that job control, supervisory support, possibilities for development, and social climate were positively and significantly associated with engagement, however, this study also identified a significant negative association between access to information and engagement.[24] A fifth study suggested professional fulfillment, the satisfying inner experience of being useful and developing, motivated physician engagement.[30] Finally, organizational support such as protection from "convenient visits" and other systemic measures at the hospital level, were associated with physician engagement.[17] Convenient visits refer to emergency visits for nonemergency problems or emergency consultation for nonemergency symptoms.[17]

Work Outcomes

Engagement was positively and significantly associated with work ability,[19,22] defined as the sum of factors enabling an employed person in a certain situation to manage his/her working demands successfully.[35] An association was identified between engagement and job satisfaction.[20,24] Negative association was identified between engagement and medical errors.[31] In other words, this study found that the lower a physician's engagement, the increased likelihood of medical error.

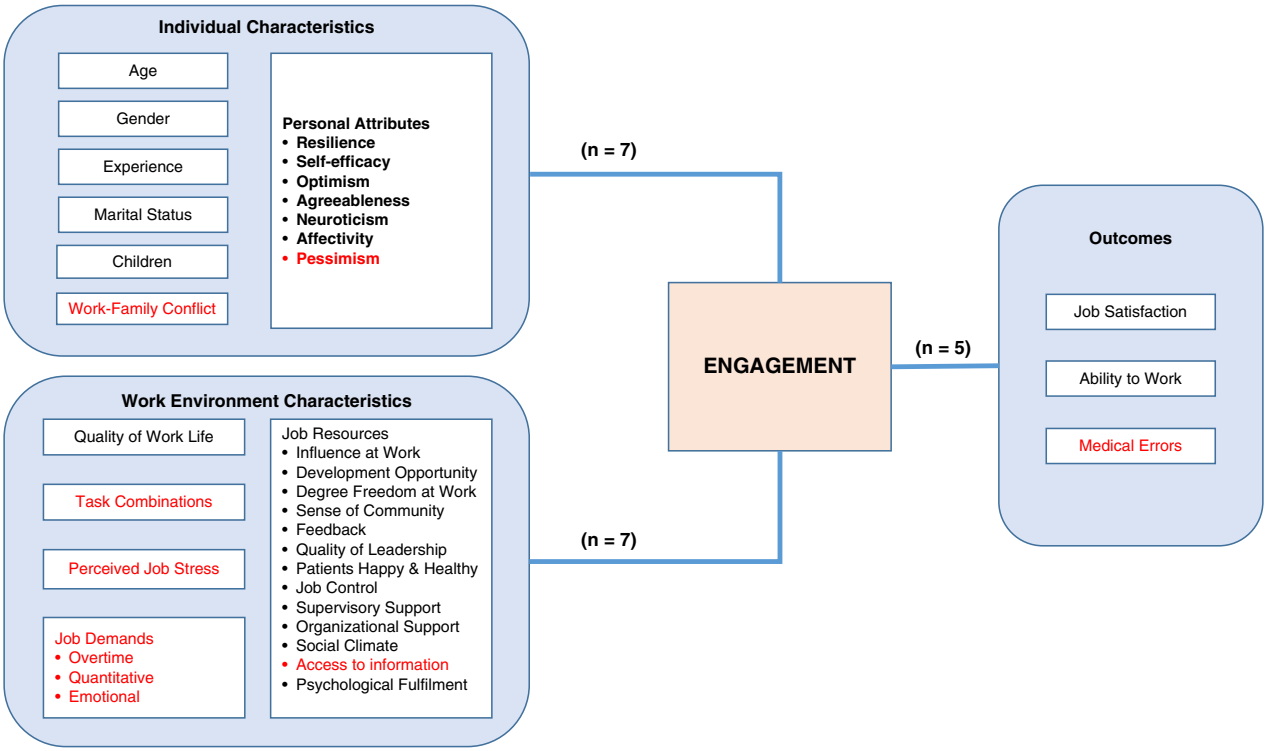

FIGURE 2. Factors associated with engagement of physicians working in the hospital setting.

Tools Used to Measure Engagement

The Utrecht Work Engagement Scale (WES), a validated and reliable tool, was the most common tool identified to measure engagement.[16,17,19–29,31] The tool varied in number of items (17 and 9 items) and language (English, Greek, Japanese, and Italian). Finally, one qualitative study used only interviews, no instrument.[30] These data are presented in Table 3.

DISCUSSION

This review identifies the potential complexity of interrelationships involved in understanding and enhancing physician engagement. The predominance of cross-sectional studies, conducted at only one point in time, warrants mention as this only identifies mere associations. RCT data are required to identify causality among the factors identified in this review. The 2 RCTs were able to identify that the psychosocial and mental health training programs investigated did not have significant effects on physician engagement. In addition, qualitative and mixed methods would provide deeper insight into better understanding physician engagement. Both RCT and additional qualitative work would assist in identifying and developing actual strategies to enhance physician engagement. The importance of capturing and reporting hospital type and specialty is important for hospital leadership who wish to enhance physician engagement in their specific hospitals and departments. An unexpected finding was that most of the studies are European. This may be attributed to the fact that the UWES was developed in Europe, however, it signifies the importance of additional validity and reliability testing on other continents with different health care systems.

Factors related to hospital-physician engagement were synthesized into three major categories, which include individual characteristics, work environment, and work outcomes. As indicated in the results section, the predominant number of studies examined individual characteristics. Age and experience are positively associated with engagement. Additional qualitative work would be beneficial to determine the cause for this—is it because senior physicians are more established and perhaps have more say in the work that they do? Although there may be little that hospital leadership can do to alter individual characteristics such as employee age, sex, marital status, or number of children, individual characteristics enable the identification of vulnerable physicians.

TABLE 3. Tool Used to Measure Engagement

Instrument	No. Studies (N = 15) [n (%)]*	Studies
Utrecht Work Engagement Scale (17-item)	4 (27)	
English version	2	19, 26
Greek version	1	31
Japanese version	1	17
Utrecht Work Engagement Scale (9-item)	10 (67)	
English version	9	16, 20–25, 27, 29
Italian version	1	28
Not applicable	1 (7)	30

*Percentages in this column are rounded.

The identification of protective factors such as work environment enables leadership to know how to intervene, but it is the characteristic of the individual more at risk that enables the identification of the most pertinent targets of such intervention.

What can be modified, however, is the work environment. These factors enable leadership to know how to intervene. For example, hospital leadership have the ability to modify schedules, divide labor, determine whether all physicians participate in research or education, improve support, grant more autonomy, provide timely and constructive feedback, or create opportunities for professional development.

Findings also suggest that although promising, there is very little evidence linking engagement with work outcomes in hospital physicians. The only outcomes identified in this review include job satisfaction, ability to work and medical error. Consistent with a recent examination of the work psychology of personal support workers working in long-term care and home and community care settings in Ontario,[36] job satisfaction is related to engagement. Additional research into successful methods of enhancing job satisfaction in hospital physicians may prove beneficial in identifying new approaches for hospital leadership to enhance physician engagement.

The most common tool identified in this review is the Utrecht WES, specifically the short 9-item version of the Utrecht WES. Since the majority of the studies were conducted in Europe, additional reliability and validity testing is required on other continents in other health care systems. The use of a validated and reliable tool is important in order to ensure researchers and leadership are accurately measuring what they intended to measure, and be able to generalize and compare findings across sites. This, in addition to RCT data, will enable leadership to accurately identify outcomes associated with engagement.

Implications

Several potential implications arise from this review related to practice, the conceptualization of physician engagement as well as implications for theory. Gaps in the literature and future areas for research have also been identified.

Practice Implications

Leadership. This review enables information sharing, saving individual hospitals time and resources by identifying and summarizing research in this area. Findings provide insight into environmental characteristics that hospital administrative leaders may wish to further investigate as potential opportunities to enhance physician engagement. This preliminary work provides a foundation for future work that will enable evidence-based decision making in this area, with the potential to improve hospital-physician alignment, retention, quality of care, patient safety, and other important outcomes. This work is the first step in enabling hospital leadership to work with physicians to develop customized plans to address individual needs related to physician engagement. Hospitals in the process of recruiting physicians could consider how candidate expectations of the work environment may influence engagement. Finally, this research identifies the Utrecht WES (9-item) is a commonly used, short instrument, which hospital leadership may consider using to measure engagement in their institutions.

Frontline Physicians. Preliminary findings support healthy work environments, which include a good work-life balance, fair scheduling, as well as decreased job stress and job demands such as work overload and/or overtime. Results also highlight the importance of adequate job resources such as development opportunities, quality of leadership, organizational support, autonomy, workload, and social climate. Since a large number of environmental characteristics appear to be associated with engagement, individuals thinking of joining a new organization may find value in first investigating the work environment. Additional inquiry into the association between low engagement and suicide ideation is warranted if further investigation could potentially lead to early identification and timely support for those in need.

Implications for the Conceptualization of Physician Engagement

This work contributes to and advances the science and body of literature on physician engagement. It highlights current factors examined and found to be significantly related to hospital-physician engagement.

Theoretical Implications and Research Gaps

Studies identified in this review are limited to examinations of simple dyadic relationships. The model created as a result of this review suggests that physician engagement may be more complex. The interrelationships between hospital-physician engagement, individual characteristics, the work environment, and work outcomes remain poorly understood and underexplored. In order to establish causality, future RCT research exposing these intricate relationships can help hospital leadership determine where best to focus resources in order to develop strategies that positively influence work-related behaviors that aid in attaining organizational goals. Additional mixed methods studies would be helpful in gaining a more fulsome understanding of engagement. It would be interesting to further investigate physician engagement with respect to task combination (eg, teaching, research, and patient care requirements), emotional intelligence, generational differences, employee status (eg, whether the physicians were contract or permanent employees), financial viability of the organization, and different funding or care models.

Limitations

Because of limited research in this area, there are a small number of studies in total, and an even smaller number of studies that examine any one factor. Because of time and resource restrictions, we were unable to translate one article.

CONCLUSIONS

This scoping review provides a strong evidence-based platform to further advance knowledge around physician engagement. The identification of environmental factors assist hospital administrative leaders in understanding how they might intervene to affect engagement. By understanding how individual and work characteristics impact engagement, hospital administrator leaders are better positioned to positively approach physician engagement

within their hospitals. Finally, by understanding which outcomes are linked to physician engagement, it allows health care organizations to create a knowledge translation platform, identifying and sharing the most successful strategies to enhance physician engagement and ultimately improve patient outcomes.

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