

Literature review

Introduction to Chapter 2

The introduction highlighted that Sepsis is one of the significant causes of death among critically ill patients. The chapter identifies key themes critical in evaluating the qSOFA tool's efficacy in identifying at-risk patients when in their early stages. The study evaluates previous studies supporting the usability of QSOFA and those that refute its usage, thereby giving the researcher and future policymakers relevant guidance on implementing the tool in the management of Sepsis (Xia et al., 2020). The analysis of the themes guides shows the efficacy and reliability of the qSOFA device in the early identification and management of Sepsis.

Theoretical Foundation

The section evaluates two theories applicable to the implementation of the qSOFA tool in the early detection of Sepsis. The diffusion of innovation theory provides a leading guide on how health facilities will consider the device's performance in the management of Sepsis. The Quality Implementation Framework also offers another direction on advancing scientific knowledge regarding the qSOFA in its implementation and hence relevant usage.

Diffusion of Innovation Theory

During the agricultural extension period to World War, developing a tool to foster the uptake of upcoming technologies was inevitable. Throughout the 1970s, scientists sought to evaluate the adoption rate of particular technologies to help measure the innovativeness of the adoption of given tools to enhance efficiency in their production (Mohammadi et al., 2018). During his analysis, the founder of the theory, Rogers (2003), highlighted that the diffusion rate of several agricultural innovations within rural communities was instrumental in triggering the universal process of social change. The theory is a critical tool in identifying how an idea would be easily deployed and translated into action over time, and hence its name in depicting its transfer through given populations or social systems (Mohammadi et al., 2018). Similarly, the diffusion theory provides a practical guide in translating how health practitioners will adopt the qSOFA tool in identifying Sepsis before the deterioration in health quality of the patients that they serve. The interacting elements of the critical aspects of the theory provide the relevant guide to understand how members of a social system will adopt technology and hence work towards the recognition of the tool in the management of existing health conditions.

There are critical elements of interaction in the diffusion of innovation theory. The elements form a pivotal aspect of the diffusion theory in varying programs. They include:

1. Innovation refers to the idea, practice, or object perceived as a new element by an individual, group, or organization (Mohammadi et al., 2018). In this case, the qSOFA tool is the innovation. It is expected that

health practitioners will rely on the device to enhance the quality-of-care services administered to patients

2. Communication refers to how the users of an invention create and share details from one person to another, thereby fostering mutual understanding. Accordingly, the effectiveness of the qSOFA tool is dependent on how popular it would be. Thus, if few people are aware of its existence, it is unlikely to be of benefit for the patients who are dependent on the tool for the identification of their critical states

3. Time- The time element involved in the innovation represents a critical aspect of the transformation or gauging the usefulness of an invention. Accordingly, if it takes longer to adopt the implementation and hence the usability of the qSOFA tool depending on its efficacy, the adoption rate across the system will likely be considered low.

4. Social Systems- The attributes refer to sets of interrelated social units such as informal groups, individuals, and organizations, which are engaged in problem-solving to foster the attainment of a common goal. The social system is a critical ingredient in determining the boundary for the diffusion process (Rizan et al., 2017). Accordingly, it is dependent on the social norms and the degree to which individuals in a system can influence one another (Emani et al., 2018). For the qSOFA tool, the social system is the health sector. The implementation of policies supporting the device's performance provides relevant guides in ensuring that the agency serves the purpose it was developed to help mitigate incidences of health deterioration due to Sepsis.

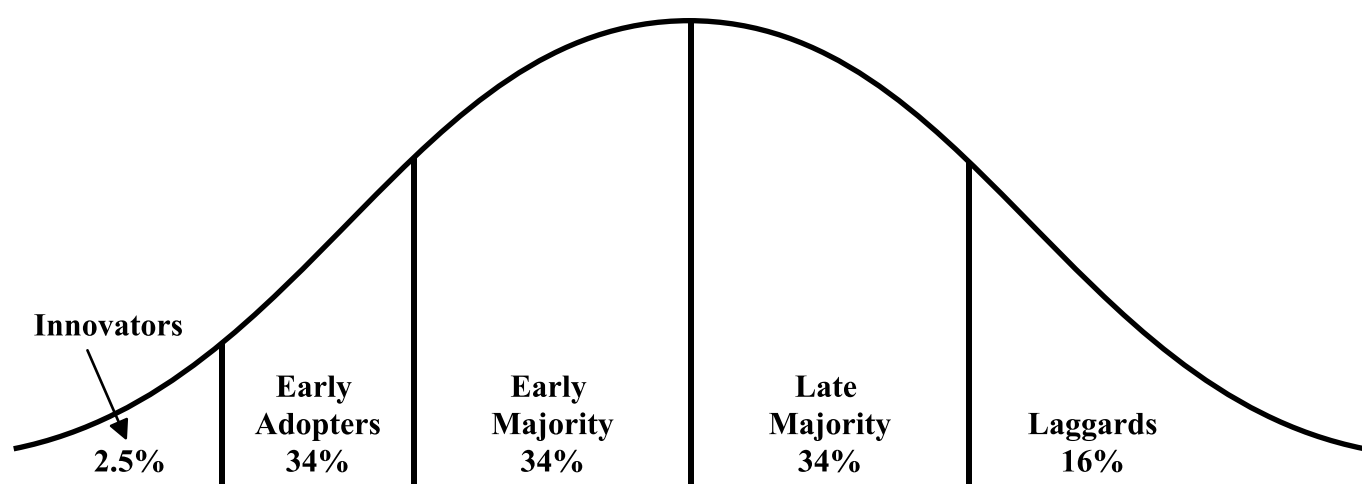


Figure 1: A summary of the rate of diffusion of new inventions and the average adoption of the technology in respective areas of its deployment (Rogers, 2003)

The above adoption categories represent essential facets of the diffusion theory. For instance, innovators represent only 2.5% of the social system population. In this case, the developers of the qSOFA tool will represent only 2.5% of the people that are bound to use and benefit from the technology (Rizan et al., 2017). The population comprises individuals who are quick to take up new ideas, technologies and

foster knowledge despite the uncertainties and failures that face them. Innovators play a vital role in the introduction of innovations in society. They deploy a venturesome approach to the implementation of change. Accordingly, Rizan et al. (2017) describe the gatekeepers of information flow in a social system.

Early adopters represent 13.5% of the overall population. They form a significant population of the “respected” members of the society (Rizan et al., 2017). Often, they are opinion leaders and are likely to be integrated into the social system than the innovators. In this case, the deployment of the qSOFA tool will receive notable recognition from early users such as the policymakers and the physicians who believe that the deployment of the device will be effective in resolving challenges of body deterioration from Sepsis. The early adopters are a critical force in the adoption of innovation. Given the central position in the social system, they play a crucial role in ensuring that innovations spread quickly to the other people in a social system.

Early Majorities represent 34% of a social system within a population (Stone et al., 2018). Unlike the former early adopters, the group requires the "stamp of authority" to prove to them that an invention is valuable and, in turn, will help demystify and solve their existing challenges. A notable aspect is that the early adopters adopt innovation before the average person. However, they do not serve any leadership roles, which implies that they do not necessarily help spread the word of the existence of the innovation. Nonetheless, the early adopters act as essential links in the diffusion process given the critical connection they provide between the early adopters and the late adopters in the diffusion of innovation system theory.

The late majorities of the system population are skeptical. The group is often cautious about change and is likely to question the existing attitudes to the innovation. The late majorities adopt an innovation after the average person. Concerning adopting the qSOFA tool, the late majorities are likely to take time before adopting it (Baharun et al., 2019). Despite the communication regarding the efficacy or reliability of the tool, the group will be dependent on peer pressure or economic necessity rather than the motivation for the change to ensure that they adopt the technology for usage. Accordingly, the group expects that social norms form a pivotal aspect of the innovation to make it desirable. Nonetheless, Baharun et al., (2019) describes that in other instances, the group may have few resources, thereby depending on the efficacy of the communication team to help eliminate uncertainties regarding the innovation before its adoption.

Stone et al. (2018) showed the laggards representing 16% of the social system. They are majorly considered isolates in the social network or are unlikely to be strongly connected to other system members. The past represents an ideal reference point for the laggards (Stone et al., 2018). Being skeptical of change implies that they are equally challenging to consider the adoption of change. Resultantly, the laggards take a lengthy time to adopt in association with awareness of innovation. Moreover, the laggards demonstrate resistance towards innovation and tend to be risk-averse (Stone et al., 2018). Despite the overwhelming evidence of the efficacy of the qSOFA tool in the adoption of

innovation depends on how the message for its transmission is structured to help foster the diffusion of new concepts in society.

The diffusion theory is a critical element to consider in adopting the qSOFA tool for detecting and managing Sepsis among hospitalized patients in the rehabilitation facility. Poor management and understanding of how the tool works, opinion leadership, lack of education and research are likely to affect its acceptability and benefit the population that it was designed to help serve in the long run. Accordingly, the rate by which professionals in the facility will admit the tool's reliability is critical in ensuring that it fits the primary purpose for its invention.

Quality Implementation Framework Theory

As initially hinted, implementation science has become an integral tool for developing and deploying an invention. Funders, researchers, and practitioners admit that implementing innovations is a critical aspect to the translation of its success. The performance of a concept is an essential aspect of influencing the desired outcomes of the theory. Byrnes et al. (2018) define an implementation framework as a proposed model of elements likely to affect the implementation and sustainability of the evidence-based practice. The implementation strategy follows systematic processes, which aim at adopting and integrating evidence-based innovations in usual care. Thus, an implementation framework ought to be used before and throughout implementation to help justify new research in respective application areas. According to Woodward et al. (2019), using an implementation framework effectively offers adequate guide and guidance for conducting studies and informing research teams' theoretical and empirical thinking. Similarly, the framework's usage provides shared language for familiarizing the stakeholders with relevant practical tools for execution, planning, and evaluation of real-world implementation efforts and models for advancing science and practice (Woodward et al., 2019). Applying the implementation framework in the usability of the qSOFA tool translates to attaining optimal outcomes for advancing science implementation and practice.

A quality implementation framework follows several guidelines to ensure that the newly suggested tool realizes its objective. The first step entails the selection of an ideal framework for the implementation of a concept. At this stage, Woodward et al. (2019) describe that differentiating the framework's purpose plays a critical role in providing the relevant guide for the implementation process. Similarly, at this stage, an analysis of the concept's degree of inclusion and operationalization is critical in ensuring that the invention serves the needs of those it was designed to help. Thus, implementing the qSOFA tool requires that framework users invest in knowledge of their work setting. The process includes seeking relevant knowledge from existing stakeholders aware of the norms and culture associated with the deployment of similar interventions.

The Quality Implementation Framework emphasizes the establishment and maintenance of

community stakeholders and engagement partnerships. Stakeholder engagement is a critical ingredient in the implementation of new solutions in different settings. It fosters collaboration among other personnel, thereby encouraging the attainment of ownership of the performance of effort and usability of practical tools that facilitate the implementation of new inventions (Byrnes et al., 2018). In this case, the usability and efficiency of the qSOFA device depend on the instrument's collaborative efforts, which would, in turn, define the issue being addressed and thus promote the integration of successful outcomes with all stakeholders. Deploying the qSOFA tool will require the combined collaboration of existing stakeholders to capture the essential elements of the device that foster the identification of sepsis conditions among patients in time.

The usability of Quality Implementation Frameworks offers structures for guiding, analyzing, evaluating, and describing the implementation efforts of new inventions and solutions. The strategies provide advancement of generalizable implementation science knowledge. When the implementation process fails to use a quality framework, researchers and practitioners are unlikely to gain from the benefits of the invention, thereby discrediting the gains that the users ought to receive from using the innovations (Byrnes et al., 2018). By following the guidelines of the Quality Implementation Framework, users are more likely to realize the gains that they stand to receive from the implementation of solutions that aim at resolving challenges that they face when meeting their needs. Similarly, the performance of the qSOFA tool is likely to gain immense support when a similar mechanism is deployed as it encompasses the critical aspects of its integration in resolving existing challenges faced in the diagnosis of Sepsis.

Review of Literature

The section is divided into varying themes, which highlight the benefits, challenges, and aspects of consideration when deploying the qSOFA tool in the diagnosis and management of Sepsis. The section is dependent on previous literature, which helps depict the impact of the qSOFA in diminishing incidences of negligence and hence deterioration in the health quality of patients found in similar settings.

Theme 1: Timeliness

An integral aspect of any diagnostic tool is its timeliness. Notably, timeliness differentiates the ability to predict potential emergencies and hence the reliability of the instrument. The study by Feist (2019) highlights the importance of timeliness in the diagnosis process and, therefore, saving the patient. Research reveals that patients with sepsis conditions experience drastic deterioration of their health quality. When nurses and physicians are incapable of detecting their deteriorating health, they are likely to face mortality. The main aim of using the qSOFA tool is for early diagnosis and hence early treatment. According to Xia et al. (2020), timeliness refers to the process by which a system can provide quick

solutions to an existing condition upon its recognition. Sepsis's timely recognition has been linked to reducing mortality and subsequent attainment of quality life even after the diagnosis (Feist, 2019; Gando et al., 2020; Xia et al., 2020). Resultantly, the timeliness of the qSOFA tool is an integral component of determining its efficacy in the management of Sepsis.

Subtheme 1: Support for Timeliness of qSOFA

Xia et al. (2020) evaluated the effectiveness of using the qSOFA parameters to identify independent predictors of sepsis severity and prognosis. The article utilizes a single-center retrospective observational study design among adult patients with clinical characteristics of Sepsis in the Emergency Department of West China Hospital. Xia et al. (2020) analyzed electronic and paper medical records for patients treated at the hospital's emergency department. Using an IBM software for analysis, the researcher identified that alternative tools helped improve screening accuracy for qSOFA. The study concluded that only using qSOFA was not a guarantee of timely predictions in identifying sepsis conditions.

Consequently, Xia et al. (2020) hinted that combining the best strategy with procalcitonin (PCT) can obtain suitable outcomes for short-term sepsis severity and prognosis. These would produce superior predictive values. The timeliness of a screening tool is an essential aspect of consideration. It plays an instrumental role in enabling health practitioners to develop effective interventions to help save patients' lives at the time of diagnosis.

Nonetheless, Singer and Shankar-Hari lauded the qSOFA tool for its ability to yield similar results in a timely fashion and repeatedly. The usability of the tool diminishes the relevance of daunting laboratory tests, which may have to be done frequently to confirm the condition's existence (Singer & Shankar-Hari (2018). Also, Feist (2019) emphasizes the importance of timeliness in diagnosis processes. Singer and Shankar-Hari's study confirmed that unlike other tools, which require laboratory tests to verify them, the outcomes for qSOFA guarantee enhanced results at the first suspicion of infection (Singer & Shankar-Hari (2018). Having an early warning system that can flag up incidences of disease or non-infectious related to Sepsis provides the ideal platform for the launch of the tool in health facilities to detect the existence of sepsis cases.

Subtheme 2: qSOFA Lack of Timeliness

Some studies refute the claims of the timeliness of the qSOFA tool as a diagnosis instrument over other devices. The reason is attributed to the fact that other means, such as the systemic inflammatory response syndrome (SIRS), have been found to yield better outcomes in the prediction of Sepsis than the qSOFA (Gando et al., 2020). Although the study aims to identify the reliability of qSOFA and not the former tool, considering scientific recommendations on the efficacy of the screening tools provides health practitioners with greater accuracy and confidence regarding the implementation of the instrument (Dorsett

et al., 2017). The study by Gando et al. (2020) highlights that the cumulative score for predicting Sepsis's mortality was lower than that of SIRS. SIRS yielded better criteria and outcomes for predicting ultimate infections, while qSOFA effectively predicted mortality (Gando et al. 2020; Proffitt & Hooper, 2020; Xia et al. 2020). Using a patient population of 1045 for the study, Gando et al. (2020) identified that 91.6% of the SIRS patients had better responsiveness to the prediction tool. Creating the qSOFA solution ensures that the tool offers functional prediction at the correct time to help predict Sepsis. The ability to diagnose Sepsis provides a better framework for the response, thereby guaranteeing saving lives.

Subtheme 3: Relevance of Timeliness of qSOFA

qSOFA tool has been linked to the attainment of timeliness in the diagnosis process. Studies by Feist (2019), Herwanto et al. (2019), Proffitt and Hooper (2020) admit that the tool offered reliable support with regards to the attainment of timely diagnosis and resolution of client status in the event of Sepsis. The operations of an ideal prediction tool should be based on the actual time identification of issues that impact the client's health (Proffitt & Hooper, 2020). By providing real-time notification to the service providers, they can develop appropriate intervention strategies to ensure the patient receives relevant help to help manage the existing infection. Consistent with the results from the study by Amland and Sutariya (2018), Herwanto et al. (2019) also confirmed that an essential aspect of the qSOFA tool is its ability to detect sepsis incidences with an accuracy score of 74.58%. Notably, the detection of sepsis conditions ensures a prompt response to responding to patient cases in time. Consequently, early responses guarantee the efficacy of treatment upon recognition of the disease.

Similarly, the study by Perman et al. (2020) evaluated the impact of sensitivity as a means of rapidly identifying adult patients with suspected infection in prehospital, general hospital wards, and emergency departments and hence guaranteeing timeliness. The study's score confirmed that using the qSOFA offered better outcomes for the prediction of patient condition and hospital mortality than other instruments. Similar to other studies evaluated in the study, it utilized a retrospective observational study whereby it explored the performance of the triage, thereby fostering the prediction of in-hospital mortality. The study used a total of 2859 sepsis cases, whereby it was identified to yield results for a mortality rate of 14.4% (Perman et al., 2020). The sensitivity of qSOFA was found to have a prediction rate of ≥ 2 , which confirms the tool's efficacy in enhancing the reliability of the instrument and hence timeliness in predictions (Perman et al., 2020). The results demonstrate that in an extensive emergency department sepsis database, using a reliable tool for the prediction helps diminish mortality incidences. qSOFA proved to be a valuable tool in screening and hence outperformed alternative serum lactate levels.

Synthesis of Articles

Timeliness of diagnosis is a critical aspect to consider when showing user performance to predict sepsis infection. The studies by Gando et al. (2021), Xia et al. (2020), and Herwanto et al. (2019) are all evidence of the importance of creating a suitable screening tool for the sake of patient recovery and health. Notably, the studies admit that using a reliable screening and prediction tool is essential for an effective method of the management of Sepsis. However, Gando et al. (2020) mentioned that for institutions who believe that timeliness is a critical aspect to consider when screening for sepsis conditions, using alternative tools helps to yield better outcomes. The study outcomes are consistent with those of Xia et al. (2020), who also mentioned that the efficiency of timeliness in qSOFA is dependent on its interaction and integration with the PCT. The study outcomes do not dispute the ability to screen Sepsis. However, they are keen to mention that qSOFA does not necessarily guarantee timely diagnosis unless paired with another instrument. The implications imply that innovators should consider integrating other components to enhance the qSOFA in delivering timely diagnoses.

Theme 2: Specificity and Sensitivity

Another essential aspect of diagnosis is Specificity. Guaranteeing Specificity provides an ideal framework for ruling out the existence or nonexistence of a disease. Singer and Shankar-Hari (2018) define Specificity as the ability of a screening test to detect a true negative. When testing, a high probability score translates to high Specificity, which is a positive score. To this effect, a negative rate is used in identifying the condition. This way, it fosters the recognition of the existence of an illness or not. Evaluating the Specificity of qSOFA provides relevant details to ensure that the diagnosis process is effective (Singer & Shankar-Hari, 2018). The specificity values give relevant data regarding the tool's efficacy in the screening process and, hence, the condition's diagnosis.

The sensitivity aspect of a study is also an essential theme for consideration of the efficacy of qSOFA. Sensitivity refers to the ability of a test to test correct and identify individuals without a disease (Shu et al., 2019). When the sensitivity test is a true positive, it implies that the individual has a condition (Tusgul et al., 2018). Conversely, a valid negative means that the individual does not have the disease, hence the negative test.

Subtheme 1: Relevance of Specificity

Evaluation of the effectiveness of qSOFA remains a critical aspect to consider when implementing it for screening purposes. The article by Singer and Shankar-Hari (2018) shows how the usability of qSOFA remains unclear due to the inability to define its proficiency in diagnosing a related health condition. According to the article, qSOFA criteria for ruling out incidences of Sepsis or existing conditions is more

likely to identify Specificity rather than sensitivity, which is also a critical element for any diagnostic part. In the analysis, Singer and Shankar-Hari (2018) concluded that even when qSOFA fails to identify the existence of a condition, it would be ideal to ensure that alternative criteria and deferral of investigations on treatment takes place to facilitate prompt identification of existing ailments.

The study by Shu et al. (2019) proposes a simple tool to identify patients with Sepsis who are at risk of poor outcomes. The study was conducted in a utility setting to evaluate the sensitivity capacity of the instrument. The study utilized a retrospective observational study; adults patients who arrived at the facility in September 2016 formed an instrumental part of the study. The calculation of the qSOFA was conducted to help identify Sepsis in emergency departments and the possibility of infection and mortality. The study results yielded high outcomes for both the Specificity and the sensitivity of Sepsis. Notably, the sensitivity of Sepsis yielded high scores at 93.8% and 91.9% for Specificity (Shu et al., 2019). The study outcomes are consistent with some previous studies, which confirmed that qSOFA is a reliable tool for identifying sepsis conditions. Interestingly, compared to other tools for sepsis identification, qSOFA was the least sensitive.

High scores of qSOFA were linked to triage and higher acuity zones and longer hospital lengths of stay (Shu et al., 2019). Nonetheless, Shu et al. (2019) found the tool's usability in the emergency department as effective. Thus, the study concludes that prehospital qSOFA is specific but not necessarily sensitive (Shu et al., 2019). The study outcomes provide more significant support for the tool for alternative methods of sepsis detection and identification. A high qSOFA score is linked to worse outcomes among patients within the emergency departments. Thus, using qSOFA in prehospital settings yields poor results of sensitivity but ideal outcomes for Specificity.

Subtheme 2: Effectiveness of qSOFA in Specificity

Evaluations of the effectiveness of diagnostic tools remain a critical aspect of the success of treating sepsis conditions. The study by Gupta et al. (2018) sought to assess the performance of SIRS and qSOFA. Gupta et al. (2018) adopted a retrospective study strategy to examine patients visiting the Emergency Department with Sepsis-related diagnoses. The study period of 28 days aimed at identifying hospital mortality incidences using the odds ratio (OR) and modeling methods. The naïve Bayes, decision trees (DT), and multivariate logistic regressions (LR) were assessed. Later, Gupta et al. (2018) conducted assessments of the relationships between the diagnostic criteria and mortality.

Also, Tusgul et al. (2017) confirmed the importance of using a sepsis detection tool in the prehospital setting to help save patient lives at the emergency triage department. The study aimed to measure the sensitivity of the qSOFA score and the SIRS criteria. The study also conducted the sepsis definitions for the identification of severe sepsis cases. Tusgul et al. (2017) used a retrospective approach and identified all patients with suspected or any incidences of infection. All patients identified with incidences of proven disease after the emergency department workup were included in the study. Using the qSOFA and SIRS tools, the researcher recorded signs of organ dysfunctions and hypoperfusion. The study results proved that Sepsis incidences were easy to determine using the tools at 58.8% for sensitivity, 57.6% for ICU stays, and 80.0% for mortality within 48 hours (Tusgul et al., 2017). The sensitivity for sepsis definition reached 60.0% for 48-hour mortality. The study confirmed that incidences of Sepsis among patients in the emergency department transported by ambulance made up 3.8% (Tusgul et al., 2017). The rate was closely linked to the associated mortality of Sepsis, which in turn confirms the necessity of disposing of the test for early identification of the patient condition. The study demonstrates that the sensitivity performance of the screening tools was suboptimal. The researchers identified the qSOFA score, SIRS criteria, and sepsis definition as having a low resolution for sensitivity in selecting patients in the prehospital setting. Thus, the study results are evidence of the efficacy of the SOFA tool in fostering the identification of incidences of Sepsis among patients in the emergency section. Notably, the study outcomes are inconsistent with other study outcomes whose emphasis on the sensitivity of Sepsis is equally high.

The study results by Jiang et al. (2018) yielded variable data showing Specificity for both the SIRS and qSOFA. The evidence produced for SIRS demonstrated a high specificity score for qSOFA than that of SIRS. Nonetheless, despite the high levels of Specificity, Jiang et al. (2018) concluded that qSOFA was linked to greater incidences of in-hospital mortality among ED patients. Resultantly, it was identified to have a lower sensitivity. The poor sensitivity was mentioned as a negative aspect of the tool's usability in the diagnosis of Sepsis, especially for critical patients. Interestingly, the approaches used to determine effective diagnoses proved that qSOFA is a reliable tool for screening Sepsis but not for its sensitivity. Jiang et al. (2018) acknowledged that the study's findings are consistent with other results, which have also

supported using the qSOFA tool for diagnosis.

Subtheme 3: Comparison of qSOFA Effectiveness for Specificity with Sensitivity

Another study also confirmed that qSOFA specificity is high but low sensitivity. Similarly, the study mentioned that it has a high probability for differentiating low and high-risk patients in varying hospital settings (Dorsett et al., 2017). Notably, the survey by Dorsett et al. (2017) highlighted that qSOFA has poor sensitivity, but its results for Specificity are dependable. The study emphasized that there is a high incidence of underutilization of the screening instruments. The study used a retrospective strategy for the valuation of the sensitivity and specified qSOFA and SIRS. The results confirmed that qSOFA efficiency in Specificity is significantly high. The study concluded that for prehospital diagnoses, qSOFA score ≥ 2 was 16.3% sensitive and 97% specific (Gupta et al., 2018). Thus, like the studies by Gupta et al. (2018); Singer and Shankar-Hari (2018), it is evident that the tool is dependable for screening Sepsis. The findings of the study are prominent in the dynamic nature of sepsis detection. Notably, the lack of a reliable instrument for evaluating sepsis conditions implies that an effective sensitive detection mechanism is inevitable. Thus, the study suggests that to ensure that qSOFA is reliable, combining it with other interventions may make it more effective. It would also ensure that the patients benefit from existing time-critical interventions.

Synthesis of the Studies

The above studies illuminated the benefits of using the qSOFA in the diagnosis of Sepsis. The Specificity of a screening tool is essential for the sake of diagnosis. The results gave qSOFA greater confidence for Specificity compared to alternative means. The efficiency for Specificity, as described by Dorsett et al. (2017); Gupta et al. (2018); Singer and Shankar-Hari (2018), indicate that the qSOFA tool is ideal for effective screening of Sepsis. The only notable differences are that the studies claimed their inefficacy to confirm the sensitivity of the instrument, which is also an essential element of qSOFA in providing relevant data for sepsis detection and management (Jiang et al., 2018; Shu et al., 2019; Tusgul et al., 2017). The relevance of specifying for qSOFA remains an integral aspect for identifying sepsis cases. Despite offering alternative solutions for the diagnosis process, the emergence of a tool with a higher specificity, as suggested by Dorsett et al. (2017); Gupta et al. (2018), calls for the need to consider integrating alternative screening tools for Sepsis. Accordingly, given the risks that the condition poses for patients in emergency departments, substituting the device with one that guarantees efficacy is inevitable. Further analyses may be considered for the integration of multiple testing and screening instruments for sepsis patients.

Summary of Literature review Themes

The above studies demonstrate the efficacy of using the qSOFA to help mitigate mortality and ICU admission incidences among patients. Nonetheless, the studies confirmed that using qSOFA is a reliable tool in identifying a patient's status and condition. Nevertheless, Tusgul et al. (2017) argued that the results are not necessarily effective at guaranteeing sensitivity but guarantee Specificity. The sensitivity aspect of a screening tool is critical in assuring efficacy of detection of Sepsis and hence the development of strategic management of the condition.

From the literature review themes, it is evident that a tool that guarantees timeliness, Specificity, and sensitivity is desirable. The approaches considered in the early identification of Sepsis are linked with physiologic derangements during the progression of the disease. The qSOFA tool is an effective method for organizations to identify at-risk patients with the early signs of Sepsis (Giamarellos-Bourboulis et al., 2017; Usman et al., 2019). Dykes et al. (2019) explain that qSOFA parameters provide relevant criteria to help clinicians identify cases of Sepsis when still in their early stages. The tool combines three clinical variables to give a rapid and straightforward bedside score, which measures the likelihood of poor outcomes (Dykes et al., 2019). The scores of every study highlight incidences of admission to the intensive care unit (ICU) or give data on mortality for patients with suspected infection. Arguably early detection of Sepsis has clinical significance to both the practitioner and the patient (Chang et al., 2018; Perman et al. 2020; Roney et al., 2015; Shu et al., 2019; Tusgul et al. 2017). Thorough and timely clinical observations effectively reduce hospitalization and death incidences.

Conclusion

The literature review sector confirms that the usability of qSOFA in the prediction of sepsis cases is essential. However, several inconsistencies in the studies emerged, which calls for further research to help identify the lack of similar results when using the qSOFA tool in the diagnosis of Sepsis. Three key themes emerged, including Specificity, sensitivity, and timeliness of the instrument in identifying sepsis cases. The three elements are considered crucial in the identification of the reliability of any diagnostic tool. An ideal diagnosis tool must guarantee consistency in outcomes and hence its reliability. Thus, refined research works will give information on the tool's implementation in the diagnosis of Sepsis.

The analysis of the themes includes guidance to the tool's efficacy and reliability. These facilitate identifying the critical scores that measure the effectiveness of the instrument in the detection and hence early management of Sepsis. Consequently, future studies can provide a relevant guide for earlier diagnoses and thus reduce mortality among patients.

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