PROFESSIONAL IDENTITY AMONG PAKISTANI AVIATION MEDICINE SPECIALISTS IN KSA: A QUALITATIVE STUDY

DR. RAAD NADEEM MALIK

UNIVERSITY SAINS MALAYSIA

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DECLARATION

This is to certify to the best of my knowledge, the thesis is entirely the work ofthe candidate, Dr. Raad Nadeem Malik.

DR. MUHD AL-AARIFIN ISMAIL
(Main Supervisor)
Department of Medical Education
School of Medical Sciences
University Sains Malaysia

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LIST OF ABBREVIATIONS

PAF	Pakistan Air Force
FS	Flight surgeon
KSA	Kingdom of Saudi Arabia
Av Med	Aviation Medicine
Splt	Specialist
IATA	International Air Transportation Association
USM	Universiti Sains Malaysia
GA	General Aviation
LCC	Low Cost Carrier
AME	Aviation Medicine Examiner
RBO	Role Based Others
CIDI	Carrier Identity and Development Identity
USAF	United States Air Force
SIT	Social Identity Theory
RIT	Role Identity Theory
INT	Identity Negotiation Theory
CSS	Command Support Staff
PSQI	Pittsburg Sleep Quality Index
TSST	Trier Social Stress Test
CAR	Cortical Awakening Response

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ABSTRAK

Walaupun industri penerbangan ketenteraan dan komersial agak baru, mereka telah mengalami inovasi dan perkembangan yang ketara. Tentera Udara Pakistan (PAF) mengekalkan statusnya sebagai salah satu angkatan udara terbesar di dunia, dengan pakar penerbangan melaksanakan komitmen operasi dengan penempatan sepanjang masa. Pakar perubatan penerbangan yang juga dikenali sebagai pakar bedah penerbangan, memainkan peranan penting dalam kesihatan dan kesejahteraan anak kapal PAF dan kru darat teknikal untuk memastikan kecergasan penerbangan mereka. Walaubagaimanapun, sehingga sekarang, tiada kajian dilakukan untuk mengkaji identiti profesional pakar bedah penerbangan PAF. Kajian ini meneroka identiti profesional Pakar Perubatan Penerbangan Pakistan yang bertugas di Kerajaan Arab Saudi. Reka bentuk kualitatif telah digunakan, dengan analisis tematik sebagai kaedah yang dipilih untuk menganalisis data. Pakar bedah penerbangan lelaki Tentera Udara Pakistan dengan pengalaman sekurang-kurangnya lima tahun dalam bidang tersebut telah terlibat dlam kaian ini. Ia melibatkan 13 peserta yang dipilih melalui persampelan bertujuan. Peserta memberikan persetujuan setelah membaca helaian maklumat yang menerangkan tentang kajian ini. Empat tema utama muncul iaitu, 1) identiti profesional dalam perubatan penerbangan, 2) ciri-ciri pakar perubatan penerbangan yang baik, 3) menjadi pakar perubatan penerbangan yang berjaya, dan 4) profesionalisma dan kesediaan. Temubual dengan pakar bedah penerbangan yang berpengalaman telah dianalisis untuk memahami identiti profesional mereka. Setiap subtema dibincangkan berhubung dengan pengalaman sebagai doktor perubatan. Analisis tematik menjelaskan landskap heterogen yang dicirikan oleh halangan dinamik dan keperluan khusus dalam bidang perubatan penerbangan. Tema yang dikenal pasti menyerlahkan keperluan unik sektor

penerbangan tentera, menekankan kepentingan pendekatan berasaskan bukti, kaedah kolaboratif dan komitmen terhadap pembelajaran berterusan. Kajian ini mendapati perlunya ada keseimbangan antara kepakaran dalam bidang perubatan dan kemahiran dalam operasi, menekankan tentang komunikasi yang berkesan, kerjasama dan tindakan segera. Konsep profesionalisma dan semangat terserlah, menunjukkan komitmen terhadap piawaian etika dan penglibatan aktif. Kajian ini menggariskan kepentingan ketabahan, pengabdian, dan penyesuaian dalam bidang perubatan penerbangan yang berkembang, menekankan peranan kritikalnya dalam memastikan keselamatan dan kebajikan anak kapal.

ABSTRACT

Although the military and commercial aviation industries are relatively new, they have experienced significant innovations and developments. The Pakistan Air Force (PAF) maintains one of the largest air forces globally, with aviation specialists performing demanding operational commitments and deployments around the clock. Aviation medicine specialists, also known as flight surgeons, play a crucial role in the health and well-being of PAF aircrew and technical ground crew, ensuring their flying fitness. However, to date, no study has examined the professional identity of flight surgeons in Pakistan's aviation sector. This study explores the professional identity of Pakistani Aviation Medicine Specialists in the Kingdom of Saudi Arabia. A qualitative design was employed, with thematic analysis as the selected method for analysis. Pakistan Air Force male flight surgeons with a minimum of five years of experience in the field were recruited. The study included 13 participants, selected through purposive sampling. Participants provided consent after reviewing an information sheet that described the study. Four main themes emerged which are, 1) professional identity in aviation medicine, 2) qualities of a good aviation medicine specialist, 3) becoming a successful aviation medicine specialist, and 4) professionalism and willingness. Interviews with experienced flight surgeons were analyzed to understand their professional identity. Each subtheme was discussed in relation to the doctors' experiences. The thematic analysis clarifies a heterogeneous landscape characterized by dynamic obstacles and specific requirements in the field of aviation medicine. The identified themes highlight the unique needs of the military aviation sector, emphasizing the importance of evidence-based approaches, collaborative methods, and a commitment to continuous learning. The study reveals the delicate balance required between medical and operational success, stressing

effective communication, collaboration, and prompt action. The concept of professionalism and enthusiasm stands out, demonstrating a commitment to ethical standards and active involvement. The study underscores the importance of tenacity, devotion, and adaptation in the evolving field of aviation medicine, emphasizing its critical role in ensuring the safety and welfare of aircrew.

CHAPTER – I
INTRODUCTION

1.1. Title

Professional Identity among Pakistani Aviation Medicine Specialists in KSA: A Qualitative Study

1.2. Background of the Study

It is normal to start a conversation with someone you just met by inquiring about their profession. Individual could talk about our families, our hobbies, and our hometowns in more detail. It is important to consider why someone decides to use particular phrases as a means of self-identification. While everyone has their own details, it has been studied for decades why certain people base their sense of self on their occupation while others base it on social activities, family dynamics, sexual orientation, etc. It has been highlighted that the distinct sense of pride associated with the aviation profession (Grefe & Peyrat-Guillard, 2020). The pursuit of a wide range of professional accomplishments is just as demanding as being an expert in aeronautical medicine (Schultz, 2018). Nonetheless, specialists in aerospace medicine, sometimes referred to as aviation medicine specialists, frequently form an organizational relationship associated with their aspirations for flying, which serves as an immediate recognition of what they believe best characterizes themselves (Helmreich & Merritt, 2017). Their unique professional demands and aspirations formulate the professional identity of an aviation medicine specialist. Helmreich and Merritt (2017) aviation specialists consider them as an intehral part of aviation industry and consider them at par with other aircrew. Despite the significance of this

connection, there is limited research focusing specifically on how aviation medicine specialists, particularly those from Pakistan working in Saudi Arabia, develop their professional identities. In this study, a group of Pakistani aviation medicine specialists employed in Saudi Arabia had their professional identities examined. The objective of the qualitative approach, an explanatory technique, was to determine the degree to which a professional identity component influences a professional one examining how their roles and experiences influence their self-perception and professional development. This study aims to fill this gap by exploring the professional identity of these aviation medicine specialists.

1.3. Overview of the Aviation Industry

Although the commercial aviation business is relatively new, it has experienced significant innovations and developments. The United States Congress was regulating the airline sector in 1938. Regulation avoided monopolies and consequently high pricing (Miller et al., 2020; Thomas, 2011). In order to control the "capacity and frequency, airfares, freight levels, and air traffic freedoms Cento introduced, of 52 states, new accords and reforms which were previously created in 1944 at the Chicago Convention (Cento, 2008). To fly aircraft across borders, the states signed bilateral agreements (Dimitrakis, 2009). Also established was the International Civil Aviation Organization (ICAO).

Deregulation, often referred to as market liberalization, began in the United States in 1978 and caused a revolution in the sector. Because Low Cost Carriers (LCCs) began to enter the market, passenger numbers rose and ticket prices fell (Ison, 2017). Additionally, the advent of LCCs heightened competitiveness in the aviation sector (Gillen & Lall, 2018) . A decade or so later, European airspace began to deregulate,

with full implementation taking place in 1997 (Lawton, 2017). Airlines could "compete freely on routes, frequencies, prices and service levels" at that point (Bowen, 2019). The effects seemed to happen a little more slowly, but they were comparable to those in the US. The European Union and the United States were able to reach an agreement on open skies in 2008. This statement allowed airlines operating between the United States and the European Union to operate without any limitations. However, (Pell et al., 2018) points out that other foreign markets continue to be regulated. According to the Thomas (2023), the aviation sector is "the only truly worldwide transportation system" and has a significant impact on the global economy (Thomas et al., 2023).

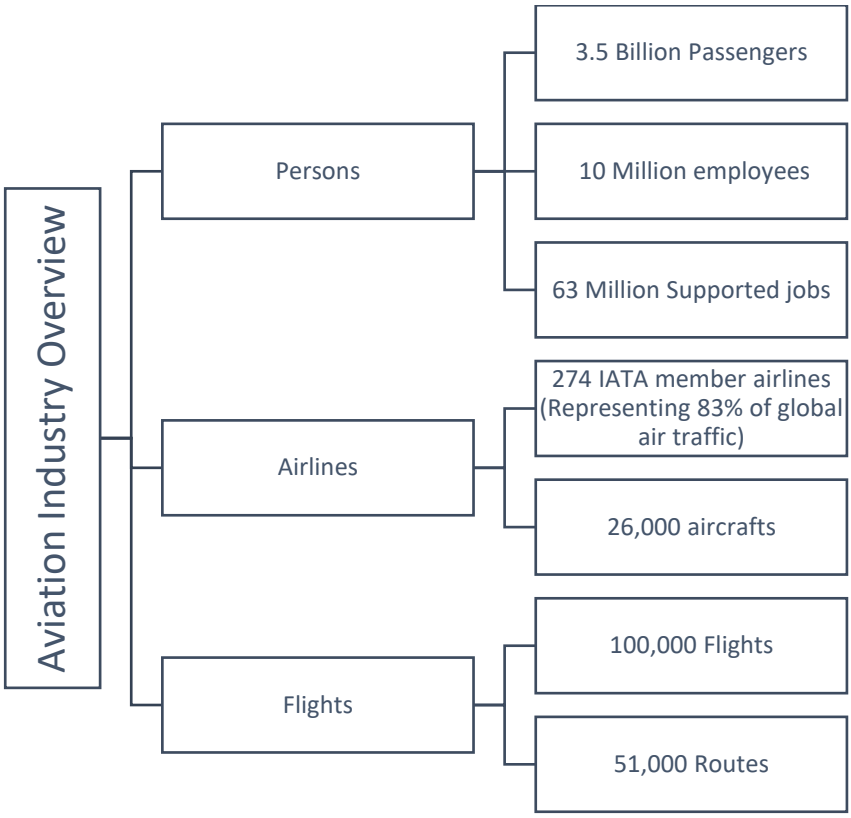

Figure 1 Aviation industry in figures

Source: (Karaman et al., 2018)

Figure 1 illustrates the impressive volume of operations and financial contributions generated in 2016. The global economy is boosted by 3.5 billion passengers carried

on more than 50,000 routes and over 60 million supported employments globally. Every day, more than 26,000 aircraft are used to conduct more than 100,000 flights. The numbers thus emphasize the necessity for aviation medicine specialists in the aviation sector.

1.4. Human Factors Association with Flying: Need Assessment

While technology and medicine are both concerned with people, they do so in quite different ways. It focuses mostly on healthy individuals, their typical behavior and performance, and the variables that affect them (Paradis & Sutkin, 2017). In order to fit workspace configurations, protocols, equipment, and environmental controls to these human traits and improve both system performance and people`s well-being, this research attempts to comprehend these traits (Parker & Grote, 2022).

All facets of human performance and behavior are now included, including decision-making and other cognitive processes, display and control design, cockpit and cabin layout, communication, computer software, maps and charts, and the crucial area of operating manuals, checklists, and other documentation (Hawkins & Orlady, 2017). The physiological impacts of noise, vibration, cold, and acceleration forces were among the many early worries concerning man in flight (Imms et al., 2017). It also involves hiring, training, and investigating accidents involving personnel. Clearly, there has been a movement toward the psychological components of human behavior (Hawkins & Orlady, 2017). As a result, in the area of preventive medicine, a flight surgeon should be qualified to advise flying personnel on long-term strategies to maintain their health. This is to guarantee a full flying career with the lowest possible chance of injury. Pharmacology, or medicine and medications and their suitability for

aviation specialists, is one area of competence for aviation physicians (Mosier et al., 2017).

1.5. Overview about the role of Aerospace Medicine Specialist

A subspecialty of preventive medicine known as aerospace medicine works to advance the clinical and preventive health of astronauts and space travellers. Aerospace medicine and aviation medicine make up the two broad categories. The development of mechanized flight in the early 20th century marked the beginning of aviation medicine named Aerospace Medicine Association, whereas space travel in the 1960s marked the beginning of aerospace medicine (Arora, 2017). Health concerns span from standard ambulatory care concerns to aerospace-specific matters such as low oxygen levels, radiation exposure, low barometric pressure, accelerative forces, and physiological alterations brought on by microgravity (Dobney et al., 2023) A solid grasp of human physiology, fundamental physics, toxicology, infectious diseases, and engineering principles forms the basis of all these problems (Arora, 2017).

Aerospace medicine specialists typically manage safety-related issues at various regulatory bodies, provide medical care to individuals exposed to flight and space, and offer consultation on the engineering and physical components of the flying environment (Dobney et al., 2023). They have the option of specializing in space travel, military aviation, or civil aviation (Dobney et al., 2023). The Occupational Safety and Health Administration, the Centers for Disease Control and Prevention, the Department of Transportation, commercial or corporate airlines, the Federal Aviation Administration, the Department of Transportation, or an aerospace

manufacturer could employ them. In addition to developing aerospace health care systems, practitioners can opt to concentrate on medical research, teach, or consult on a range of preventive, occupational safety, and environmental programs (Bright, 2021; Stephens, 2003).

For several reasons, emergency medicine and aerospace medicine are complementary fields. For each, patients must be assessed and stabilized in an environment that is not entirely regulated. Aircraft crashes are prepared for training of mass casualty situations, and manned space flight is prepared for disaster handling in aerospace medicine training, out-of-hospital treatment, radiation exposure and toxicology (Rodenberg et al., 1995). Aviation medicine shares many clinical issues with emergency medicine, from treating multiple trauma patients following an aircraft accident to managing an aircrew medical clinic. These issues may be like those encountered in the area of an emergency department or as out patient department / walk in clinincs. Furthermore, astronautics has many fundamental principles with emergency medicine, including the need for problem-solving and teamwork (Paoletti et al., 2020).

Depending on their specialty, doctors in aerospace medicine may follow different daily protocol. To manage the health of aviation specialist, flight attendants, and ground crew, for example, a big airline would employ a medical consultant. Running daily clinics to handle medical issues like barotrauma, occupational injuries (back pain is a prevalent complaint) and return to work assignments are likely among the responsibilities he or she will have on behalf of the airline crew (Landon et al., 2017). Typically, the aviation medicine consultant is an experienced aviation medical examiner (AME) who issues pilot medical certifications from the US Civil Aviation

Authority, the Canadian Civil Aviation Authority, or the United Kingdom Civil Aviation Authority or any other aviation regulatory body globally(Sgobba et al., 2018).

1.6. Safety Statistics

Safety is the top priority for the aviation sector, and they work hard to enhance it continuously. However, incidents and accidents do happen for a variety of causes.

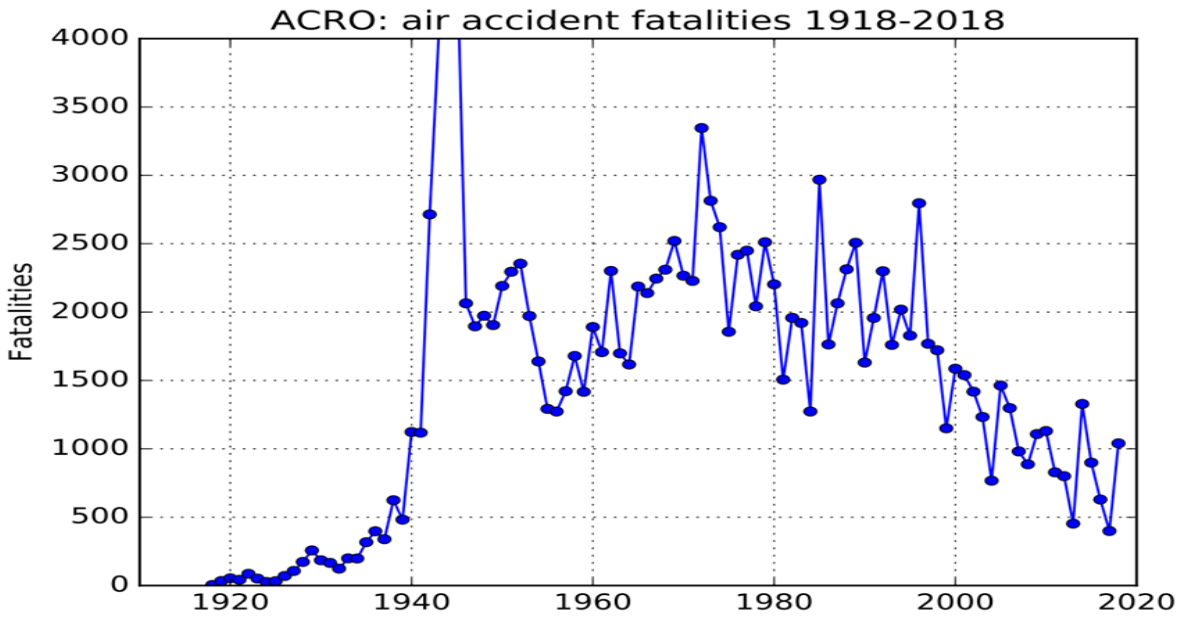

Figure 2 Accident Overview

Source: IATA Safety Fact Sheet, 2020

Both the annual flight count and the number of accidents that occurred between 1920 and 2020 are listed in the IATA accident overview that is displayed above. There was a rise in both fatal accidents and fatalities between 1920 and 2000, however these figures decreased when compared to the five-year average, suggesting that aviation safety was generally on the rise (Hettiarachchi, 2020). These are the primary causes of the increased attention that nations, in both the military and the commercial spheres, pay to the health and welfare of aviation specialists, aviators, and other

aircrew and ground personnel. The first line of defence or treatment for these military members is aviation medicine, which includes flight surgeons, aviation physicians, and nurses.

1.7. Training of Aviation Medicine Specialist / Flight Surgeon

Aviation Medicine specialists also known as Flight Surgeons are educated and prepared to offer military, commercial, and private healthcare to aircrews and their families not only emergency or primary care, but also specialized services. They serve as a link between several aviation tiers and must also possess outstanding communication skills to properly tell air and ground crew about any health concerns they may be having. Aviation medical specialists also have a primary responsibility to ensure the mental health of aviation specialists. Periodically doing medical examinations on crew members is another crucial duty allocated to aviation medicine specialists / flight surgeons. The frequency of the medical examination may range from twice a year to once a month, depending on national regulations.

In military settings, however, flight surgeons must build rapport with their aircrew members. Unless the flight surgeon is the aviator's confidant, the aviator will not communicate or open up about his personal or health-related problems (Clegg, 2023). Any aircrew member can having low trust, depending on how much they trust or don't trust an aviation physician of their squadron or unit. Nonetheless, a broad consensus and certain earlier research on aviation specialists in the United States Air Force (USAF) revealed that they had little faith in their flight surgeons (Bor, 2018). Because to its geographical location, Pakistan Air Force (PAF) also maintains one of the biggest air forces in the world, with aviation specialist

performing demanding operational commitments and deployments around the clock (Singh, 2023).

The flight surgeons have an important role in the health and well-being of PAF aviation specialists and in keeping them flying worthy. However, no study has been conducted in PAF so far that can determine the professional identity of PAF aviation medicine specialists / flight surgeons that can help an aspiring doctor to be a better physician for his aircrew, neither any study was found for PAF aircrew that can showcase effectively the responsibilities of flight surgeons (Iqbal, 2018). In comparison to regular general duty medical officers (GDMO) or specialists in the hospital, aviation medicine specialists have appropriate time and planning environments when in flying units / squadrons, but it is unclear what tasks they are up to. They also typically take on higher administrative appointments later in their military medical and healthcare careers.

1.8. Objectives of the Study

The current study aims to explore the following objectives:

General objective:

To explore the professional identity of Pakistani Aviation Medicine Specialists working in Kingdom of Saudi Arabia (KSA).

Specific Objective:

1. To investigate the specific attributes and components that constitute the professional identity of Pakistani Aviation Medicine Specialists in KSA.

2. To analyze the role of personal values and professional competencies in shaping the professional identity of Pakistani Aviation Medicine Specialists in KSA.

1.9. Conceptual Framework

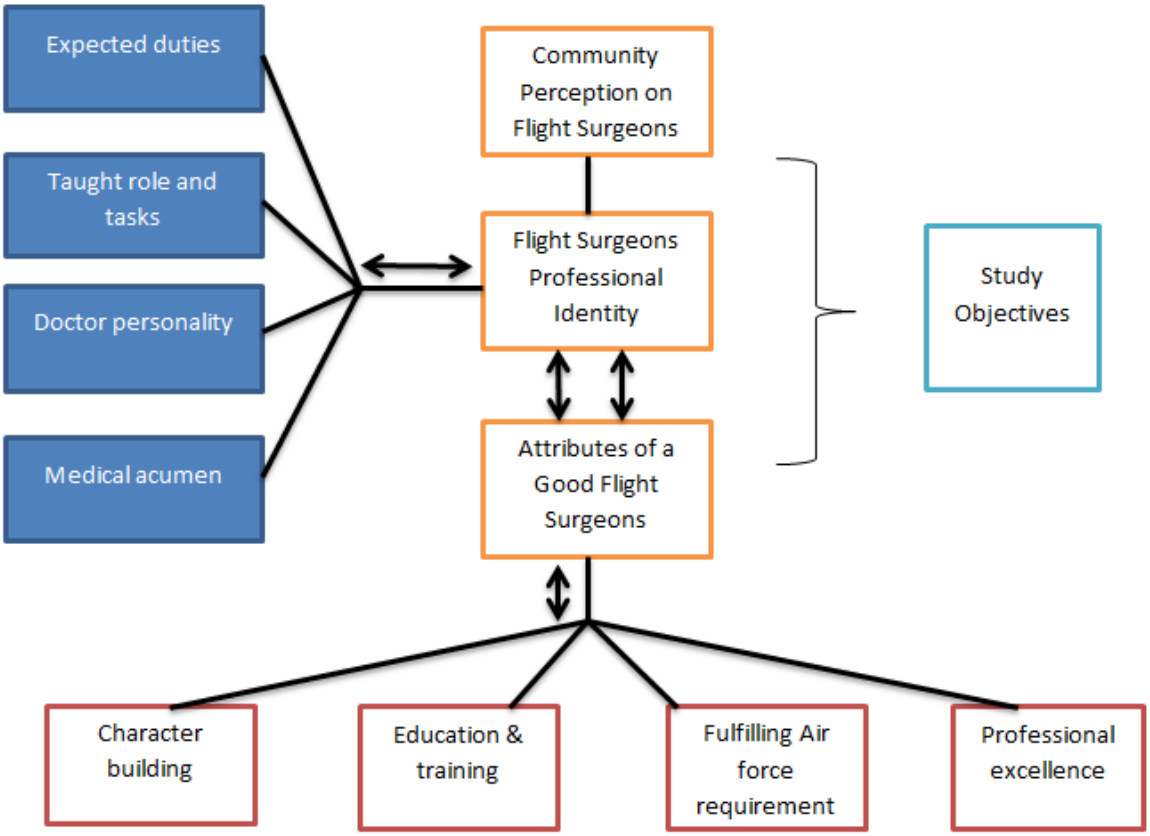

Figure 3 **Conceptual Framework**

1.10. Operational Definition

Professional Identity of Aviation Medicine Specialists: In the context of this study, the professional identity of aviation medicine specialists refers to the distinct and multifaceted sense of self that these professionals develop through their roles and experiences within the aviation medicine field. This identity encompasses their personal values, professional competencies, roles and responsibilities, and how they navigate the dynamic environment of aviation medicine. It includes the alignment of their skills and knowledge with the demands and expectations of their occupation, their ability to manage the specific challenges of their role, and their interaction with both military and technical contexts. This identity is shaped by their experiences, the cultural and organizational environment, and the evolving nature of aviation medicine.

Measured by Semi-structured interviews with open-ended questions were conducted to explore specialists' self-perceptions, role descriptions, and integration of their professional identity into daily practices.

Professionalism and Willingness: It is defined as the commitment of aviation medicine specialists to ethical practices, professional development, and their proactive engagement in professional responsibilities.

Measurement by a survey in semi structured intwrview assessing aspects such as adherence to ethical standards, participation in continuous education, and willingness to take on additional responsibilities. Example items include: "I regularly participate in professional development activities" and "I am willing to go beyond my job requirements to ensure patient safety."

Becoming a Successful Aviation Medicine Specialist: It is defined by the factors and pathways that contribute to the perceived success and recognition of aviation medicine specialists within their profession.

Measurement by a Qualitative narrative interviews where specialists describe their career paths, key milestones, and factors contributing to their success. Example prompts include: "Can you share your career journey in aviation medicine?" and "What do you believe were the key factors in achieving your professional success?"

Qualities of a Good Aviation Medicine Specialist: in this study is defined by the essential attributes, skills, and behaviors that are deemed necessary for effective performance and recognition in the field of aviation medicine.

Measurement by a combination of surveys and interviews during each interactive seesion with the particpant. Surveys used questions where participants rate the importance of various qualities (e.g., technical expertise, interpersonal skills). Interviews included questions like: "What qualities do you believe are essential for a successful aviation medicine specialist?" and "How do these qualities manifest in your daily work?" etc.

Aviation & Aerospace Medicine: A specialized branch of medical science concerned with those medical problems encountered in human flight in the atmosphere (aviation medicine) and beyond the atmosphere (space medicine). (Encyclopedia Britannica, April 8, 2019. https://www.britannica.com/science/aerospace-medicine).

The ultimate aim of this specialty is to promote the safety and effectiveness of humans while they are;

- exposed to the stresses of aerospace flight

- low atmospheric pressure
- radiation, noise, vibrations, oxygen deprivation
- strong forces of acceleration and deceleration
- Hazards of space flight include weightlessness, motion sickness, pilot fatigue
- Discomfort from hunger or sleepiness due to the absence of the Earth's day-and-night cycle
- psychological disturbances caused by confinement and isolation (DeHart & Davis, 2003).

Aviation Medicine Specialist / Flight Surgeon: Physicians who are trained in aviation and aerospace medicine are known as flight surgeons, there roles are

- In civil and military medicine setips to establish and apply appropriate medical standards for the certification and selection of pilots and other flight personnel
- Flight-crew training in first aid and in the prevention of illness and injuries among passengers in flight
- Provide assistance in training paramedical staff in the aerial transportation of patients
- To apply the principles of preventive medicine to avert the spread of disease by air travel
- Post flight medical evaluations of astronauts to identify any adverse effects of space flight on the body
- During space flight, they monitor physiologic responses of astronauts and advise them on the management of in-flight medical problems
- They often help to develop the vehicles, emergency systems, and protective equipment for manned aerospace flight

adopted from Army Regulation 616–110, *Selection, Training, Utilization, and Career Guidance for Army Medical Corps Officers as Flight Surgeons*, 19 March 1986, page 4.

Professional identity: "A representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician."

Professional identity formation: "An adaptive developmental process that happens simultaneously at two levels: (1) at the level of the individual, which involves the psychological development of the person and (2) at the collective level, which involves the socialization of the person into appropriate roles and forms of participation in the community's work." (Cruess et al., 2019).

CHAPTER – II

LITERATURE REVIEW

2.1. Theory of Social Identity

A number of hypotheses have been put forth in an attempt to piece together a hierarchy of how an individual assigns importance to the elements that make up their own identity (Denzin, 2017). The Theory of Social Identity provides a comprehensive framework for understanding how individuals develop their self-concept through various social roles and affiliations (Blommaert et al., 2017). Supervising suggestions are related to how people build a self-perception based on their roles in their careers, families, religious organizations, and other social groups, as well as their interactions with them (Kunrath et al., 2020). The idea of assessing a particular responsibility or function as a characteristic that distinguishes a person's character calls attention to the Identity Theory method, which was introduced by sociologist Sheldon Stryker in 1968. According to Stryker, individuals internalize the roles they occupy in social structures—such as careers, families, and communities—and these roles contribute significantly to their self-identity ((Blommaert, 2017). This approach posits that self-concept is influenced by the social roles individuals assume and the value they place on these roles. According to Crockett (2023), the basic tenet is centered around the notion that "social behavior is influenced by one's own society".

Identity has been deconstructed in a plethora of ways since it was first discussed, usually by drawing on Identity Theory's foundations while also proposing new elements like shared bases. Identity theory suggests that an individual defines themselves based on how important a part they believe they play in life. The saliency

of a particular relationship and its degree of embeddedness might be imposed by the societal setup of said role (Crockett, 2023). Identity Theory has been further developed through the work of Henri Tajfel and John Turner, who introduced Social Identity Theory in the 1970s. Social Identity Theory focuses on how individuals categorize themselves and others into social groups, which impacts their self-esteem and intergroup behaviors. Tajfel and Turner's seminal work demonstrated that people derive part of their self-concept from the groups to which they belong and that intergroup comparisons can lead to ingroup favoritism and outgroup discrimination (Tajfel et al., 1979).This theory emphasizes the importance of group membership in shaping individual identities and behaviors (Tajfel et al., 1979)

In parallel, John Turner and colleagues developed Self-Categorization Theory, which extends Social Identity Theory by exploring the cognitive processes involved in categorizing oneself and others into social groups. Self-Categorization Theory explains how individuals shift between personal and social identities depending on the context and how this shifting influences behavior and attitudes (Turner & Reynolds, 2003)This theory provides insight into the fluid nature of identity and the psychological mechanisms underlying social categorization.

Furthermore, if the people in our social groupings are role-based and fit into the same categories as us, the people we surround ourselves with under this role may also lead to stronger attachment (Zhang & Parker, 2019).

Meyers (2023) and Spears & Otten (2017) developed their respective Social Identity Theories and Self-Categorization Theories based on Identity Theory (Meyers, 2023;

Spears & Otten, 2017). The focus of Social Identity Theory was on social comparison and group bias, but Self-Categorization Theory went deeper into the thought process involved in personal classification (Verkuyten, 2021). As our grasp of identity grows, these theories along with other long-standing concepts are employed extensively. These beliefs generated a strong desire to delve deeper into the attraction that aviation has on an individual, be it socially, professionally, or both (Verkuyten, 2021).

The importance of social links on role identity difference was an attempt highlighted by Walker and Lynn (2013). Walker and Lynn (2013) investigated the impact of role-based others (RBOs) on personal identity by utilizing social network analysis and name generators to investigate the degree of commitment to a particular personal label. A research participant's social network was created using name generators. The social circle that a participant thought was important to include on their list served as an independent variable and was characterized as social attachment with a focus on role-based relationships (Walker & Lynn, 2013). The independent factors of total embeddedness and emotional connection were also investigated. The Walker and Lynn (2013) study defines these variables in the following way: 1. The term "the proportion of ties to role-based others" describes social attachment. 2. The term "average strength of ties to role-based others" describes emotional attachment. 3. The concept of "breadth of access that an individual's role-based group has to the rest of his or her social world" is established by embeddedness (Walker & Lynn, 2013).

The dependent variable that might be influenced by a person's social network was the overall identity salience, which Walker and Lynn (2013) defined as "the probability of enacting an identity in and across social situations." According to Walker and

Lynn (2013), identity theory postulates that membership in role-based communities causes "role expectations to be internalized into self-concept." In this sense, emotional attachment frames commitment. Walker and Lynn (2013) investigate whether role salience is more influenced by the quantity of social links or only the quality of those ties. In order to determine whether increased role-based connections would positively correlate with increased role-based identity salience, Walker and Lynn (2013) conducted research to find out if increased bond strength of said connections would positively correlate with increased role-based identity salience, and if increased embeddedness of role-based others in one's social network would correlate with increased role-based identity salience ((Walker & Lynn, 2013).

As a result, the study suggested that embeddedness was starting to define a person's identity more. Among many other breakthroughs, this discovery could result in a more tangible area of understanding regarding our self-perception and how it influences the lives we lead. There is a reason and rationale for the function that we play in society and in the workplace. These categories based on roles don't have to be unique or different. The research for this thesis aims to identify features of one role-based group harmonizing with the other inside a single mental scape in the context of professional and general aviation flying, where the role-based groups have such commonalities.

Further studies have built on these foundations to explore various dimensions of social identity:

Ashforth and Mael (1989) examined how organizational identification influences individual behavior. They argued that when employees strongly identify with their organization, their personal values and goals become aligned with those of the

organization, leading to increased commitment and performance (Ashforth & Mael, 1989).

Ely and Thomas (2001) explored the impact of diversity on organizational identity. Their research highlighted that diverse social identities within organizations can lead to both positive outcomes, such as enhanced creativity, and challenges, such as identity conflicts, emphasizing the need for effective management of diversity (Ely & Thomas, 2001).

Schwartz et al. (2012) investigated the role of identity exploration and commitment in various life domains, including career and personal relationships. They found that identity exploration, particularly during adolescence and young adulthood, is crucial for developing a coherent sense of self across different contexts (Schwartz et al., 2005).

Levin et al. (2002) focused on the influence of identity on intergroup relations, demonstrating how individuals' perceptions of their own and others' social identities affect intergroup interactions and conflict (Hässler et al., 2022)

Hogg and Abrams (1988) extended Social Identity Theory to include the concept of social identity salience, exploring how the prominence of certain social identities influences individuals' behavior and their responses to social contexts (Abrams & Hogg, 2006).

Breakwell (1986) examined the psychological impact of social identity on self-esteem and well-being. Her research emphasized that threats to social identity can

lead to stress and defensive behaviors, highlighting the importance of maintaining a positive social identity for psychological health (Breakwell, 2021).

These studies collectively enrich our understanding of how social identity is formed, maintained, and influenced by various factors, including social roles, group memberships, and personal and organizational contexts. They underscore the dynamic and multifaceted nature of identity and its significant impact on individual behavior and social interactions.

2.2. Identity of Professionals

The formation of professional identity has been a major focus in identity research, with various theories offering insights into how professionals develop and maintain their self-concept. Potential factors for research in this study were established by looking at earlier work that focused on identity formation specifically in relation to social and professional development. The concept that "the development of professional identities occurs as a natural byproduct of a progression through each career phase" is examined by Kamble and Munna (2020) (Kamble & Mulla, 2020). they emphasized the importance of attachment and belonging in shaping one's professional self Just till we get to the next level, we can be the same thing. Many have mentioned "attachment" and "belonging" as essential components of the identity dilemma (Barbour et al, 2020, for example). Barbour et al, (2020) investigate belonging, connection, and beliefs as essential components of an individual's professional identity through a thorough literature review, survey, and multi-level confirmatory analysis. They highlight how belonging to a professional category

significantly impacts identity formation, suggesting that attachment to a profession is crucial for maintaining a coherent sense of self.

It's firmly argued that once a certain construct be it professional or otherwise becomes a part of one's identity, then "belonging" is more or less assumed. It is noted that "attachment" on the other hand "reflects individuals' perceptions of the intensity of their connection to that category. ((Barbour et al., 2020; Kamble & Mulla, 2020). Additionally, a literature assessment by Laˈhdesmäki et al. (2019) emphasizes belonging as "a central concept of research increasing significantly in the 2000s."According to Viljanen et al. (2021), a sense of belonging is primarily driven by a need for attachment, with attachment being more emotionally charged. They argue that a strong sense of belonging can significantly enhance emotional attachment to one’s profession, fostering a deeper commitment and engagement (Lähdesmäki et al., 2020).

A person is more likely to feel that a community is an integral part of their soul if they perceive it as such, regardless of how that community is perceived in relation to the individual (Viljanen et al., 2021). The sense of connection to that concept would eventually develop in that mental state. The likelihood of this attachment and, consequently, a general sense of belonging improves with time spent in a particular community. Allen et al. (2021) further support this perspective by demonstrating that prolonged involvement in a professional community solidifies feelings of belonging to one’s profession, thus strengthening one's professional identity.(Allen et al., 2021).

The process of choosing a job usually goes hand in hand with the desire to find meaning in work and acquire benefits beyond financial gain. No matter how much work is put into making it happen, this prize is not assured. It is the consequence of dedication, passion, and hard work. Some people's professional identities can be highly important to them, while they are overpowering for others. Two key themes under professional growth are exploration and commitment, which Marcia et al. (1966) identify to distinguish between different degrees of career attachment as related to identity. The impact of a career on identity, further subdivided into statuses of success, foreclosure, moratorium, and diffusion, has emerged as a factor with a stronger potential for accurate quantification. These statuses reflect different stages of career exploration and commitment, offering a lens to examine how individuals navigate their professional paths. (Lucas, 1997).

Humans have long been believed to go through trial identities in their quest for a sense of purpose in their lives, a theory that was ultimately validated by Marcia (1966). This process is frequently built throughout an individual's adult life, casting doubt on many current identity measuring criteria that prioritize human development in the adolescent age range (Lucas, 1997). The mental battle that many people who live with unclear direction in the professional sphere experience is direct evidence of the significance of career identity (Wendling & Sagas, 2022). (Wendling & Sagas, 2022). According to Erikson (1968), developing a professional identity is crucial for an individual's fundamental functioning as they enter adulthood. To provide targeted support during its initial building, it is necessary to analyze the likelihood of discovering this life's meaning through professional standards more widely. After all,

creating any kind of product is always easier when we have a template to follow (Rogers, 2018).

Achievement, foreclosure, dispersion, and moratorium are broken down by Marcia (1966) as important connections to the definition of a career identity. accomplishment would follow extensive career research, showcasing those who have actively sought out their vocation and achieved enough accomplishment to have a strong sense of connection. A better definition of foreclosure would be accepting a career without actively exploring other options. Diffusion would be associated with people who have little interest in the process of discovery. Those who are experimenting following a crisis of professional identity are referred to as moratoriums (Marcia et al. 1993). Wendling and Sagas (2022) extended from other initiatives that derived from the same route structure in addition to Marcia's initial theoretical framework.

Wendling and Sagas (2022) adopted a quantitative approach of exploratory factor analysis of a proposed professional identity model examining carrier identity development inventory, for career exploration (CIDI-E) and commitment (CIDI-C), building on the concepts of Marcia (1966). It was hypothesized that there are quantifiable elements that make up a benchmark for career exploration and dedication. Investigated characteristics of people who are thinking about career paths as they make their approach toward basic professional establishment. Commitment aimed to address the degree of involvement present in those who have made a career decision and subsequently solidified it (Wendling & Sagas, 2022).