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## Unravelling career preferences: exploring health science students' perspectives on healthcare analytics

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### ABSTRACT

This study aimed to explore the factors influencing health science students' perceptions of healthcare analytics as a potential career. A qualitative study was conducted among final year health science students enrolled in Biomedical Science, Biotechnology, Nutrition, and Psychology programmes at a private university in Malaysia. Participants were recruited using purposive sampling. Data were collected through semi-structured interviews and analysed using thematic analysis until data saturation was achieved. Fifteen students participated in the study. Four main themes were identified: knowledge and scope, readiness, exposure to healthcare analytics, and perceptions of healthcare analytics as a career. Participants demonstrated limited understanding of the field, insufficient exposure, and gaps in required skills, particularly in coding. These factors contributed to low confidence and a lack of interest in pursuing healthcare analytics careers. Students' knowledge, skills, and exposure significantly influence their perceptions of healthcare analytics careers. Strengthening curriculum design, integrating technical skills, and providing experiential learning opportunities are essential to prepare a workforce capable of supporting data-driven healthcare.

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### SUBJECTS

Science; Bioscience; Biotechnology; Pharmaceutical Science; Pharmacy; Social Sciences; Education; Higher Education; Social Sciences; Tourism, Hospitality and Events; Hospitality; Research Methods

## Background

Healthcare analytics refers to the systematic use of data analysis tools, statistical methods, and computational techniques to collect, process, and interpret healthcare data to support decision-making, improve patient outcomes, and enhance the efficiency of healthcare systems (Tandon et al., 2025). Healthcare analytics is continuously advancing to meet the increasing demand for patient-centric care in this digital transformation world (Stoumpos et al., 2023). This transformation is not just a response to the demand for patient-centric care but also a strategic move towards enhancing diagnostic precision, monitoring efficacy, and treatment optimisation (Dionisio et al., 2023). Integral to this shift is the utilisation of data-driven approaches, with the healthcare sector contributing substantially to the global data volume, estimated at up to 30%. This data originates from diverse sources, including electronic health records (EHR), public repositories, patient registries, online portals, genetic databases, and wearable devices for health tracking (Kumar & Singh, 2019).

Building on this, healthcare analytics plays a critical role in transforming raw data into meaningful insights. Data analytics in healthcare has brought forth significant advancements, including the capacity to track and predict disease outbreaks, streamline resource allocation, and tailor treatment plans to

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individual patients (Wang et al., 2018). Along with this, Machine learning (ML) and Artificial Intelligence (AI) algorithms uncover patterns and correlations that are crucial for accurate diagnosis and effective treatment strategies (Camacho et al., 2018). The abundance of healthcare data highlights the necessity for efficient processing and interpretation mechanisms, prompting a call for a healthcare workforce equipped with new competencies (Brommeyer & Liang, 2022). While the integration of big data analytics holds promise for revolutionising healthcare, its rapid evolution necessitates competency and skill development among current students to ensure their readiness for the evolving demands of the field. Health science graduates possess the potential to contribute significantly to this interdisciplinary field given their understanding of the integration of data analytics (Davies et al., 2022). Studies indicate that the classroom environment plays a crucial role in shaping students' interest and engagement with specific subjects, with factors such as teacher support, cooperation, and equity exerting notable influences on students' perceptions (Otami et al., 2011; Tas, 2016).

In addition to global developments, these challenges are particularly relevant in the Malaysian healthcare context. In Malaysia, healthcare expenditure per capita witnessed a notable increase from 2016 to 2019, reflecting the growing financial burden associated with healthcare services (Zin et al., 2023). The escalating annual medical trend rate in 2022 further highlights the pressing need for innovative approaches to curb rising healthcare costs (Romanello et al., 2022). The COVID-19 pandemic has catalysed digital transformation within the healthcare sector, demonstrating its potential to enhance affordability and accessibility while simultaneously driving down expenses (Kruszyńska-Fischbach et al., 2022; Stoumpos et al., 2023). As Malaysia's healthcare undergoes rapid digital transformation, the interest of current health science students to navigate this evolving field remains uncertain. Understanding health science students' interest in healthcare analytics careers is therefore important for informing educational strategies and workforce development.

Therefore, this qualitative study seeks to explore why or why not health science students prefer healthcare analytics as their career choice for their post-graduation. This will provide insights that are essential for refining educational programmes and fostering the development of a competent workforce to address data-driven healthcare jobs.

## **Methods**

### ***Study setting and participants***

This study was conducted at a private university in Malaysia that offers various undergraduate science programs, including Bachelor of Science (BSc) degrees in Biomedical Science, Biotechnology, Nutrition, and Psychology. These programs have minimal or no components of healthcare data analytics in their curriculum. In Malaysia, health science students develop expertise in public health promotion, education, and disease prevention. Their role involves reducing disease burden, encouraging healthy behaviours, and improving healthcare access while lowering costs. Given their background in disciplines such as Biomedical Science, Nutrition, and Psychology, they possess foundational knowledge relevant to healthcare analytics. Their perspectives are essential for understanding how analytics can be integrated into healthcare practice. Final-year students were specifically chosen for their academic maturity and comprehensive understanding of their respective fields. Since their programs include little to no exposure to healthcare analytics, their insights highlight educational gaps and potential areas for curriculum improvement.

### ***Ethical considerations***

The study underwent an ethics review before the study implementation. The study's purpose was explained to all participants, who were assured that their participation would not impact their academic progress. Written consent was obtained before participation. To maintain confidentiality, all participants were de-identified in transcripts, and audio recordings were accessible only to the researchers.

## Interview and data collection

Participants were recruited through purposive sampling. *Inclusion criteria* were: (1) final-year undergraduate students enrolled in Biomedical Science, Biotechnology, Nutrition, or Psychology programs at the university; (2) ability to communicate in English; and (3) willingness to provide informed consent. *Exclusion criteria* were: (1) students not in their final year, (2) students from non-science programs, or (3) those who declined or withdrew consent. Twenty students (five from each program) were invited to participate, and fifteen students accepted the invitation (four from Biomedical Science, Biotechnology, and Psychology; three from Nutrition). The remaining five students did not participate; reasons for non-participation were not formally collected. In-depth interviews were conducted for those fifteen, each lasting between 30 and 45 minutes. All interviews were audio recorded and transcribed verbatim by the researcher. All interviews were conducted by the first author, a final-year Biomedical Sciences BSc (Hons) student trained in qualitative research methods under the supervision of the third author, an experienced pharmacy education researcher. Peer-to-peer interviewing was considered beneficial in promoting openness and rapport. To minimise potential response bias, participants were reminded that the interviewer had no role in their teaching or assessment, that participation was voluntary, and that their responses would remain confidential. Two researchers cross-checked the accuracy of the transcripts before returning them to participants for verification. The final approved transcripts were securely stored in password-protected Microsoft Word documents. Participant recruitment ceased once data saturation was achieved.

## Data analysis

Thematic analysis was conducted following the approach recommended by Braun & Clarke (2006). Data analysis was performed manually without the use of qualitative data analysis software such as NVivo. Manual coding was chosen to allow close engagement with the data and iterative reflection throughout the analytic process. The transcribed data were read repeatedly to ensure familiarisation, and initial codes were generated manually from meaningful units of text. For example, the statement “I don’t have any idea what their scope is” was coded as “lack of awareness of healthcare analytics,” which contributed to the development of the theme “Knowledge and Scope.” Similarly, comments referring to brief university workshops on coding and software were coded as “insufficient exposure,” which helped shape the theme “Exposure to Healthcare Analytics.” In the next phase, codes were examined to identify patterns, similarities, and differences. For instance, codes relating to lack of coding skills, limited statistical knowledge, and dependence on university workshops were grouped under a broader category of “Readiness,” reflecting perceived skill gaps. Meanwhile, codes reflecting perceived job characteristics (e.g. repetitive work, desk-bound nature, and lack of interaction) were categorised under “Healthcare Analytics as a Career.”

Themes were then reviewed to ensure internal coherence and distinction between categories. Subthemes were developed to capture tones within each theme, for example, within “Readiness,” subthemes included unaware of required skills, lack of skills, and lack of support. This process moved beyond descriptive coding towards conceptual interpretation, highlighting the underlying reasons for students’ limited interest and preparedness for healthcare analytics careers.

The initial coding was conducted by the first author with formal training in qualitative research methods. Two additional researchers (third author and fourth author), both with experience in qualitative health research and postgraduate-level qualifications, independently reviewed the codes and emerging themes. Discrepancies were discussed collectively until consensus was reached, enhancing analytical rigour and reducing individual researcher bias. Themes were checked against the dataset to ensure they were grounded in participants’ accounts and meaningfully addressed the research objective.

## Data trustworthiness

Trustworthiness was ensured through multiple strategies:

- *Credibility*: This was achieved through several techniques. Data saturation was assessed concurrently with data collection and analysis. Interviews were conducted and analysed iteratively, and saturation

was considered achieved when no new codes or themes emerged from successive interviews. After the fourteenth interview, data analysis indicated repetition of concepts without additional insights, and recruitment was therefore stopped after fifteenth interview. Researcher triangulation was used to compare interpretations among the researchers, strengthening the validity of findings.

- *Transferability*: Thick descriptions of participant characteristics, institutional context, and the sampling strategy are provided. This allows readers to determine whether the findings can be applied to other contexts or similar educational settings.
- *Dependability*: An audit trail was maintained throughout the research process, including documentation of field notes, coding frameworks, and reflective journals. These records ensured that the research process was transparent, systematic, and could be replicated or reviewed by other researchers.
- *Confirmability*: The researcher's reflexivity was integrated through reflective journaling to acknowledge and minimise personal bias. Peer debriefing and maintaining transparent decision-making during analysis enhanced objectivity and ensured that findings were driven by the data rather than the researcher's assumptions.

To maintain the integrity of the data, sentences were used as the unit of analysis rather than individual words or letters, allowing for more meaningful interpretation and reliable theme development.

## Results

This study identified four main themes: "Knowledge and Scope," "Readiness," "Exposure to Healthcare Analytics," and "Healthcare Analytics as a Career."

### Participant demographics

The demographic data of the participants are shown in [Table 1](#). There were eight females and seven males. There were 4 students each from Biomedical Science, Biotechnology and Psychology, and 3 students from the Nutrition programme.

The themes and the sub-themes are presented in [Table 2](#). Key quotes from participants supporting these themes are available in [Appendix A](#).

**Table 1.** Participants' demographic data.

Characteristics	No. of participants $n = 15$
<b>Gender</b>	
Male	7
Female	8
<b>Programmes</b>	
BSc Biomedical Science	4
BSc Biotechnology	4
BSc Nutrition	3
BSc Psychology	4

**Table 2.** Themes and sub-themes.

Themes	Sub themes
Knowledge and scope	Limited knowledge and narrow perception
	Unaware of required skills
Readiness	Lack of skills
	Lack of support
	Insufficient exposure
Exposure to healthcare analytics	Need hands-on training
	Lack of interest
Healthcare analytics as a career	Tedious statistics
	Unsuitable job style
	Feeling incompetence

## **Theme 1: knowledge and scope**

### **Subtheme 1.1: limited knowledge and narrow perception**

Participants demonstrated a basic understanding of healthcare analytics, often describing it in terms of disease prevalence and general data analysis. For example, one participant described it as identifying “how many people have a certain condition and whether it is significant enough to be a concern ... what interventions we should put in place,” while another referred to it as “analysing healthcare related data ... maybe the prevalence of certain diseases in the country.”

Some participants also associated healthcare analytics with operational aspects such as patient flow or individual health monitoring, suggesting misconceptions about its scope. For instance, one participant described it as “the flow of patient in a hospital or any healthcare organisation,” while another viewed it as analysing “your health conditions ... when you visit.”

Many participants believed that healthcare analytics directly contributes to improving patient treatment. This reflects a conflation between analytics and clinical care. Overall, these responses indicate a limited and sometimes inaccurate understanding of healthcare analytics and its broader applications.

## **Theme 2: readiness**

### **Subtheme 2.1: unaware of required skills**

Participants commonly identified mathematical and statistical skills as essential for healthcare analytics. For example, one participant stated that the role requires being “good with numbers ... analysing curves and statistical data.”

However, only a few participants recognised the importance of coding and computer science skills. Some referred to general IT competence, such as “competency with IT and computer science ... in terms of application of systems,” while others had only a vague understanding, noting that it was “something to do with coding.” This suggests a limited awareness of the full range of skills required for the field.

### **Subtheme 2.2: lack of skills**

Although some participants were aware of the required competencies, many acknowledged that they lacked these skills, particularly in coding and advanced statistical software. Participants reported only basic exposure to statistical tools, with one noting “I remember a little bit of SPSS,” while another described their skills as “very basic.”

A small number of participants had minimal coding experience, with one stating “I’ve had a little bit of experience with coding.” Overall, these findings indicate a gap between awareness and actual skill proficiency.

### **Subtheme 2.3: lack of support**

Participants highlighted that while some foundational skills were introduced through university workshops, exposure to coding remained limited. For instance, one participant mentioned that “we have workshops to learn those types of stuff.”

In contrast, some students relied on self-directed learning to develop skills. One participant explained that they had taken initiative through external resources, stating “there was a free course from MIT ... that’s where I learned.” This suggests a lack of structured institutional support for developing key competencies in healthcare analytics.

## **Theme 3: exposure to healthcare analytics**

### **Subtheme 3.1: insufficient exposure**

Most participants felt that their exposure to healthcare analytics within the university curriculum was limited and superficial. One participant stated that “we’ve only had a few classes and it’s not really a lot,” while another described the learning as “surface based, not really in depth.”

Limited access to relevant modules also contributed to this issue. Some participants reported that certain modules were difficult to enrol in due to limited availability, further restricting their exposure.

***Subtheme 3.2: need for hands-on training***

Participants emphasised the importance of practical, hands-on training in developing relevant skills. One participant noted that “if we want to go into that field... we need to emphasise more on software skills... maybe we need to know about coding.”

Others highlighted the need for earlier exposure, suggesting that such content should be introduced during pre-university education. As one participant explained, earlier exposure would allow students to consider healthcare analytics as a career option and provide sufficient time to develop the necessary skills.

***Theme 4: healthcare analytics as a career******Subtheme 4.1: lack of interest***

None of the participants expressed an active interest in pursuing a career in healthcare analytics. Some indicated that although it was initially considered, it was not shortlisted as a preferred option. For example, one participant stated that it “was one of the many options... but it wasn’t an option in the end,” while another directly expressed, “I don’t think I want to go into this field.”

***Subtheme 4.2: tedious statistics***

A key reason for this lack of interest was the perception that the work involves repetitive and monotonous statistical tasks. One participant described data-related work as “a bit too boring... you just look through numbers every day and it gets repetitive,” while another stated simply, “I don’t like working with numbers a lot.”

This perception contributed to negative attitudes towards the field.

***Subtheme 4.3: unsuitable job style***

Participants also perceived healthcare analytics as a desk-based role with limited interaction, which did not align with their career preferences. For instance, one participant stated a preference for roles involving people, noting they “like working with people and not just looking at data,” while another expressed dislike for “a desk job all day.”

This mismatch between job expectations and personal preferences further reduced interest in the field.

***Subtheme 4.4: feeling of incompetence***

Many participants reported feeling unprepared and lacking confidence to pursue a career in healthcare analytics. One participant stated that they “don’t really have the skills required to take up this kind of role.”

Coding, in particular, was perceived as a major barrier. Some described it as intimidating, with one participant noting that “the thought of having to code... was really daunting,” while another stated, “it’s not my choice because I’m not good at computers.”

These perceptions contributed to a sense of incompetence, discouraging students from considering healthcare analytics as a viable career option.

**Discussion**

This study on health sciences students provided valuable insights into healthcare education and analytics that may foster innovation and development in these fields. Final-year students’ perspectives on healthcare analytics ensure timely insights into this field.

The study revealed health science students’ limited understanding of healthcare analytics, evidenced by misconceptions and superficial knowledge. Many students associate healthcare analytics with patient status analysis, indicating a narrow perception of the field. This highlights the need for enhanced education to broaden students’ understanding. Addressing misconceptions and providing comprehensive training can better prepare students (Hazlegreaves, 2018) for careers in healthcare analytics. Such initiatives are vital for fostering a competent workforce capable of leveraging data-driven approaches to

address evolving healthcare challenges. Many students believe that healthcare analytics improves patient treatment. This is conflating healthcare analytics' scope. In reality, healthcare analytics help to identify at-risk individuals in need of chronic disease management services, resulting in better health outcomes and reduced costs (Borges do Nascimento et al., 2021). This limited understanding of scope warrants a need for a clearer explanation of healthcare analytics' multi-layered roles. Educators must emphasise its broader impact, ensuring students grasp its potential across various healthcare programmes.

Although this study was not grounded in a specific theoretical framework, these misconceptions and narrow perceptions can be understood through established behavioural and educational theory, such as the Technology Acceptance Model, which suggests that low perceived competence and limited exposure reduce engagement and interest in technology-driven fields (Rahimi et al., 2018). Without structured learning experiences that build confidence and familiarity, students are less likely to value or pursue careers in healthcare analytics.

The study highlights students' recognition of mathematical/statistical skills and statistical software fluency as predominant for healthcare analytics. However, the limited appreciation of coding and computer science skills suggests a gap in understanding the comprehensive skill set necessary for this field. Healthcare analysts rely on coding proficiency to manipulate and analyse large datasets effectively (Hazlegreaves, 2018). Educators must emphasise the importance of coding alongside statistical competencies to prepare students adequately for healthcare analytics careers. Also, educational institutions can better align students' skill sets with the diverse demands of the field by integrating coding and computer science training into healthcare curricula. The study findings reveal a disparity between participants' awareness and actual proficiency in coding and advanced statistical software. While some acknowledge the importance of these skills, many lack practical competence, particularly in coding. Basic statistical skills, predominantly acquired through university workshops, contrast with minimal exposure to coding. This suggests a reliance on institutional resources for skill development, with limited independent acquisition. To bridge this gap, educational institutions should offer more comprehensive training in coding and advanced statistical software, equipping students with the necessary competencies for success in healthcare analytics careers. Independent learning opportunities could also supplement institutional efforts to enhance skill acquisition (Butson et al., 2020).

Participants overwhelmingly expressed dissatisfaction with the level of exposure to healthcare analytics during their university education. Particularly, except for Biomedical Science students with brief coding introductions, students across disciplines reported inadequate exposure to coding. Reflecting on their weaknesses, students recommended earlier integration of software skills modules and exposure during pre-university courses. These findings highlight the need for comprehensive curriculum revisions, ensuring early and substantive incorporation of healthcare analytics components (Al-Omari et al., 2024). By addressing these gaps, educational institutions can better prepare students for the evolving demands of healthcare analytics careers, fostering a more competent and industry-ready workforce.

Strengthening healthcare analytics training also aligns with broader digital health workforce strategies and global frameworks that emphasise developing data-literate health professionals. Such alignment ensures students are equipped with the competencies required to support health system transformation and meet future workforce demands.

The study reveals a lack of interest in healthcare analytics careers among students, attributed to several factors. Predominantly, students expressed disinterest in mathematical practice, perceiving repetitive data analysis as monotonous and uninspiring. Many preferred more interactive careers, disliking the perceived desk-bound nature of healthcare analytics roles. Feelings of inadequacy and under-preparation, particularly regarding coding skills, emerged as significant barriers, fostering negative emotions towards pursuing such careers. Limited exposure further compounds this disinterest, with some participants dismissing healthcare analytics as a viable career option due to insufficient familiarity. Addressing these concerns through enhanced educational initiatives and experiential learning opportunities could help cultivate greater interest and readiness for healthcare analytics careers. These issues can be resolved by enhancing the curriculum with interactive elements (Tuma, 2021), and providing experiential learning

opportunities (James, 2022). Encourage continuous professional development to instil confidence and competence (Campbell et al., 2010).

These findings also have implications for the future healthcare workforce. If interest and preparedness remain low, there is a risk of a shortage of skilled professionals in healthcare analytics, which could limit the healthcare system's capacity to fully leverage digital transformation. Proactive strategies to build awareness, skills, and confidence are essential to ensure workforce readiness.

### **Strengths and limitations**

This study provides timely insights into students' perceptions of healthcare analytics and identifies key educational gaps. However, findings are limited to one private university and may not fully represent other institutions. In addition, the use of purposive sampling may limit the generalisability of the findings, as participants were selected from a single private university and may not fully represent the views of all health science students in Malaysia. Students who agreed to participate may have had greater interest or awareness of healthcare analytics, which could introduce selection bias. However, purposive sampling was appropriate for this exploratory qualitative study, as it allowed in-depth exploration of participants' experiences and perceptions relevant to the research aims. Future research should include multiple universities and disciplines, or longitudinal approaches, to explore how perceptions evolve and assess the impact of targeted educational interventions.

### **Conclusion**

This study highlights the promising potential of healthcare analytics and its capacity to drive innovation and advancement within the healthcare sector. Addressing the identified challenges, such as strengthening the curriculum, integrating essential skills like coding and data analytics, and embedding experiential learning, can help develop a competent, industry-ready workforce. Continuous professional development and interactive learning opportunities can further foster students' confidence and engagement with healthcare analytics. Ultimately, these strategies will not only enhance healthcare education but also contribute to improved patient care and a more efficient healthcare system. These findings highlight the need for national strategies to integrate digital competencies into health science education and workforce development to fully realise the benefits of healthcare analytics.

### **Author contributions**

CRediT: **Wan Adriana Binti Wan Jasmin**: Data curation, Formal analysis, Investigation, Project administration, Resources, Writing – original draft, Writing – review & editing; **Chee Mun Fang**: Data curation, Formal analysis, Funding acquisition, Investigation, Resources, Writing – original draft; **Mari Kannan Maharajan**: Conceptualization, Funding acquisition, Project administration, Supervision, Validation, Visualization, Writing – review & editing; **Kingston Rajiah**: Conceptualization, Methodology, Validation, Visualization, Writing – review & editing.

### **Ethics approval and consent to participate**

This study received ethical approval from the University of Nottingham Malaysia ethics committee, ref no: WW211122. The study was performed in accordance with the ethical standards laid down in the Helsinki Declaration. Informed consent was obtained from all individuals.

### **Disclosure statement**

The authors declare that they have no competing interests.

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## About the authors

**Wan Adriana Binti Wan Jasmin** is a Kuala Lumpur-based professional, bringing experience shaped by roles across Petaling Jaya and Greater Kuala Lumpur. Adriana is actively engaged in the professional community, connecting with industry peers across Malaysia.

**Chee Mun Fang's** research primarily focuses on understanding the role of Interferon and Interferon Regulatory Factors (IRFs) in development of lymphoid cells, allergy, autoimmune diseases and carcinogenesis. His current works include vaccine development against various infectious diseases by using Salmonella as a carrier for vaccine delivery as well as characterization of immunomodulatory properties of bioactive fraction from plant materials.

**Mari Kannan Maharajan's** academic practice is rooted in designing and delivering integrated pharmacy programs at undergraduate and postgraduate levels (BPharm, Pharm D, MPharm-UK, Master in Pharmacy Practice (PG)). He have led initiatives embedding patient-focussed pharmacy education through simulation-based clinical training, interprofessional education, and prescribing-focused pedagogy - aligned with international accreditation standards (MQA, PBM -Malaysia and GPhC-UK).

**Kingston Rajiah** is an educationalist and researcher (FRSPH, FHEA) with expertise spanning social pharmacy, public health, health services research, determinants of health, and pharmacy education. His research combines both qualitative and quantitative methods, including focus group discussions, in-depth interviews, survey design, inferential statistics, and evaluation.

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## Data availability statement

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

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## Appendix A: Key quotes from participants supporting the themes

### Theme 1: Knowledge and scope

#### Subtheme 1.1: Limited knowledge

"How many people have a certain condition and whether it is significant enough to be a concern ... What interventions we should put in place." (P11, Biomedical student)

"It's just basically analysing healthcare-related data ... maybe the prevalence of certain diseases in the country." (P01, Psychology student)

"I think it's the flow of patient in a hospital or any healthcare organisation." (P15, Biotechnology student)

"Analyse your health conditions I guess when you visit them." (P06, Nutrition student)

#### Sub Theme 1.2: Limited understanding of scope

"They would be able to improve patient healthcare, drugs, or treatment. Maybe the treatment shows better outcomes" (P04, Biomedical student)

"Map certain diseases and how they are then maybe if we run analytics about it, then maybe they know how to provide help" (P07, Psychology student)

"I don't have any idea what is their scope" (P14, Biotechnology student)

"I have never heard of what is their future" (P13, Nutrition student)

### Theme 2: Readiness

#### Subtheme 2.1: Unaware of required skills

"I would say maybe good with numbers as well. Good with mathematical skills, analysing curves, analysing statistical data" (P04, Biomedical student)

*"I guess competency with IT and computer science as well, in terms of application of their systems." (P03, Biotechnology student)*

*"I think its something to do with coding" (P12, Psychology student)*

### **Sub Theme 2.2: Lack of skills**

*"I remember a little bit of SPSS." (P07, Psychology student)*

*"No, not at all. Maybe very basic ones." (P06, Nutrition student)*

*"I've had a little bit of experience with coding" (P04, Biomedical student)*

### **Sub Theme 2.3: Lack of support**

*"We have workshops to learn those types of stuff." (P05, Psychology student)*

*"There was a free course from MIT on DX, so yeah, that's where I learned." (P07, Psychology student)*

## **Theme 3: Exposure to healthcare analytics**

### **Sub Theme 3.1: Insufficient exposure**

*"Because we've only had a few classes and it's not really a lot." (P05, Psychology student)*

*"For data analysis, I would say it's just surface-based, not really in-depth." (P08, Biomedical student)*

*"Actually, there was a module we had for coding. It is the only issue for psychology students, as it is a limited space. So not everyone can get it and it's a very hard module." (P01, Psychology student)*

*"We had a module called epidemiology where we were introduced." (P04, Biomedical student)*

### **Sub Theme 3.2: Need hands-on training**

*"If we want to go into that field right - analytic, then we need to start the need to emphasize more on the software skills specifically ... If you want to run deep analysis, then maybe we need to know about [coding]." (P07, Psychology student)*

*"They should probably introduce us to this a lot earlier in our education [in] pre-uni courses.*

*... So we can even think that that's an option as opposed to finding out about it a bit later when some of us might not have the appropriate skills or wouldn't have enough time to develop the appropriate skills." (P03, Biotechnology student)*

## **Theme 4: Healthcare analytics as a career**

### **Sub Theme 4.1: Lack of interest**

*"It was one of the many, many options when searching for potential careers but when shortlisting ... it wasn't an option." (P05, Psychology student)*

*"I don't think I want to go into this field" (P02, Nutrition student)*

### **Sub Theme 4.2: Tedious statistics**

*"I think just personally, for me data is just a bit too boring. That is why I would not want to go into it. You just look through numbers every day and it's like it gets repetitive and you get tired." (P13, Nutrition student)*

*"I don't like working with numbers a lot." (P09, Biomedical student)*

### **Sub Theme 4.3: Unsuitable job style**

*"I'd probably like other things better because I like working with people and just not like looking at data" (P12, Psychology student)*

*"I don't prefer a 'desk job' all the day" (P10, Biotechnology student)*

### **Sub Theme 4.4: Feeling incompetence**

*"I don't really have the skills required to actually take up this kind of role." (P08, Biomedical student)*

*"I think the thought of having to code really ... It was really daunting to me. So yeah, that's why I kind of left it out." (P05, Psychology student)*

*"It's not my choice because I'm not good at computers." (P06, Nutrition student)*