



Correlation of Learning Difficulties with Anxiety: A Concurrent Embedded Mixed Methods Study

Gede Suwardika¹(✉), Agus Tatang Sopandi¹, and I Putu Oktap Indrawan²

¹ Fakultas Matematika Dan Ilmu Pengetahuan Alam Jurusan Statistika, UPBJJ Universitas
Terbuka Denpasar, Denpasar, Indonesia
isuwardika@ecampus.ut.ac.id

² Politeknik Ganesha Guru, Denpasar, Indonesia

Abstract. The purposes of this research were to determine: (1) the level of learning difficulties and student anxiety during the webinar tutorial (Tuweb); (2) the relationship between physical, behavioral, and cognitive dimensions of anxiety; (3) the relationship between the dimensions of learning difficulties and anxiety; (4) the relationship between the dimensions of learning difficulties and the dimensions of cognitive, behavioral anxiety, and partially cognitive; (5) other factors that influence anxiety during webinar tutorial (Tuweb) besides learning difficulties. In this study, we used concurrent embedded mixed method design, with the dominance of quantitative research. Data was collected through a questionnaire and disseminated using Google Forms to 97 Open University students who had attended a webinar tutorial. Quantitative data in the form of learning difficulties and anxiety levels were analyzed using Spearman's Rho Correlation, while qualitative data were analyzed using the qualitative descriptive method. The results showed that (1) 35.05% of students' learning difficulties are in a low category, while 31,96% of students had very severe (panic) difficulties; (2) there is a significant relationship between the dimensions of physical, behavioral, and cognitive anxiety; (3) there is a significant relationship between learning difficulties and anxiety; (4) there is a significant relationship between the dimensions of learning difficulties and the dimensions of cognitive, behavioral anxiety, and partially cognitive, with the learning materials and resources constraints in the webinar tutorial (Tuweb) presenting the highest correlation; (5) other factors that influence anxiety are difficulties in managing time to do office assignments, household activities, Balinese-social activities, and college assignments.

Keywords: Learning difficulties · Anxiety · Webinar Tutorial

1 Introduction

The 4.0 industry leads to technology-based learning, especially e-learning. In the 4.0 revolutionary era, the development of the internet, big data, and digital media such as VR and AR altered the look of the world of education, indicated by a paradigm shift

from face-to-face learning to e-learning. The implementation of e-learning is carried out entirely or partially. The partial implementation of e-learning is called blended learning. The Open University (UT) is one of the pioneers of distance learning among universities in Indonesia. There are two distance learning models at UT, namely online tutorials (*tuton*) and face-to-face tutorials (*TTM*) [1]. *TTM* is a model of learning assistance and guidance facilitated by tutors face-to-face in class. Meanwhile, *Tuton* is an internet-based tutorial service model or web-based tutorial (*WBT*). Distance learning at UT focuses on module-based independent learning facilitated by tutors. However, during the beginning of the pandemic in 2022, the *TTM UT* was transformed into a webinar tutorial (*Tuweb*) using *Microsoft Teams*, then in 2021, it was changed into a synchronous and asynchronous integrated e-learning tutorial. The synchronous tutorial was carried out using *Microsoft Teams* and the asynchronous using *lms.ut.ac.id* with coordination between tutors and students through *WhatsApp* groups. With these stages, UT is moving forward in the e-learning implementation.

Some UT students, especially in its learning unit of Denpasar, are studying while working, resulting in anxiety during the webinar tutorial learning process because they bear more significant obligations than those who do not work. Student anxiety can also be caused by a lack of experience since higher experience usually lowers anxiety levels [2]. A study reported that students' anxiety, distress, and other related symptoms due to the transformation from offline learning to online in 2020 because the COVID-19 pandemic decreased on average after 2022 [3], as students have proper adaptation and experience. In online learning, some students feel they must make a greater effort to interact since they are missing out on an essential component of face-to-face contact when they learn online [3].

The students' environment is physically, mentally, emotionally, socially, and morally dynamic and challenging. Everyone has adaptive mechanisms to deal with everyday stress. However, an overactive adaptation mechanism results in maladaptive, causing anxiety [4]. Investigation of students' anxiety during webinar tutorials is essential because high anxiety reduces learning outcomes [5], while efforts to reduce students' anxiety levels can increase the effectiveness of webinar tutorials. In addition, negative emotions carry a bold impact on learning, enhancing students' focus [2].

A study related to student anxiety is mostly carried out in study programs or courses that contain practicum, practice, presentation, and or complex calculations, such as in the field of medicine, nursing, language, statistics, mathematics, microteaching, and pre-service teachers [6–18]. However, there is a limited study examining the anxiety of students attending distance learning who also have a job. Therefore, this study focuses on students' anxiety while studying through webinar tutorials at the UT learning unit of Denpasar. In addition, we analyzed the correlation between anxiety and the learning difficulties of students attending the webinar tutorial.

The correlation of anxiety with learning difficulties was measured based on the six dimensions we obtained in our previous study [19]. Qualitatively, this article also discussed other factors related to anxiety based on the experiences and perceptions of students studying through webinar tutorials at the UT learning unit of Denpasar while having a job.

Based on this background, our research purposes are to identify (1) the level of learning difficulties and student anxiety when participating in a webinar tutorial (*tuweb*); (2) the relationship between physical, behavioral, and cognitive dimensions of anxiety; (3) the relationship between the dimensions of learning difficulties and anxiety; (4) the relationship between the dimensions of learning difficulties and the dimensions of cognitive, behavioral anxiety and partially cognitive; and (5) other factors that influence anxiety when learning webinar tutorial (*Tuweb*) besides learning difficulties.

2 Method

This primary quantitative research used concurrent embedded mixed method design [20]. The primary quantitative study was conducted to examine the relationship between learning difficulties and anxiety. Meanwhile, the secondary research examined various factors affecting anxiety, other than learning difficulties, through the interview process.

The primary data was collected through a questionnaire disseminated using *Google Forms* to 97 respondents from Open University students who attended webinar tutorials (college while working at least twice following webinar tutorials). Quantitative data in the form of learning difficulties and anxiety levels were analyzed using *Spearman's Rho Correlation* computed with *IBM SPSS 26*, while qualitative data was analyzed using descriptive qualitative method.

3 Results and Discussion

3.1 Results

The level of learning difficulty during the webinar tutorial (*tuweb*).

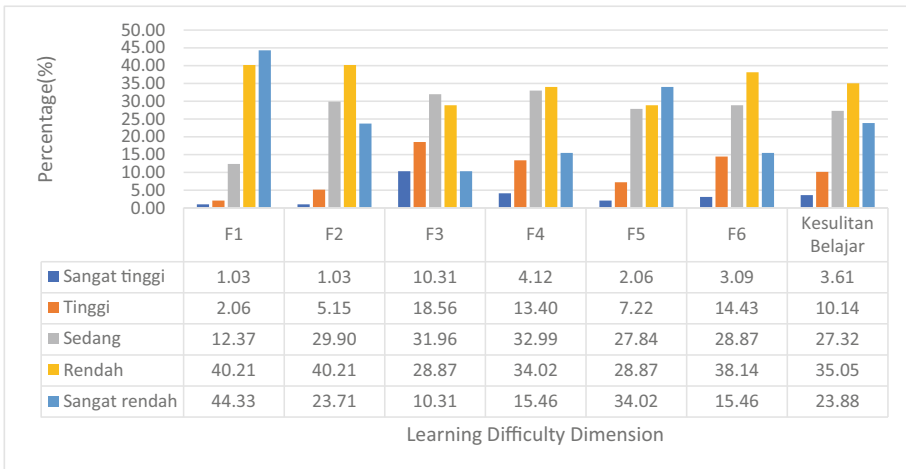


Fig. 1. The Relative Frequency of Learning Difficulties

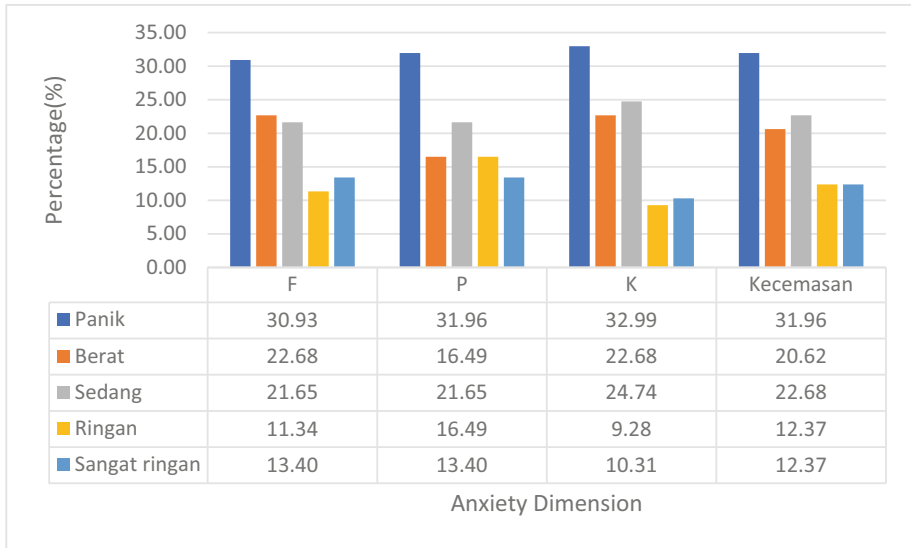


Fig. 2. The Distribution of the Relative Anxiety Levels Frequency

Figure 1 shows that most of the students (35.05%) experience relatively low difficulty, and 27.32% of them encounter moderate difficulty. This finding indicates that students' difficulty level lowers as they have attended at least two webinar tutorials. The frequency distribution of each dimension was also dominated by very low to moderate level. The average value of learning difficulties in webinar tutorials was 2.35, categorized as low learning difficulties. Moderate learning difficulty was commonly observed in F3 (31.96%) and F4 (32.99%).

The level of student anxiety during the webinar tutorial (*tuweb*).

Based on Fig. 2, most students (31.96%) experience very severe anxiety (panic), and 22.68% experience a moderate level of anxiety, with an average anxiety value of 3.47 in the medium category.

Figure 3 shows that most male participants experience moderate anxiety levels (46.15%), and 17.95% of them encounter very severe anxiety. Meanwhile, most of the female respondents experienced very severe anxiety (34.52%), and 21.03% of them faced severe anxiety. This finding indicates students' relatively high anxiety in attending the webinar tutorials. The average anxiety in male respondents was 3.23, classified as moderate, while the average female respondents' anxiety was 3.51 in the category of severe.

Table 1 shows that all relationships of the anxiety variables are in an extreme correlation category. Therefore, the physical, cognitive, and behavioral dimensions are interrelated.

As presented in Table 2, all dimensions of learning difficulties are correlated with anxiety, with the largest correlation observed on the sources and learning materials dimension ($r = 0.843$), classified in the very strong correlation category, followed by human resources ($r = 0.739$) classified in the strong category.

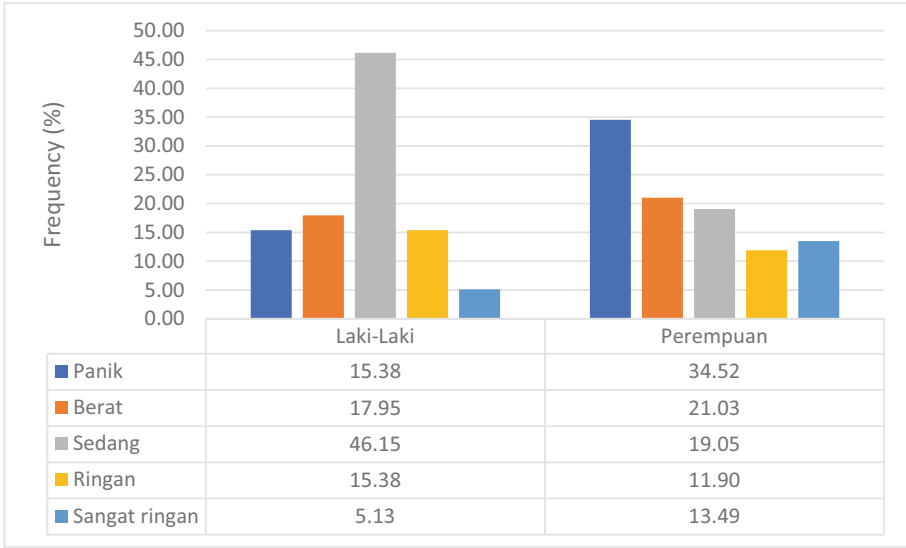


Fig. 3. The Distribution of the Anxiety Levels Relative Frequency by Gender

Table 1. The Relationship between Dimensions of Anxiety

Code	Relationship between Dimension	Sig.	r	Relationship Category
F-P	Physical with behavioral	0.000	0.976	Very strong correlation
F-K	Physical with cognitive	0.000	0.976	Very strong correlation
P-K	behavioral with cognitive	0.000	0.967	Very strong correlation

Table 2. The Relationship between Dimensions of Online Learning Difficulties and Anxiety

Code	Learning Difficulties Dimension	Sig.	r	Relationship Category
F1	<i>Tuweb</i> socialization and health problems	0.000	0.725	Strong correlation
F2	Sources and Learning Materials	0.000	0.843	Very strong correlation
F3	Geographic	0.000	0.619	Strong correlation
F4	Financial	0.000	0.720	Strong correlation
F5	Human Resources	0.000	0.739	Strong correlation
F6	Hardware/software supporting <i>Tuweb</i>	0.000	0.706	Strong correlation

All dimensions of learning difficulties are correlated with the dimensions of physical anxiety, as listed in Table 3. The largest correlation was found in the sources and learning materials dimension ($r = 0.838$) in the very strong category, followed by human resources ($r = 0.756$) in the strong category.

Table 3. The Relationship between Online Learning Difficulties and Physical Dimension

Code	Learning Difficulties Dimension	Sig.	r	Relationship Category
F1	<i>Tuweb</i> socialization and health problems	0.000	0.740	Strong correlation
F2	Sources and Learning Materials	0.000	0.838	Very strong correlation
F3	Geographic	0.000	0.613	Strong correlation
F4	Financial	0.000	0.711	Strong correlation
F5	Human Resources	0.000	0.756	Very strong correlation
F6	Hardware/software supporting <i>Tuweb</i>	0.000	0.698	Strong correlation

Table 4. The Relationship between Online Learning Difficulties and Behavioral Dimension

Code	Learning Difficulties Dimension	Sig.	r	Relationship Category
F1	<i>Tuweb</i> socialization and health problems	0.000	0.713	Strong correlation
F2	Sources and Learning Materials	0.000	0.835	Very strong correlation
F3	Geographic	0.000	0.618	Strong correlation
F4	Financial	0.000	0.719	Strong correlation
F5	Human Resources	0.000	0.760	Very strong correlation
F6	Hardware/software supporting <i>Tuweb</i>	0.000	0.691	Strong correlation

Table 5. The Relationship between Online Learning Difficulties and Cognitive Dimension

Code	Learning Difficulties Dimension	Sig.	r	Relationship Category
F1	<i>Tuweb</i> socialization and health problems	0.000	0.724	Strong correlation
F2	Sources and Learning Materials	0.000	0.821	Very strong correlation
F3	Geographic	0.000	0.638	Strong correlation
F4	Financial	0.000	0.682	Strong correlation
F5	Human Resources	0.000	0.749	Strong correlation
F6	Hardware/software supporting <i>Tuweb</i>	0.000	0.723	Strong correlation

As shown in Table 4, all dimensions of learning difficulties are also correlated with the dimensions of physical anxiety. The largest correlation was in the sources and learning materials dimension ($r = 0.835$), categorized as very strong, followed by human resources ($r = 0.760$) in the strong category.

According to Table 5, all dimensions of learning difficulties are correlated with the cognitive dimensions. The most significant correlation was in the sources and learning materials dimension ($r = 0.821$), categorized as very strong, while the second most

significant category is human resources ($r = 0.749$), in the strong category. The qualitative data were obtained from interviews with five male and five female respondents. The male respondents perceived that in the tutorial webinar activity, they were not so anxious. However, they added that anxiety appeared when they were going to present their assignments, especially when they did not have good preparation. Additionally, anxiety increased when they were preoccupied with an office job that coincided with finishing up the obligatory tasks (Tasks I, II, and or III). The female respondents stated that they often experienced anxiety because of their excessive obligations, which sometimes coincide with tasks at their job, traditional activities (such as *piodalan* and *yadnya* activities), along with their daily household chores. Panic also usually arose when they were doing mandatory assignments simultaneously for all courses since they feared that assignments could not be completed on time.

3.2 Discussion

Learning Difficulties and Anxiety Levels During the Webinar Tutorial (Tuweb)

The dominant relative frequency of learning difficulties is 35.05%, categorized as low, while 27.32% of students encountered moderate difficulty. This signifies that the difficulty level of students participating in webinar tutorials is low. This low difficulty is induced by the fact they are already accustomed to following webinar tutorials during the post-pandemic era. The frequency distribution of each dimension is mostly at very low to moderate levels. The average value of learning difficulties in webinar tutorials was 2.35, classified as low difficulty. Accordingly, we observed only a few obstacles experienced by students during webinar tutorials in the (1) *Tuweb* socialization and health problems; (2) sources and learning materials; (3) geographic; (4) finance; (5) human resources; and (6) hardware or software supporting *Tuweb*. Further, in the dimensions of learning difficulties, we found a moderate level in the dimension of geographic (31.96%) and financial (32.99%). The geographic dimension is related to the topography of the location where students live. The students' difficulty in geographic dimensions is frequently caused by the unstable internet connection, disturbing the webinar tutorial activities [19, 21]. Meanwhile, the financial dimension represents students' ability to finance the lectures they attended [19, 21]. A previous study describes that students' difficulty in geographic dimensions includes (1) poor internet connection for student devices, (2) poor internet connection in students' area, (3) bad internet signals during learning in the area where students live, and (4) bad internet connection in the students living areas [19]. Meanwhile, the financial dimensions consist of (1) students' inadequate income to buy internet packages for attending the e-learning; (2) students' inability to buy tools for online learning; (3) their families are constrained in providing facilities for online learning or webinar tutorials due to their low income; and (4) students issues in downloading study materials because their limited internet quota [19].

Anxiety is a subjective feeling of restlessness, discomfort, fear, or worry accompanied by a number of autonomic and somatic manifestations [4]. Anxiety is a natural emotional and expected response to actual or potential danger. Most of the respondents' anxiety is severe (31.96%), followed by moderate anxiety. The average anxiety value is 3.47, categorized in the medium category. Anxiety in this study is viewed from the

dimensions of physical, behavioral, and cognitive. Many previous studies reported that students experienced anxiety during their college years [11, 12, 14, 22, 23]. Our data suggested that most students experienced very severe anxiety (*panic*) during the webinar tutorial. This finding requires further examination. Anxiety about online learning is related to online learning experiences, such as student demographics, previous online learning experiences, satisfaction, and a sense of readiness for college [13].

In addition, the anxiety among the male respondents is dominated by moderate level (*panic*), with 46.15%, followed by 17.95% of respondents at the severe level. In comparison, for the female respondents, the higher level of anxiety (34.52%) is very severe (*panic*), while 21.03% of them are at a severe level. These findings signify students' high anxiety levels during the webinar tutorials. Besides, male and female respondents also experience different anxiety levels. The average value of anxiety in male respondents is 3.23, categorized as moderate, while the average female respondents are 3.51, in the category of severe anxiety. Anxiety is influenced by gender [24–26]. The varied anxiety in male and female students is caused by the way they respond to their obligations in webinar tutorials and other obligations.

Each aspect of the anxiety variable exhibits a very high level of association with the others. This correlation indicates that the physical, cognitive, and behavioral dimensions are interrelated with each other. Biologically, anxiety arises due to neurotransmitter imbalance and the influence of genetic factors [4]. The physical, cognitive, and behavioral dimensions are observable symptoms of anxiety, allowing the dimensions of anxiety to be interrelated because they appear after the imbalance of neurotransmitters due to various pressures.

All dimensions of learning difficulties are correlated with anxiety, with the most significant correlation on the sources and learning materials dimension ($r = 0.843$) in the very strong category, followed by human resources ($r = 0.739$) in the strong category. *Sources and learning materials* are related to (1) students' difficulty understanding the material during online learning, preferring face-to-face offline learning; (2) students' difficulty studying independently during online learning; (3) complicated learning materials or content delivered by online tutors; (4) learning materials or content that cannot be downloaded so students cannot use it in their independent study; (5) a lot of complex material or content increasing the issue in online learning; (6) monotonous and boring learning resources and display of material; dan (7) theoretical online learning materials which do not support practical learning [19]. Meanwhile, the human resources dimension is related to (1) students' inability to understand online learning, (2) students' minimum knowledge of operating online learning software used, (3) students' difficulty in mastering the use of information technology, especially for online learning, (4) tutors' minimum ability is using the software in online learning dan (5) tutors' confusion in using information technology to support the online learning process [19]. Partially, each dimension of anxiety has a similar Spearman's Rho Correlation result. All dimensions of learning difficulties are correlated with the dimensions of physical anxiety, where the most significant correlation is in the sources and learning materials dimension ($r = 0.838$), categorized as very strong, followed by the human resources dimension ($r = 0.756$) in the category of strong. This finding highlight the need to focus on the source and learning material, along with human resources dimensions, in reducing the students' anxiety

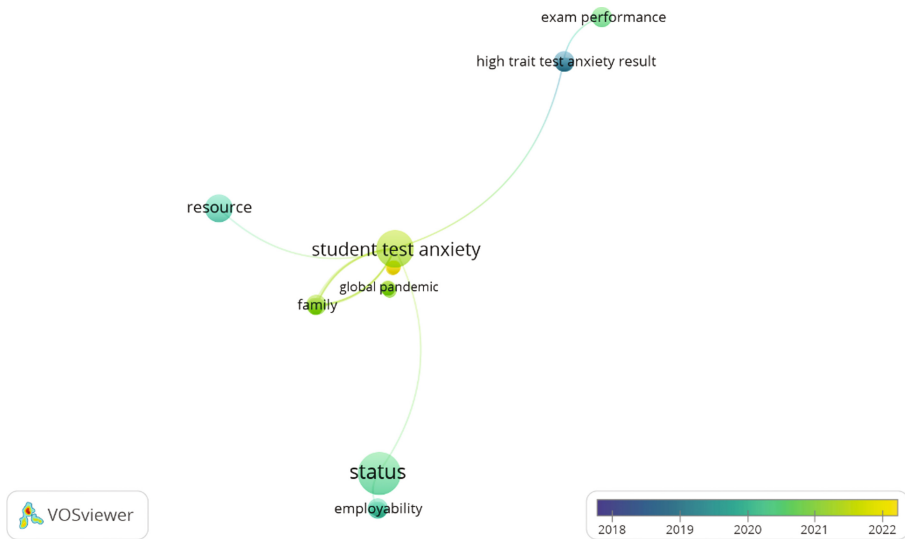


Fig. 4. Relationship between student anxiety test with other topics from previous studies

level. Further, our participants' exhibited low learning difficulty levels but very severe (panic) anxiety, signifying other factors that cause anxiety besides learning difficulties. We explored these other factors further through the interview method.

During the interview, we involved five male respondents and five female respondents. The male respondents claimed that while they were not overly anxious, worry did surface when they did not have enough time to prepare yet still had to turn in their assignments. In addition, anxiety also came when they had to complete their mandatory tasks (Tasks I, II, and or III), while they had a lot of work. In contrast, female respondents stated that they often experienced anxiety when they had many obligations, which sometimes coincided with tasks at work, traditional activities (such as *pidalan* and *yadnya* activities), and daily household chores. Also, the participants mentioned that they usually got panicked when they had to complete mandatory assignments from different courses at the same time since they feared being incapable of finishing the tasks on time. This finding is related to previous studies investigating student anxiety, as illustrated in Fig. 4.

In this study, we also reviewed 810 previous studies discussing student anxiety assessments conducted between 2018–2022. We gathered those studies from the Google Scholar database using Publish or Perish (PoP) with the keyword “student anxiety.” The obtained data were then analyzed using VOSviewer. The results showed that: (1) many anxiety studies were carried out in 2020–2021, (2) research on the correlation between students' anxiety and other topics were mostly carried out before 2021, and (3) the student anxiety assessment was correlated with their status, workability, family, global pandemic, and resources, with the correlation between high anxiety scores and exam performance. The results of these previous studies are quite linear, with the high anxiety faced by UT students during webinar tutorials.

Based on the results of this study, we formulate a number of recommendations. Students who study while working should train their self-regulation, especially time

management, for studying and working. Thus, they face no issues in completing the tasks from their job and mandatory webinar tutorial assignment. Open University institutions should focus on two dimensions of learning difficulties, namely sources and learning materials and human resources, in reducing students' anxiety during webinar tutorials. The results of this study can be the basis for policies and the development of further tutorial learning models.

Severe anxiety (panic) is observed among college students who also work, signifying the high pressure experienced by students from the obligations they have to fulfill. Student anxiety impacts their learning processes and outcomes [10, 11, 27]. Thus, it is necessary to find a solution to overcome this issue. Some previous studies suggested special counseling services [28], metacognition support strategies [29], strengthening students' awareness through meditation or yoga [30, 31], and other efforts to lower students' anxiety. Students' confidence, motivation, and preparedness to succeed in online courses are the goals of anxiety-reduction initiatives [32].

However, this study also has some limitations, such as (1) did not test the difference between anxiety based on gender because of the minimum number of male respondents and (2) did not classify the study program, region, age, economic level, and other variables that may affect anxiety. Based on these limitations, further researchers are suggested to examine the relationship of anxiety with other variables, increase the number of respondents, or use more detailed analysis, such as by using SEM.

4 Conclusion

Our analysis results showed that (1) 35.05% of students' learning difficulties were in a low category, and 31.96% of students' anxiety was in the very severe category (panic); (2) there was a significant relationship between the dimensions of physical, behavioral, and cognitive anxiety; (3) there was a significant relationship between learning difficulties and anxiety; (4) there was a significant relationship between the dimensions of learning difficulties and the dimensions of cognitive, behavioral anxiety and partially cognitive, with the highest correlation was observed in learning materials and resource dimension in the webinar tutorial (Tuweb); and (5) other factors that influence anxiety besides learning difficulties were difficulties in managing time to do office assignments, household activities, Balinese-social activities, alongside the college assignments.

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