# Academic Burden and Life Satisfaction in Blended-learning Contexts: Assessing Individual and Structural Challenges through the Study Demands-resources Framework

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Manuscript received January 8, 2026; revised February 11, 2026; accepted April 21, 2026; published September 10, 2026

***Abstract*—The growing diversity of student populations introduces complex individual, social, and structural challenges that can impede academic success. This research follows a complementary two-stage approach grounded in the Study Demand-Resources (SD-R) framework. Study 1 ($N$ = 107) identified chronic study demands, revealing substantial workloads from employment ($n$ = 70) and caregiving ($n$ = 22), frequent financial concerns ($n$ = 45), and elevated psychological strain. Analysis of Variance (ANOVA) results confirm that students with chronic psychological conditions and specific learning difficulties experience significantly higher perceived academic burden. Study 2 ($N$ = 134) evaluated global life satisfaction–viewed as a vital personal resource–with flexible blended-learning context. While first-generation students ($n$ = 67) reported levels of life satisfaction equal to their peers ($n$ = 68), satisfaction was positively associated with leisure time but negatively associated with age. Furthermore, gender-diverse students ($n$ = 8) reported significantly lower satisfaction. The results underline that inclusive, flexible blended-learning environments act as structural study resources that buffer demands and promote educational equity. However, persistent stressors, particularly financial and psychosocial constraints, necessitate further structural reforms and tailored institutional support.**

***Keywords*—student satisfaction, blended learning, academic workload, first-generation students, specific learning challenges, psychological stress, Study Demands-Resources (SD-R) framework**

## I. Introduction

The diversification of student populations has become a defining characteristic of contemporary higher education, particularly within the specific institutional context of the Alice Salomon University of Applied Sciences (ASH Berlin) investigated in this study. While higher education systems were historically designed for a homogenous student body, contemporary universities are marked by pronounced heterogeneity in socioeconomic backgrounds, health statuses, and external responsibilities. Previous research consistently shows that these factors are associated with significant disparities in academic progress and well-being. To address these challenges, flexible formats—specifically—blended learning–have emerged as a potential strategy to enhance accessibility and equity. This research aims to identify specific student-related burdens and evaluate institutional flexibility as a supportive resource within this structurally diverse environment.

Against this backdrop, the present research investigates two key questions:

(1) How do students perceive their academic burden in a structurally diverse university context—an environment where the traditional, full-time student model no longer represents the majority?
(2) How satisfied are students with flexible blended-learning courses, and how do individual and demographic factors relate to this satisfaction?

The article presents findings from two empirical studies conducted at a university with a notably high share of first-generation students, allowing for examination of student experiences within an environment marked by pronounced heterogeneity.

## II. Literature Review

Research on student heterogeneity highlights the multifaceted nature of academic challenges in modern higher education [1, 2]. Individual factors—such as psychological impairments, chronic health conditions, or learning difficulties—have been shown to significantly influence students' stress levels, study performance, and risk of dropout [3, 4]. Following recent classifications, health impairments are categorized as study relevant when they interact with institutional barriers to create concrete hindrances to academic participation [5]. Furthermore, post-secondary adjustments often depend on whether disabilities are visible or invisible, as students frequently choose not to disclose invisible conditions to mitigate stigmatization, which can limit their access to necessary institutional support [1, 6]. These challenges often intersect with social and structural conditions. To properly contextualize these barriers, it is necessary to define the "structurally diverse university context", an environment where the traditional, full-time student model no longer represents the majority; instead, a rising population of learners navigates non-traditional pathways involving multiple commitments, such as employment and family responsibilities [2, 3, 7].

### A. Financial Insecurity and Economic Dependency

Financial stress is one of the most prominent factors affecting academic success. Contrary to the assumption that economic hardship might foster academic resilience, empirical evidence identifies the necessity to finance one's livelihood as a primary stressor and a direct cause of

attrition [3, 8]. Recent data indicates that 63% of students engage in paid work, with 58% doing so out of sheer necessity to fund their subsistence, and 13% lacking sufficient financial resources to cover monthly expenses [3]. Students with limited financial resources face heightened dropout risks, reduced study time, and greater difficulty engaging in academic activities [5]. Paid work, while necessary, often introduces additional time pressure and mental fatigue.

### B. Caregiving Responsibilities

Another significant factor contributing to increased stress during studies is the disruption of traditional life stages such as education, career, and parenthood. An increasing number of students have additional commitments alongside their studies, such as employment and caring for parents or children [3, 9]. Systematic reviews show that student-parents face immense socio-ecological barriers, primarily stemming from institutional policies that fail to accommodate their multifaceted roles, leading to a pervasive sense of time poverty [10]. For single mothers in particular, these competing demands frequently result in severe role strain and extreme fatigue [11]. Similarly, students with caregiving duties, including childcare or informal care for relatives, experience increased exhaustion, sleep problems, concentration difficulties, and reduced life satisfaction [3, 8]. Research on young adult carers indicates a clear dose-response relationship, where increased caregiving hours correlate directly with higher rates of depression, insomnia, and somatic symptoms [12]. Care obligations further limit employment opportunities, intensifying financial stress [9, 13].

### C. Employment-related Strains

Employment during studies remains a critical structural barrier. Long working hours and irregular shifts limit time available for study and impede access to support services or extracurricular academic resources [3, 11]. Students handling multiple responsibilities show particularly high levels of psychological distress [6], as the double burden of aligning professional and academic demands heavily restricts recovery and diminishes overall well-being [14]. Employment-related stress functions as direct predictor of diminished psychological well-being, significantly increasing the susceptibility to burnout and anxiety [15, 16].

### D. Flexible and Inclusive Learning Formats

Blended-learning arrangements provide the overarching framework for interventions aimed at reducing structural and temporal barriers for a diverse student body. By purposefully integrating online and face-to-face instruction, they offer "flexible learning" through temporal and spatial autonomy to accommodate non-traditional students, working adults, and those juggling caregiving demands [2, 7]. Complementary to this flexibility, "inclusive course design" refers to the proactive implementation of structural adjustments and reasonable accommodations—such as modified exam durations, flexible deadlines, and accessible digital materials–to ensure equitable participation rather than relying solely on post-hoc individual requests [5]. Research shows that flexible formats enhance students' ability to manage external responsibilities, support self-regulated learning, and improve participation among first-generation and vulnerable student groups [2, 6, 17]. Inclusive practices within blended learning have also been shown to support learners with disabilities, psychological challenges, and lower academic self-efficacy [18]. Hamzaoui *et al*. [19] characterize blended learning as a major pedagogical innovation and demonstrate that undergraduate students view this approach favorably, resulting in increased learning satisfaction. Moreover, recent studies indicate that blended learning promotes effective learning processes, supports motivation, enhances academic performance, and contributes to the development of high-quality, collaborative learning environments. A robust cognitive and teaching presence within these environments is essential, as it actively cultivates shared metacognition–enabling students to co-regulate their learning through critical inquiry and dialogue [20]. However, they also highlight various obstacles, such as lack of motivation and reduced engagement among students in blended settings. Based on these findings, practical recommendations have been developed to improve curriculum design and overcome these barriers [20].

### E. Structural Barriers in Higher Education

Mandatory attendance, dense schedules, and limited social support networks present additional obstacles, particularly for nontraditional students [1, 21]. To theoretically conceptualize these institutional challenges, this study adopts the Study Demands-Resources (SD-R) framework [17]. According to this model, institutional requirements—such as high workload and time pressure—function as chronic "study demands" that require sustained effort and directly accelerate student burnout through a health impairment process. When these demands are not balanced by adequate "study resources" like temporal flexibility or social support, student's well-being and academic performance deteriorate [17]. Conversely, the model's motivational process posits that institutional resources—such as temporal flexibility or social support—can buffer the impact of these demands and foster students' well-being. This dual pathway logic provides the conceptual framework for analyzing how academic environments either exacerbate strain or support student success. Furthermore, systemic hurdles frequently prevent vulnerable students from seeking help; recent surveys and systematic reviews show that students often do not utilize support services due to a fear of stigmatization, a strong preference for self-reliance or a lack of transparent information [3, 6, 22]. Addressing these barriers requires a combination of institutional and pedagogical reforms.

## III. Materials and Methods

This research follows a complementary two-stage approach designed to examine students' perceived academic burden and satisfaction within these specifically structurally diverse contexts characterized by a high proportion of first-generation students. Both studies are theoretically grounded in the Study Demand-Resources (SD-R) framework [16]. This multi-stage design allows for a unified contribution: Study 1 identifies the pathogenic pathways by mapping chronic study demands (academic and psychological strain), while Study 2 evaluates the salutogenic potential of blended learning as a structural resource to

sustain global life satisfaction. By integrating these distinct measures, the study provides a holistic view of how institutional flexibility buffers the impact of complex life circumstances on student well-being.

### A. Study 1: Assessment of Perceived Student Strain

The first study aimed to quantify students' overall perceived strain and identify contributing factors. Participants were recruited using a convenience sampling approach, resulting in a final sample of 107 students, all of whom were formally enrolled in full-time programs. Given the non-probabilistic nature of this sample, the finding do not claim broader generalizability or national representativeness—unlike large-scale demographic monitors such as the 22nd Social Survey [3]—but rather provide valuable exploratory insights into the specific structural diversity and perceived academic burden present at the host institution. The following methods were applied:

#### 1) Data collection instruments

To measure the multidimensional construct of perceived student strain, two distinct scales were utilized. This approach allowed for the differentiation between external study-related demands (hereafter referred to as "academic burden") and internal emotional or physiological reactions (hereafter referred to as "psychological burden"). The items for both scales were developed through a multi-stage process. Following an initial theoretical derivation, from established occupational and student health frameworks, a pilot study was conducted at the same institution to evaluate item clarity and perform initial selection. Based on the internal consistency analysis from this pilot phase, the final item set was confirmed, ensuring that the instruments used in the main study were pre-validated for this specific student population.

The first dimension, the academic burden was examined using the Academic Workload Strain Scale (AWSS), which captures the perceived pressure resulting from the amount of coursework and the pressure of deadlines, which conceptually aligns with the "study demands" dimension of the SD-R model [16]. Example items on this scale are: "I find it difficult to complete the tasks expected of me on time", "The amount of coursework I have to manage seems overwhelming" and Deadlines in my studies cause me considerable pressure". The students gave their ratings on a five-point Likert scale ranging from "never" to "always".

The second dimension, psychological burden, was assessed using the Psychosomatic Stress Symptoms Scale (PSSS) to record emotional and physiological stress reactions. Unlike the AWSS, which assesses the workload itself, the PSSS focuses on the individual's health-related response. This scale measures symptoms such as tension, sleep difficulties, and physical discomfort associated with study-related strain. Example items include: "I often feel tense because of my academic workload," "I have trouble sleeping due to study-related stress," and "I notice physical discomfort (e.g., headaches, stomach aches) when I feel academically overwhelmed". Here, too, students rated their symptoms on a five-point Likert scale from "never" to "always".

#### 2) Survey administration

Participants at the ASH Berlin completed the survey online over a period of four weeks. Responses were anonymized to ensure confidentiality. In strict accordance with ethical procedures, all participants were informed about the purpose of the study, provided informed consent prior to data collection, and were given the option to withdraw at any moment without penalty. Furthermore, the demographic data collection utilized officially recognized categories to accurately capture gender identity (male, female, and gender-diverse), aligning with current methodical standards in national higher education research [3]. Specifically, the category "gender-diverse" refers to the official third gender option in the German civil status law, providing a gender-diverse identification for students who do not identify as exclusively male or female.

#### 3) Data analysis

Descriptive statistics and correlation analyses were performed to identify relationships between academic burden and variables such as employment hours, caregiving responsibilities, and health-related challenges. Additionally, using the variable Chronic Psychiatric Condition Status (CPCS), it is examined whether students with chronic mental health conditions differ from those without such conditions regarding perceived academic and psychological burden. Furthermore, the variable Specific Learning Disorder Status (SLDS) assesses whether there are differences in burden perception between students with and without specific learning disorders. Methodologically, health and learning conditions were assessed vis voluntary self-disclosure, where students could assign themselves to specific categories of chronic burden. The survey provided the following classifications with concrete examples: (1) chronic psychological burdens (e.g., depressive moods, Asperger's spectrum, fatigue), which operationalized the CPCS; (2) partial learning deficits (e.g. difficulties in math, reading, spelling, speaking, or motor skills), which operationalized the SLDS; and (3) chronic physical impairments (e.g. pain, back/spinal conditions), which served as an closely mirrors the methodological standards of large-scale higher education research, which acknowledges students as the primary experts of their own health statuses [5].

### B. Study 2: Evaluation of Global Life Satisfaction in Blended-learning Courses

The second study investigated students' life satisfaction in courses designed with flexible blended-learning components, allowing self-paced study and adjustable learning times. Key methodological elements included:

#### 1) Participants

Students enrolled in blended-learning courses at the same institution, with varied socio-demographic backgrounds including first-generation students. To clarify participant selection criteria, a convenience sampling approach was utilized across various blended modules. While the sample accurately reflects the specific structural diversity of the host institution, findings should be interpreted within this institution context rather than as a nationally representative sample.

#### 2) Measurement

To ensure robust measurement validity, the validated German version of the Satisfaction with Life Scale (SWLS)

by Schumacher [23] was used to assess students' global life satisfaction. Crucially, this instrument measures a general cognitive evaluation of one's quality of life rather than domain-specific "study satisfaction". We investigate this global measure as a vital personal resource within the SD-R framework, as overall well-being is often a prerequisite for academic success. Higher scores indicate greater life satisfaction. The scale is interpreted to provide information on students' well-being in the context of academic, social, and personal factors. Students were asked to rate the five statements on a seven-point scale ranging from "Disagree" to "Agree".

*3) Analyses*

Statistical comparisons were conducted between first-generation students and students from academic family backgrounds, along with correlational analyses examining associations between available leisure time, age, and self-reported satisfaction. Furthermore, demographic analyses explicitly incorporated gender identity based on official, non-binary categorizations (male, female, gender-diverse) to accurately reflect the cohort's composition and to follow current methodological standards in higher education research [3].

Both studies adhered to strict ethical research standards and data protection protocols, including informed consent, voluntary participation, guaranteed anonymity of all collected data, and the right to withdraw at any time.

## IV. Result and Discussion

### A. Study 1: Perceived Student Strain

Study 1 investigated perceived student strain among students at a Berlin University of Applied Sciences characterized by a high proportion of first-generation students and students without a general university entrance qualification ($N$ = 107). Overall, the findings indicate a substantially elevated burden, particularly exacerbated by external obligations, financial insecurity, and psychological vulnerabilities.

External and financial burdens: Despite 89.9% of respondents being formally enrolled in full-time programs, only 25% reported having no additional employment or caregiving obligations. The majority of students carried substantial additional responsibilities: 64.8% engaged in paid work and 20.4% performed regular caregiving tasks. On average, participants reported 21.48 additional weekly hours that had to be managed alongside full-time study. Within the SD-R framework, this massive time constraint functions as a severe and chronic study demand that directly competes with academic engagement, accelerating exhaustion and synchronization stress [8, 16]. Furthermore, 42.9% indicated frequent or constant financial concerns, highlighting structural vulnerabilities and limited resource availability. These primary findings strongly mirror national reference data, corroborating the argument that financial dependency acts as a primary stressor rather than a source of academic resilience [3].

Students affected by Chronic Psychiatric Condition Status (CPCS) or Specific Learning Disorder Status (SLDS) show significantly higher scores on the Academic Workload Strain Scale (AWSS) and, in some cases, on the Psychosomatic Stress Symptoms Scale (PSSS), indicating greater perceived academic strain and stress. This substantiates findings from the national best2 study [5], which demonstrated that psychological illnesses and specific learning difficulties frequently interact with institutional barriers—such as inflexible schedules and high exam density—to create severe; the lack of structural study resources significantly amplifies the perception of workload and elevates psychosomatic stress responses. See Table 1 for detailed means and standard deviations.

Table 1. Post-hoc comparisons for Academic Workload Strain (AWSS) and Psychosomatic Stress Symptoms (PSSS)

| Group | Scale | *t* | *df* | *p* | *MD* | *SE* |
|---|---|---|---|---|---|---|
| CPCS (Chronic Psychological Condition Status) | AWSS | 2.812 | 101 | 0.003 | 0.2548 | 0.09064 |
| | CPSS | 3.418 | 101 | <0.001 | 0.3525 | 0.10316 |
| SLDS (Specific Learning Disorder Status) | AWSS | 2.277 | 101 | 0.012 | 0.4047 | 0.17776 |
| | CPSS | 1.559 | 101 | 0.061 | 0.3250 | 0.20848 |

Note. Post-hoc comparisons for Academic Workload Strain (AWSS) and Psychosomatic Stress Symptoms (PSSS) across groups defined by Chronic Psychiatric Condition Status (CPCS) and Specific Learning Disorder Status (SLDS). The table reports t-values, significance levels, degrees of freedom, mean differences, and standard errors for pairwise comparisons between students with and without chronic psychological conditions and with and without specific learning challenges. Students with CPCS and/or SLDS generally exhibit higher academic workload strain and, in some cases, elevated psychosomatic stress compared to students without these conditions.

Academic burden: The Academic Workload Strain Scale (AWSS) demonstrated satisfactory internal consistency ($\alpha$ = 0.752) and effectively captured chronic study demands related to coursework, examinations, time pressure, and parallel obligations from employment or caregiving, directly operationalizing the pathogenetic pathways proposed by the SD-R framework [16].

A one-way Analysis of Variance (ANOVA) was conducted to compare the effect of health and learning status on academic workload strain. The analysis revealed significant differences across the four investigated groups (CPCS, SLDS, chronic physical impairment, and a control group), $F_{(3, 87)} = 6.334$, $p < 0.001$ (Fig. 1). The degrees of freedom (df = 87) indicate that 91 valid cases were analyzed for this specific model. Post-hoc analyses demonstrated that students with "study relevant" chronic psychological impairments reported significantly higher academic burden than those without such diagnoses, $t_{(101)} = 2.812$, $p = 0.003$. Students with specific learning difficulties (e.g. dyslexia) also exhibited elevated burden levels, $t_{(101)} = 2.227$, $p = 0.012$. Conversely, students with chronic physical impairments did not differ significantly from the control group, $t_{(101)} = -0.810$, $p = 0.217$. This divergence underscored that invisible disabilities, particularly psychological and specific learning conditions, are highly susceptible to institutional barriers, leading to more pronounced academic strain compared to visible physical impairments [1, 5].

Psychological burden: The Psychosomatic Stress Symptoms Scale (PSSS) ($\alpha$ = 0.821) evaluated emotional exhaustion, self-devaluation, and study-related sleep disturbances. Similarly, a one-way ANOVA showed significant group differences regarding psychosomatic stress symptoms across the same four categories of health and learning status, $F_{(3, 87)} = 6.473$, $p < 0.001$ (Fig. 2). Students with Chronic Psychological Condition Status (CPCS)

impairments experienced markedly higher psychological burden, $t_{(101)} = 3.418$, $p < 0.001$. Students with specific learning difficulties showed a tendency toward higher psychological burden, although this did not reach statistical significance, $t_{(101)} = 1.559$, $p = 0.061$. No significant differences were observed for students with physical impairments, $t_{(101)} = -1.033$, $p = 0.087$.

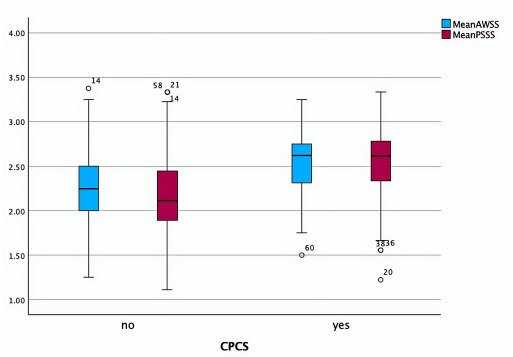


Fig. 1. The mean scores on the Academic Workload Strain Scale (AWSS) and the Psychosomatic Stress Symptoms Scale (PSSS) for individuals with and without a Chronic Psychiatric Condition Status (CPCS). Scale values range from 1 = never to 4 = always.

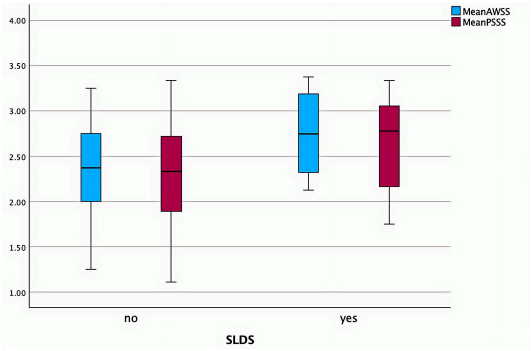


Fig. 2. The mean scores on the Academic Workload Strain Scale (AWSS) and the Psychosomatic Stress Symptoms Scale (PSSS) for individuals with and without a Specific Learning Disorder Status (SLDS). Scale values range from 1 = never to 4 = always.

In addition, there was a significant negative correlation between perceived stress caused by study conditions and exam performance, as well as a significant preference for online courses ($r_{(81)} = -0.267$, $p = 0.016$, $n = 81$). Students who feel more stressed tend to prefer an expanded range of flexible digital options, suggesting that blended learning formats function as crucial structural study resources that buffer high demands, potentially reducing stress and having positive, salutogenic effects for highly stressed and non-traditional students [16, 17].

These findings indicate that academic and psychological burdens are most pronounced among students with pre-existing psychological vulnerabilities. This directly confirms the health impairment process, highlighting the compounded effects of personal attributes and rigid structural demands on the study experience. Consequently, the results point to the need for targeted institutional support, such as flexible blended-learning formats and stigma-free mental health resources, to mitigate synchronization stress and foster academic success in a structurally diverse landscape.

### B. *Study 2: Global Life Satisfaction in Blended-learning Courses*

Study 2 examined Life satisfaction among students participating in blended-learning courses, which are a central feature of the institution under investigation. This format allows largely self-directed learning, flexible scheduling, and better compatibility with employment and caregiving responsibilities, thereby acting as a critical structural "study resources" within the SD-R framework [16]. The study specifically explored how first-generation status, demographic characteristics, and resource availability relate to satisfaction ($N = 134$).

First-generation students: Approximately 49.6% of participants identified as first-generation students. Independent t-tests revealed no significant difference in global life satisfaction between first-generation students ($n = 67$) and those with academically educated parents ($n = 68$), $t_{(133)} = 0.699$, $p = 0.243$. This suggests that the blended-learning format may mitigate structural entry barriers, creating more equitable learning conditions for both groups. This finding aligns with recent literature demonstrating that carefully designed blended and block delivery modes facilitate widening participation, enhance accessibility and support the academic accomplishment of students form non-traditional or lower socio-economic backgrounds [7].

Correlations with available time and age: A positive correlation was observed between available leisure time per week and Life satisfaction (Fig. 3), $r_{(120)} = 0.213$, $p = 0.020$, $n = 120$, supporting the notion that flexible formats are particularly beneficial when students can realistically allocate time for rest and self-directed learning. This underlines the crucial role of a health Study-Life-Balance; in accordance with the Effort-Recovery Theory, balancing academic demands with adequate leisure time in essential to facilitate psychological recovery and sustain long-term well-being [8].

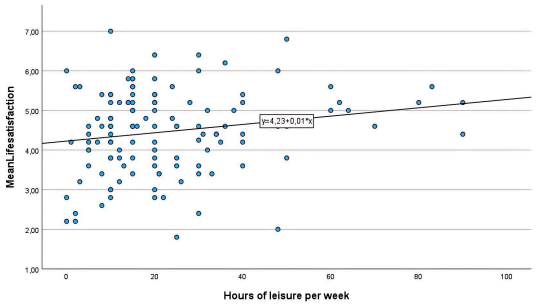


Fig. 3. The correlation between hours of leisure per week and scores on the life satisfaction scale, which ranges from 1 = disagree to 7 = agree.

Age was negatively associated with satisfaction, $r = -0.248$, $p = 0.004$, $n = 136$, indicating that older students may still experience barriers despite flexible learning arrangements, possibly due to higher external obligations or age-related study constraints (Fig. 4). National date confirms this trend, showing that older students are significantly more integrated into the labor market and more frequently manage childcare responsibilities, which systematically reduces their available time budget for full-time study [3]. This also underscores the ongoing dissolution of traditional life stages and highlights the need for individually adaptable learning formats to better accommodate diverse student needs.

Gender-Diverse students: Gender-diverse students reported significantly lower global life satisfaction. A Welch test confirmed this effect, $t(12.064) = -3.524$, $p = 0.002$

(Fig. 5), pointing toward structural disadvantages, minority stress within this specific institutional context.

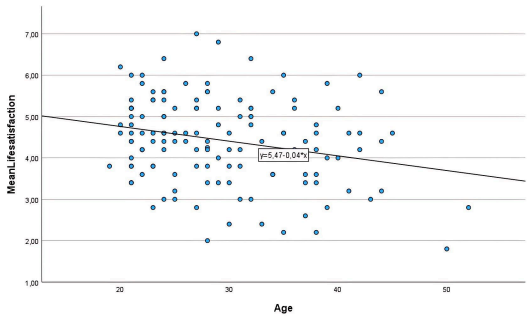


Fig. 4. The correlation between age and scores on the life satisfaction scale, which ranges from 1 = disagree to 7 = agree.

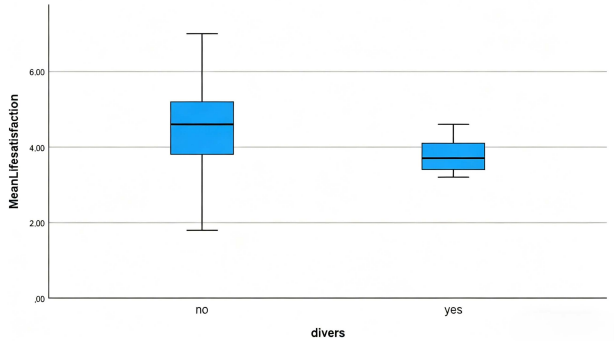


Fig. 5. The differences in life satisfaction scale scores between individuals who identify as gender-diverse and those who identify with a specific gender. Scale values range from 1 = disagree to 7 = agree.

While these results point toward significant disparities, it must be noted that the sample size for the gender-diverse subgroup ($n$ = 8) is small. Therefore, these findings should be interpreted as preliminary trends that require validation in larger, more representative cohorts. Nevertheless, the statistically significant finding ($p$ = 0.002) suggests that gender-diverse students experience specific structural barriers or a lack of institutional integration, which negatively impacts their global well-being even within flexible learning environments. This highlights the need for institutional support that goes beyond temporal flexibility to foster a truly inclusive academic culture.

### C. Integrative Interpretation

The integration of both studies within the SD-R framework provides a comprehensive synthesis of the student experience at ASH Berlin. While Study 1identifies the specific chronic demands—such as financial insecurities and health impairments—that drive the health impairment process, Study 2 demonstrates how structural resources like blended-learning formats correlate with global life satisfaction. This unified perspective reveals that for non-traditional students, global well-being is not isolated from academic structures; rather, institutional flexibility serves as a vital tool to mitigate the severe strains identified in the first stage of this research.

These findings strongly support a theoretical model—specifically the Study Demands-Resources (SD-R) framework—in which academic burden and global life satisfaction is influenced by the interaction of individual characteristics (psychological vulnerabilities, specific learning difficulties) and social obligations (employment, caregiving). Within this framework, these factors function as chronic "study demands" that drive a health impairment process. Conversely, structural features of the educational environment (flexibility, accessibility, inclusivity) act as crucial "study resources" that stimulate motivation and mitigate exhaustion [16]. Interventions aiming to improve student outcomes should therefore adopt a multi-layered approach that simultaneously minimizes rigid institutional demands while actively expanding personal resources and inclusive systemic support structures. The integration of both studies within the SD-R framework allows for a comprehensive view of the student experience. While Study 1 identifies chronic demands, Study 2 utilizes global life satisfaction as a proxy for the students at ASH Berlin, this global satisfaction is intrinsically linked to their ability to navigate academic and structural pressures.

## V. Conclusion

The current findings contribute to a growing body of research that investigates study conditions within increasingly heterogeneous and structurally diverse student populations of the investigated institution. They highlight the necessity of expanding empirical evidence on how diverse individual, social, and structural factors—particularly external obligations such as employment and caregiving—influence academic experiences by acting as chronic "study demands".

Moreover, the results reinforce the importance of further developing and implementing innovative and alternative teaching—learning formats, such as flexible blended courses. The observed associations suggest that such approaches may be a promising strategy to address some of the specific challenges faced by diverse student groups, functioning as vital structural "study resources" that buffer against high demands, mitigate psychological exhaustion, and foster shared metacognition.

Importantly, these preliminary insights support the argument that establishing and fostering alternative instructional formats could be essential in promoting student success and educational equity, especially for students navigating study-relevant health impairments or compounding financial vulnerabilities. Given that these students frequently underutilize traditional support systems due to a fear of stigmatization and a strong preference for self-reliance, embedding flexibility directly into the curriculum proactively dismantles these barriers without forcing students to actively seek individual accommodations. While further confirmation through larger and longitudinal studies is needed to fully capture the causal trajectories of these health impairments and motivational processes over time, the current evidence underscores the urgency of integrating flexible and inclusive learning arrangements into higher education practice and policy.

## Conflict of Interest

The authors declare no conflict of interest.

## Author Contributions

L.B. directed and supervised the research project. M. K. and A. B.-F. conducted the data collection and performed the

data analysis. C.S. validated the data analysis and methodology. M.K. took the lead in writing and preparing the original draft of the manuscript. all authors had approved the final version.

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